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Socioeconomic Differentials Between HIV Caregivers and Noncaregivers: Is There a Selection Effect? A Case of Older People Living in Nairobi City Slums

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Abstract

This article seeks to investigate the association between caregiving to someone with an HIV-related illness and the socioeconomic status of the caregiver using a population-based survey of 1,587 older people living in Nairobi slums. Findings indicate significant differences in living arrangements, wealth, income, and expenditure between HIV caregivers and noncaregivers. HIV caregivers lived in larger households and were also more likely to live in households with a large number of children younger than the age of 15 years. Whereas a high proportion of HIV caregivers were ranked highly in terms of wealth status, differences in per capita income and expenditure were not significant when household size and other confounders were accounted for. The financial costs associated with caring for someone with a chronic illness and the reliance on family members with financial ability for material support, a common feature of African extended family systems, may account for the relative economic advantage of HIV caregivers.

Keywords

HIV/AIDS; caregiving; older people; sub-Saharan Africa; urbanization; economic well-being

The number of older people (60+ years) in sub-Saharan Africa, currently estimated at 43 million and with a projected annual growth rate of 3% (United Nations 2009), has attracted attention among scholars keen on investigating their living standards. One potentially important influence on older people's living standards is their role in the care and support of orphans and people ill due to HIV/AIDS. Comprehensive care for people with HIV/AIDS is still inaccessible to the majority of people who are infected. In addition, antiretroviral treatment (ART) coverage is still very low, for instance only 20% of those in need of treatment in Kenya are on ART. Consequently, the inadequate health care system and lack of formal care for people living with HIV/AIDS (PLWHA) means that PLWHA have had to rely on informal care and support mainly from family and friends. At the individual or household level, older people play a key role in caregiving for PLWHA, incurring both direct and indirect costs. The emergence of this new role of older people as HIV/AIDS caregivers is occurring amid a period of the life course often marked by decreased economic activity and declining physical capability and health and is likely to increase their vulnerability and impact their financial, health, and social well-being.

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Nonetheless, aging issues still receive a low priority in the development agenda of most African countries (Benoît 2001). The assumption has been that the family, particularly in the predominantly rural societies, is in a position to support the needs of older people and that the aged still fulfill an important traditional role, continue to command respect, and have a social influence as elders. This assumption has led to a lack of formal assistance given to older people (du Guerny 1997). Formal pensions cover a very small minority of the older population as most pension schemes are accessible only to workers in the public sector. Therefore, older people in the rural agricultural sectors and those in the urban areas working in the informal or private sector do not contribute to the pension scheme and hence have no access to pensions. Even for those older people who receive a pension, the value of the pension is often not sufficient to meet their basic living expenses (Kakwani and Subbarao 2005; Lloyd-Sherlock 2000).

Previous cross-sectional studies investigating the effect of HIV/AIDS on older people have rarely used comparison groups. This study using a population-based survey, therefore, allows for measurement of the effect of caregiving on economic well-being and in determining whether the associations being observed are typical of older people in that particular setting or are attributable to caregiving. HIV caregivers are compared with two groups: those who provided care to someone with a non-HIV-related illness (other caregivers) and those who have not provided care (noncaregivers) over a three-year reference period. The groups are compared across multiple dimensions of economic well-being, namely, income, expenditure, and participatory wealth ranking. Comparison is also made on sale of assets and sources of income. By identifying older people who are more likely to provide care, this study is valuable to policies and programs seeking to design appropriate interventions on the care and management of people ill with HIV/AIDS and those aimed at mitigating the impact of HIV/AIDS.

This study is based in the urban slums of Nairobi, Kenya. Many of the studies on older people and HIV/AIDS that have emerged have largely focused on those living in rural areas with limited empirical research on older urban dwellers. The growing number of older people in cities in sub-Saharan Africa, resulting mainly from the aging of early migrant population to the cities who comprised largely of adults in working age groups, imply that urban areas are increasingly becoming a permanent home for people in their old age (Gugler 2002). Very rapid urbanization rates in cities have resulted in inadequate housing, with a large proportion of city dwellers living in slums and informal settlements (Government of Kenya and UNCHS 2001; Matrix Development Consultants 1993; UNHABITAT 2005). Nonetheless, despite the poor living conditions that characterize slums (African Population and Health Research Centre [APHRC] 2002), urban areas in general still enjoy advantages relative to rural areas in terms of the economy, concentration of health facilities, and HIV/AIDS-related programs.

