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Determinants of Living Arrangements of Older Persons in Rural Areas of Kasulu District in Tanzania

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Abstract

The study was conducted in Kasulu District Council to assess the determinants of the living arrangements of older persons in rural areas of Tanzania. A multistage sampling technique was applied to obtain 379 older persons to whom a questionnaire was administered for data collection. Data analysis was done using the likelihood chi-square ratio test and multinomial logistic regression using IBM SPSS statistics and STATA. It was found that 38% of older persons lived with a spouse and children while only 14% lived alone. Household size was a strong predictor of all types of living arrangements for older persons implying that the addition of one person to the household of an older person would increase the possibility of an older person living with a spouse and children relative to living alone. The marital status of the relative with whom the older person would prefer to live with was also a strong predictor. Also, it was found that older persons who had sources of income-generation were more likely to live with their relatives than those who had no sources of personal income. An older person with no education or low education was more likely to live with a relative compared to an educated one, and the effects were statistically significant for all categories of living arrangements. Furthermore, it was also found that a never-married older person had a reduced chance of living with a spouse. It is recommended that the current elderly and aging policy which puts more emphasis on family care for elderly members should be revised.

Keywords: Caregiving, Living arrangement, Older person

1. Introduction:

Old age has increasingly become one of the socially undesirable yet unavoidable natural phenomena for every society to cope with. Gerontological studies throughout the world suggest that population aging is becoming of great concern (United Nations, 2021) (Tanyi et al., 2018) and (Nishanthi and Kumar, 2017). Based on the World population aging highlights, the share of the population aged 65 years or over increased globally from 6 percent in 1990 to 9 percent in 2019. The proportion was projected to rise further to 16 percent by 2050, and this means that one in six people in the world will be aged 65 years or over. Given the increasing number of the elderly caused by an increase in life expectancy, declining death rates, and low birth rates coupled with advances in technology; there are looming worries that people over the age of 60 years will outnumber

children shortly (Settersten *et al.,* 2011; Rudnicka *et al.,* 2020).

Although developed countries have already acquired massive experience in dealing with the old age challenges and have developed different approaches to addressing the consequences of aging, the challenge remains and it emanates from its process which brings about cumulative consequences (Bongaarts and Zimmer, 2002; Rowland, 2012). Governments of developing countries have also made significant efforts to address this challenge. China for instance, has achieved a lot in developing elder social care, although there is still an imbalance between the supply and demand for elder care services, the difficulties in implementing top-level policies, the fragmentation of elder social care services, the shortage of care services in rural areas, and unclear distribution of responsibilities of all elder care providers such as families, governments and the society (Chen *et al.,* 2017).

Tanzania has a relatively young population with youth below the age of 15 years comprising 47% and those aged 65 years and above comprising 4%. However, life expectancy has been steadily increasing from 42 years in 1967 to 62 years in 2013 and is projected to be 74 years by 2035 as per the Tanzania Human Development Report 2017 (URT, 2018). In this study, the elderly is defined as per the National Elderly Policy which refers to all individuals in the population aged 60 years and above. The National Ageing Policy (URT, 2003) estimated that 10% of Tanzania's population will be older people by 2050. Realising the challenges facing the elderly such as lack of access to health services, low income,

loneliness, dwindling respect from youth, and molestation on account of belief in witchcraft (URT, 2006), the government of Tanzania, through the National Elderly Policy (2003) and the National Population Policy (2006) has stipulated that the government will not be directly involved in establishing older people's long term care institutions, but where necessary, it can do so through local government authorities. The policy position is that institutional care can be considered for older people and others who have no one to care for them and that the family will remain the basic institution of care and support for the elderly (URT, 2003). This position by the government poses a serious question on the type of living arrangement for older persons, particularly in rural areas, whose lives fall under uncertainties posed by their socioeconomic and demographic factors. Rural and remote areas have less access to services and activities and the situation of older persons may aggravate further when combined with poorer socioeconomic conditions. This puts rural populations at a disadvantage compared to urban ones and can be particularly problematic for older people who may face a greater risk of social isolation, reduced mobility, lack of support, and health care deficits as a result of the place in which they live.

Some empirical studies conducted in recent years on living arrangement patterns such as that conducted in western parts of India found that better economic possession is among the factors that determine the kind of living arrangement of older persons. The study also revealed that older persons who are economically well-off earn respect from children, relatives, and other community members because they can provide financial contributions (Nishanthi and

Kumar, 2017). According to the United Nations Living Arrangement Report a large proportion of older persons co-residing with their children is highest in lower-middle-income countries (Kamiya and Hertog, 2020).

A study conducted in Malawi found that women living with both offspring and grandchildren had better physical health compared to their counterparts living with grandchildren but no offspring; while men who lived in households with a higher household-female ratio had better physical health (Kendall and Anglewicz, 2018). Bongaarts and Zimmer (2002) also examined the living arrangements of older persons across 43 developing countries and they found that schooling differentials were minimal for household size the percentage living alone, and the percentage living with an adult child. But older persons with schooling were significantly more likely to head their household and to live with a spouse than were those with no schooling.

A qualitative study conducted in Zimbabwe shows that older persons are happy to live with family members than in care institutions. In light of the importance of living arrangements for older persons and how they relate to poverty, theoretical and empirical studies showed that older persons have different socioeconomic and demographic characteristics which affect their living arrangements. Environmental and personal factors determine their living arrangements and henceforth older persons face different challenges (Schatz et al., 2018).

In Tanzania, most of the studies conducted about older persons have focused on social protection (Kivelia and Kirway, 2011; Malima, 2020). Hence, there is limited information on the living arrangement of older persons in rural areas. In addition, understanding living arrangements helps to get insights into the social and cultural norms, values, and beliefs of different groups of people, understanding of family dynamics, and can be used as a base for further studies towards the health and well-being of older persons. Therefore, this paper sheds light on factors that affect the living arrangements of older people in rural areas in Tanzania and how they affect the assistance that older persons could get from family members.

2. Materials and Methods
2.1. Study area
In August 2021, a study was conducted in a predominantly rural population of Kasulu District Council in Kigoma Region in Tanzania, to assess the living arrangements among older persons aged 60 years and above. Kasulu District Council is located in northwestern Tanzania, near the international border with the Republic of Burundi and its coordinates are latitudes 4.37940S and longitudes 30.36420E. This District council is bordered by Burundi to the north, Kibondo District to the east, Uvinza District to the south, and Kigoma District to the west. The District consists of lowland forests and highland grassland. The 2012 National Population and Housing Census indicated that Kasulu District had a population of 425,794 of which the old persons were 19,443. This study was conducted in three divisions namely Heru Chini, Buhoro, and Buyonga from which one ward from each division, namely Rungwe Mpya, Buhoro, and Rusesa was selected. A total of six villages – two from each ward (Kaguruka, Rungwe Mpya,

Buhoro, Kibirizi, Makingi, and Kakirungu) were included in this study.

The reasons for selecting the study were based on the geographical and economic reasons. Economically the District is found in Kigoma region a region rated as poor compared to other regions in Tanzania. About 56% of its population is multidimensional poor and so, as pieces of the literature suggest, in poor populations older persons are the most vulnerable group (URT, 2018). Geographically, Kasulu District is at the periphery of the major economic city of Dar es Salaam and other economic and service centers, therefore from experience youth have been migrating to other urban areas a situation that might leave older persons living alone without assistance. Therefore, it is worth studying living arrangements and how they affect older persons.

2.2. Study Design and Sampling Procedures
A cross-sectional research design with mixed methods served for the collection of quantitative and qualitative data. A multi-stage sampling approach was adopted to select three divisions, three wards, six villages, and 379 older persons who were selected through a systematic random sampling technique. This number of respondents had a response rate of 97.7 of the proposed sample size. The population of older persons was assumed to be homogeneous in their socioeconomic and cultural characteristics.

Meanwhile, Saidia Wazee Tanzania (SAWATA), a Non-Governmental Organisation (NGO) working with the elderly in Kasulu District, had established lists of older persons aged 60 and above in each village. These lists served as a sampling frame in the selected study villages which had a total of 1,101 older persons.