Conceptual Framework

HIV/AIDS is a long-wave infection whose impact on the society and those affected has both immediate and long-term effects. However, one of the critical challenges in the assessment of the impact of HIV/AIDS is the difficulty in disentangling causality given the multiplicity of intervening factors. Various scholars have postulated on the actual and potential pathways through which HIV/AIDS caregiving impacts on the caregivers' economic status, basically pointing to a negative association. One likely pathway is through reduced income arising from nonparticipation in income-generating activities by the caregiver (Bachmann and Booyesen 2003; Barnett and Whiteside 2002; Bechu 1998; Kongsin 2005; Naidu and Harris 2005). This arises because caregiving is time consuming and can result in some caregivers reducing the amount of time spent on other aspects of their lives, including income-

generating activities. Several studies have found that those who are more involved in caring for the sick are more likely to minimize or stop work completely (Chimwaza and Watkins 2004; Ntozi 1997; VanLandingham et al. 2000; Wyss, Hutton, and N'Diekhhor 2004). Loss of direct income or transfers from the care recipient may also occur, especially if the person is the main income earner, causing economic strain on the household (Appleton 2000; Booysen et al. 2002; Yamano and Jayne 2004). This sequentially impacts on household expenditure or consumption. One other pathway is direct costs resulting from expenditure relating to care, for instance living and medical expenses in addition to funeral costs in the event of death (Ainsworth and Dayton 2003; Bechu 1998; Knodel and Im-Em 2004; Wyss et al. 2004). Given the findings of most studies, therefore, it is hypothesised that HIV/AIDS caregivers will have poorer economic indicators compared to their comparison groups.

The reverse association has not been the subject of theoretical discussion in the HIV/AIDS impact literature. In the short term, to cope with the financial demands of caregiving, older people may engage in a range of strategies such as the selling of household or individual assets, borrowing, and soliciting for help from other people or organizations. Whereas selling assets and borrowing is likely to lead older people into debt, because the recovery process may be difficult and can lead to long-term effects on their financial status (Ainsworth and Dayton 2003; Ferreira, Keikelame, and Mosaval 2001; Knodel et al. 2001), the immediate effect is an increase in income. In addition, caregiving can increase expenditures that arise through extra costs on living expenses if the care recipient was not a regular member of the caregiver's household (VanLandingham et al. 2000). Furthermore, health care costs, which may include transportation to and from health facilities and payment for treatment, hospitalization, and medication, can be another source of additional substantial financial expenditure (Bechu 1998; Wyss et al. 2004).

Another hypothesis is that the financial demands of caregiving may lead to selection of individuals with access to financial and material resources as caregivers. The absence of formal care and support programs for PLWHA means that they have to rely on family members and other kin, probably those with financial ability to provide the needed care. For this reason, individuals or households with higher economic status likely bear the burden of care. Reliance on kin for material support is a common characteristic of low-income communities given the lack of alternative support systems. The immediate observation therefore may be higher economic status for caregivers compared with noncaregivers. In addition, results from recent Demographic and Health Surveys (DHS) indicate that wealthier individuals as measured by the wealth index are more likely to be infected with HIV/AIDS compared with poor individuals (Central Bureau of Statistics, Ministry of Health, and Macro 2004; Macro International 2008). Therefore, if caregivers move into care recipients' households, the caregivers will appear to be in better off households compared with noncaregivers. Nonetheless, the detrimental effects of providing care on economic well-being may begin to emerge beyond the duration of care.

Method

The Study Setting and Data

Data are drawn from cross-sectional surveys that were nested on a demographic surveillance system (DSS), which follows up the entire population who are usual residents of two slum communities in Nairobi. Round 12 of the DSS covering the period May to August 2006 provided a sampling frame for identifying older people for this study. Data from two surveys implemented concurrently between November 2006 and January 2007 are used. The survey conducted by the African Population and Health Research Centre in Korogocho and Viwandani slums of Nairobi are part of a larger five-year program titled Urbanization, Poverty and Health Dynamics in sub-Saharan Africa (UPHD) that seeks to investigate the

linkage between migration, poverty, and health consequences at each stage of the life course among people living in slum settlements (APHRC 2008).