2.3. Sample size
The sample size was obtained using the formula for known populations adopted by Cochran 1977. This sample size is deemed sufficient for this study because it is large enough to allow suggested analysis techniques and acquire an acceptable level of precision.

$$n = \frac{Z^2 . p.q.N}{e^2(N-1) + Z^2 pq}$$

$$n = \frac{(1.96)^2 (0.5)(0.5)(1101)}{(0.04)^2 (1101-1) + (1.96)^2 (0.5)(0.5)} = \frac{1057.4}{2.7204}$$

$$n = 388$$

The total sample was obtained based on proportional sampling from the six villages as shown in Table 1.

Table 1: Sample distribution of respondents by wards and villages

S/N	Ward	Number of villages	Selected villages	Number of Older Persons Feb, 2021	Planned Sample size (elders)
1	Rungwe Mpya	2	Kaguruka	118	42
			Rungwe Mpya	370	130
2	Buhoro	5	Buhoro	209	74
			Kibirizi	116	41
3	Rusesa	4	Making	177	62
			Kakirungu	111	39
Total				**1101**	**388**

2.4. Data types, sources, and collection methods

This study collected qualitative and quantitative data types; primary data were also collected from older persons at the household level through survey interviews. A questionnaire was used as a tool to collect data at the household level. Secondary data were collected by reviewing documents from Kasulu District Council and SAWATA.

2.5. Data Processing and Analysis

Collected data were entered, processed, and analysed by SPSS IBM statistics version 20 and Stata 11 where a likelihood Chi-square ratio test was used to test the association between dependent variables and independent variables. Multinomial Logistic Regression analysis was used to examine the influence of socioeconomic and demographic characteristics of older people on their living arrangements. The multinomial logistic regression was used because the dependent variable (living arrangement of an older person) is categorical in four ways namely grandchildren, spouse and children, married children, and unmarried children. The following models were used:

$$\ln(\frac{Y = Grand\ children/x_i}{Y = Alone/x_i}) = \beta_0 + \beta_i x_i \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(i)$$

$$\ln(\frac{Y = Spouse\ and\ children/x_i}{Y = Alone/x_i}) = \beta_0 + \beta_i x_i \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(ii)$$

$$\ln(\frac{Y = Married\ son\ or\ daughter/x_i}{Y = Alone/x_i}) = \beta_0 + \beta_i x_i \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(iii)$$

$$\ln(\frac{Y = Unmarried\ children/x_i}{Y = Alone/x_i}) = \beta_0 + \beta_i x_i \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(iv)$$

Where;
   Y = Dependent variable (living arrangement),

$$i = 1,2,3,...,n$$

$$\beta_i = Coefficients\ of\ explanatory\ variables$$

$$x_i = Explanatory\ variables$$

3. Results and Discussion

3.1. Results

3.1.1. Socioeconomic and Demographic Characteristics of Respondents

The findings in Table 2 revealed that 42.3 percent of respondents were 60 to 69 years old. This category can be termed as 'younger' old who are still energetic and some of them can engage in some social and income-generating activities (Hill, 2015). About 28 percent of respondents were 70 to 79 years old. This category can be termed as 'older' old and most of them start getting weak physically and they partly need care compared to the 'younger' old category. The other age category was that of older persons aged 80 years and above (29.8 percent) which can be termed the 'oldest' group. This last category comprises older persons who in most cases need assistance for activities for daily living and different kinds of assistance for older persons of 80 years.

Furthermore, the findings presented in Table 2 show that more than half (64.6%) of respondents were females and (35.4%) were males, and most (65.2%) of the respondents had attended a primary level of education. This indicates that a large proportion of older people had not attended any school. In addition, a large proportion of respondents were married (51.72%) and the lowest proportion were divorcees (1.58%). The results show that the majority of respondents (71.1%) of heads of households were farmers. Less than 2 percent reported involving themselves in activities other than agriculture such as small business, 14.5 percent reported being involved in casual work to earn a living while the rest were not working. In terms of house ownership, the results in Table 2 show that the majority (91.5%) of respondents owned a house. This implies that the majority of older people live in their own houses.

Table 2. Socio-demographic Characteristics of Respondents

Characteristics		Frequency	Percent
Age (years)	60 - 69	160	42.2
	70 - 79	106	28.0
	80+	113	29.8
Gender	Female	245	64.6
	Male	134	35.4
Education	No formal education	127	33.5
	Primary	247	65.2
	Post-primary training	5	1.3
Marital status	Not living with a partner (divorced/separated)	13	3.4
	Never married	40	10.6
	Widowed	130	34.3
	Married	196	51.7
Health insurance	No	361	95.3
	Yes	18	4.7
Occupation of the head of household	Farmer	131	71.2
	business (self-employed)	3	1.63
	Casual worker	26	14.13
	Unemployed	14	7.61
	Others	10	5.43
Having income-generating Activity	Yes	17	4.5
	No	362	95.5
House ownership	Yes	347	91.56
	No	32	8.44

3.1.2. Living Arrangements of Older Persons

A quick glance at patterns of preferences for living arrangements among older persons is presented in Figure 1. It shows that older persons who lived with a spouse and children were relatively more than other categories (38%), while only 14% lived alone. A significant number of older persons also lived with married children which may mean that they benefited from this type of living arrangement by getting care and the support they needed. These results show that children continue to play the role of caring for elderly relatives. This is still true in most African cultures where older persons rely on families to get care and support due to the inadequate or absence of formal social support systems (Schatz *et al.*, 2018).
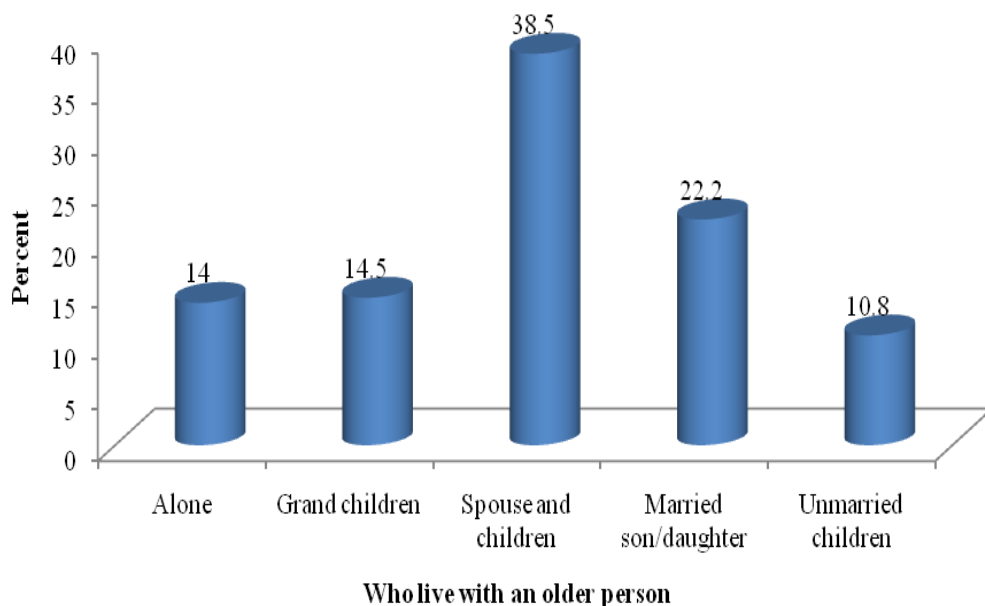
Figure 1: Living arrangements of older persons

3.1.3. Association between living arrangements and the Socioeconomic and demographic variables

To determine the key socioeconomic variables applicable for analysis of a given living arrangement, a likelihood Chi-square ratio test was performed to measure the degree of association between the dependent and independent variables (Table 3). The results in Table 3 suggest that the associated factors in living arrangements among older persons were age, gender, marital status, education level, income-generating activities, financial and non-financial assistance, and ownership of the house. The independent variables that were significantly associated with the dependent variable (living arrangements of older persons) were then used in Multinomial Logistic Regression as shown in Table 4.

Table 3. Likelihood Chi-square Ratio test for association between living arrangements of older persons and a set of independent variables

Variable	Likelihood Ratio Tests	
	Chi-Square	p – value
Age	36.955	0.000***
Gender	100.963	0.000***
Marital status	245.936	0.000***
Education level	44.058	0.000***
Health insurance	3.477	0.481
Formal employment	6.541	0.162
Income-generating activity	32.730	0.000***
Ownership of house	21.553	0.000***
Financial assistance	15.550	0.004**
Non-financial assistance	21.518	0.000***

Note: *** significant at 1%, ** significant at 5%

3.1.4. Predictors of living arrangement of older persons

Findings in Table 4 depict that, household size was a strong predictor of all types of living arrangements for older persons. The increase of one person in the household of an older person would increase the possibility of an older person living with a spouse and children relative to living alone by 81.7 percent (β=0.597, p=0.000). The marital status of the relative with whom the older person would prefer to live with was also a strong predictor. An older person would be 2.237 times more likely to live with a married son or daughter relative than to live alone. The possible explanation is that, at such an old age a person might have lost his/her partner through death or other reasons. Similarly, the children might have become increasingly reluctant to live with their parents who are physically weak, and who are entirely dependent on them for every need. At this age, family caregivers are likely to be tempted to refuse to live with the older persons altogether, if their involvement in such care demands them to part with important daily life productive activities.

In terms of income-earning capacity, it was found that older persons who had sources of income generation were more likely to live with their relatives than those who had no sources of personal income. For instance, they would be 3.647 times more likely to live with a married son or daughter relative to live alone (β=1.294, p=0.020). This implies that the possession of personal wealth by older persons guarantees them a good life during their advanced age.

Another striking result was related to the level of education of an older person which revealed that as the older person attained higher levels of education, his/her chances to live with relatives became narrower and narrower. But an older person with no education or low education was more likely to live with a relative compared to an educated one. The effects were also statistically significant for all categories of living arrangements and education levels. This would probably imply that older persons with formal education do not maintain ties with their children who could be working or living in urban areas where cultural norms to bind them to live with their parents do not exist. Consequently, there are no strong bonds among the relatives who are used to a life of isolation right from their childhood; with attendant negative consequences for the educated older persons when they become too old to support themselves.

It was also found that a never married older person had a reduced chance to live with spouse and children (β = -2.361, p = 0.004). This implies that successful living with other people is something that demands patience and learning over time. Those who delay marrying or living with others while still young are likely to face difficulties in living with others in old age.

Table 4. Multinomial Logistic Regression Model on living arrangements of older persons in Kasulu District

Variables	Living arrangements of older persons											
	Grand Children			Spouse and Children			Married son/daughter			Unmarried Children		
	Coefficient	p - Value	Odds Ratios	Coefficient	p - Value	Odds Ratios	Coefficient	p - Value	Odds Ratios	Coefficient	p - Value	Odds Ratios
Intercept	-5.003	0.022		-0.817	0.704		-21.973	0.000***		-3.559	0.118	
Number of children	0.063	0.526	1.065	0.134	0.137	1.143	0.058	0.548	1.059	0.178	0.056	1.195
Household size	0.552	0.000***	1.737	0.597	0.000***	1.817	0.805	0.000***	2.237	0.514	0.000***	1.671
Sources of income [1]	0.844	0.117	2.325	0.491	0.362	1.634	1.294	0.020**	3.647	0.362	0.524	1.436
Age												
70-79	-0.071	0.904	0.931	-0.645	0.285	0.525	-0.167	0.787	0.846	-0.642	0.305	0.526
80+	-0.189	0.767	0.828	-1.135	0.085*	0.321	-0.028	0.965	0.972	-0.781	0.261	0.458
60-69	0b	.	.	0b	.	.	0b	.	.	0b	.	.
Gender[1=Male]	1.337	0.065*	3.807	-0.255	0.671	0.775	0.508	0.427	1.663	1.971	0.019**	7.181
Marital status												
Not living with a partner	-0.077	0.947	0.926	-19.41	0.994	3.72E-09	0.167	0.881	1.182	-0.348	0.753	0.706
Never married	-0.099	0.903	0.906	-2.361	0.004***	0.094	-0.79	0.347	0.454	0.009	0.991	1.009
Widow	0.361	0.576	1.435	-4.977	0.000***	0.007	-0.147	0.82	0.864	-0.22	0.741	0.803
Married	0b	.	.	0b	.	.	0b	.	.	0b	.	.
Education level												
Never attended	0.325	0.819	1.384	0.581	0.71	1.788	17.958	0.000***	6.30E+07	0.325	0.832	1.384
Primary	0.449	0.769	1.566	1.023	0.519	2.781	18.602	0.000***	1.20E+08	0.878	0.588	2.405
Post-primary training	0b	.	.	0b	.	.	0b	.	.	0b	.	.
Ownership of house [1]	0.464	0.611	1.591	0.16	0.879	1.174	-0.741	0.369	0.477	-0.809	0.35	0.445
Financial assistance [1]	-0.37	0.563	0.691	-0.692	0.268	0.501	-1.037	0.097	0.354	-0.487	0.453	0.614
Non-financial assistance [1]	0.177	0.746	1.194	-0.293	0.59	0.746	0.277	0.623	1.32	-0.15	0.795	0.861

Note: Reference category = Alone, *** Significant at 1%, ** Significant at 5% and 0b= the reference category

3.2. Discussion

The findings have demonstrated that household size is significantly associated with the older person to co-reside rather than living alone regardless of the type of living arrangement. This implies that as the household size increases the probability of an older person to live with someone else increases. Rural areas are characterised by larger families that save social security in old age because of the weakness or unavailability of the formal social security system (Kamiya and Hertog, 2020).

The findings have further revealed that having income-generating activity increases the chance for the older person to co-reside. It has been revealed that this variable is statistically significant in explaining the association of older persons living with a married son or daughter relative to living alone. This may be explained by considering such an older person as active and able to do other activities such as taking care of grandchildren. The findings are supported by the study conducted in Uganda which confirms that older persons who are active and have control over economic resources have better living conditions and may attract co-residence (Maniragaba *et al.*, 2019). In all living arrangements, the ability to perform activities increases the chance to live with others relative to living alone.

Marital status revealed mixed results regarding living arrangements when a married older person is compared to other types of marital status relative to living alone. The older person who is currently single or not living with a partner has almost the same chance as a married person to live with a married son or daughter relative to living alone.

However, he or she is less likely compared to married older to live in other categories of living arrangements. Likewise, never married and widows or widowers are disadvantaged in comparison to currently married older persons because in most cases they are less likely to co-reside. This situation puts such older persons in vulnerable situations including isolation and extreme poverty especially older women who also like to live alone (Srivastava *et al.*, 2021). Findings have also indicated that a low level of education is significantly associated with the probability of an older person to co-reside relative to living alone compared to an older person with post-primary education. This may imply that a more educated older person is independent in many ways and may not need to live with, for example, married children.

Regarding financial and non-financial assistance, it has been noted that those who receive financial assistance are less likely to co-reside than those who live alone. On the other hand, those who received non-financial assistance such as clothes and food were more likely to live in co-residence relative to those who lived alone. The results may imply that those who receive non-financial assistance are more vulnerable and dependent and therefore need to live with people who can provide them with assistance. These findings are similar to what was found in similar studies such as that assessed the livelihood challenges facing older persons in urban and rural settings in Tanzania conducted in Morogoro Urban and Mvomero Districts (Kivelia and Kirway, 2011).

4.0. Conclusion and Recommendations

Three important conclusions can be drawn from this paper: first, older persons with income-generating activities have a higher chance to live with relatives than those who lack income-generating activities. Second, old age is associated with the loss of partners and limited acceptability by relatives making older persons lead miserable lives when they become physically weak and helpless. Thirdly, although education is widely acknowledged as an important indicator of successful living, this is not the case in old age. Education can equally disrupt family cohesion, causing the educated to lead lonely lives as they grow older. It is recommended that the construction of elderly homes by the government be an important development strategy. The current position of the government to encourage family members to take care of their elderly members seems to have been overtaken by events. This policy must be revisited since relatives are failing to fully take responsibility and older persons are inadequately supported.

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