All the men and women aged 50 years and older who were registered as resident members in the DSS during the round preceding the surveys were eligible for interview. The response rates for the Survey on Social, Health, and Overall Well-being of Older People and Household Amenities and Livelihood Survey was 76% and 75%, respectively. A total of 1,587 older people were interviewed in both surveys. Most of the nonresponse was either because the respondent could not be found at home after several repeated visits or the entire household or respondent could not be traced at their last known address, either having relocated to a different residential address or outmigrated to locations outside the surveillance area. About 5% refused to be interviewed, with most of the respondents citing lack of immediate or long-term benefits from research as reasons for their refusal. The demographic surveillance project has been ongoing for four years; therefore, the feeling of being overresearched and research fatigue cannot be underestimated, especially in a resource-poor setting where needs and expectations are quite high. All the interviews were conducted at the respondents' home after obtaining a verbal and/or written informed consent from the participants. The study protocol and ethics were approved by the Kenya Medical Research Institute's (KEMRI) Ethical Review Committee mandated by the Ministry of Health in Kenya to review all research proposals involving human participants.

Measures

The standard money-metric measures (income and expenditure) and nonmonetary measures (participatory wealth ranking) are used to compare the economic status of HIV caregivers with other caregivers and older people who have not provided care. The three indicators are all positively correlated pair-wise, hence consistent and reliable in measuring economic status in this population. Income and expenditure were very strongly correlated, although average incomes were higher than expenditure, depicting the tendency of households to smooth out expenditure as an insurance against fluctuation and seasonality of income (Deaton 1997).

Income and expenditure.—Information on income and expenditure was collected at household level and referred to the total earnings and expenses incurred in the 30 days preceding the interview. To collect comprehensive or better estimates for income and expenditure, during data collection the questions were disaggregated into different components as opposed to aggregate totals. Therefore, income included both primary and secondary sources, namely, income from savings, borrowing, agriculture, and monetary or nonmonetary transfers to the household. Income from each adult household member was also included. The various sources of income were summed up to compute the average monthly income for the household. All the expenses were totalled up to compute the average monthly expenditure for the household. At the analysis stage, per capita monthly income and expenditure were computed and each older person was assigned the household's value.

Participatory wealth ranking (PWR).—Participatory assessment of socioeconomic status is a method whereby respondents or community members themselves define the wealth status of households in their community using a local reference group to rate the relative status of their or other households in their community. PWR is therefore a subjective method where individuals evaluate economic status based on their own local perspectives or understanding of poverty and well-being taking into account multiple dimensions and participants' knowledge and familiarity with their welfare or quality of life relative to others in the local community (Adams et al. 1997; Feulefack and Zeller 2005). The study participants were asked to assess their own households' wealth status with reference to

others in their community. Respondents were shown a picture of a ladder with 10 steps and asked the following question:

Now, I would like you to tell me how your household compares with other households in this community with respect to the general wellbeing. If all households in the community were placed on a ladder from ONE to TEN where the richest is on number TEN and the poorest on number ONE, where would you place your household?

This provided a quick way of assessing participants' evaluation of their economic well-being. *Community* here refers to the slum areas where the DSS is conducted. Therefore the population in these areas is comparable with respect to health and socioeconomic indicators. The variable was treated as a continuous variable in the regression models.

Ownership and sale of durable assets.—Households and individuals often offset costs by selling valuable assets, especially in the absence of other sources of income or in the event of additional or unexpected expenses. The HIV caregivers and the comparison groups were also compared based on ownership and sale of assets. Respondents were asked if they had sold any asset from a list of 21 items, which comprised electronic goods, household furniture, and utility items, in the year preceding the survey. The question captured assets owned by the household not only in their current place of residence but includes assets in other locations such as rural homes. Assets owned in other locations were included because the majority of urban residents usually maintain close ties and investments with a rural home as an insurance in the event of shocks such as unemployment and also to maximize benefits associated with both settings (Agesa 2004).

Analytical Methods

Regression analyses were used to test for statistical differences between the three comparison groups across the various economic indicators. Separate regression models were run for each of the three key economic indicators, namely, participatory wealth ranking, income, and expenditure. The three dependent variables were treated as continuous variables. To account for the positively skewed distribution of income and expenditure, a logarithmic transformation was carried out to normalize the distribution. Potential confounders controlled for were gender, level of education, type of employment, household size, and number of adults in the household. Education and employment, which measure different and often related aspects of socioeconomic status, account for indirect access to material resources, whereas income directly influences access to commodities, services, and purchasing power. In addition, income and expenditure are temporal in nature and subject to fluctuations over a short time period. Other factors controlled for in the models are care-related attributes that can possibly have an immediate direct bearing, such as if the care recipient was living in the household and whether the caregiver was providing the care at the time of the interview or had multiple caregiving experiences during the reference period. Model selection followed a stepwise process where the caregiving status was first entered, followed by socioeconomic attributes, namely, level of education and employment status (Model 2), household composition (Model 3), and care-related attributes (Model 4). The chi-square test was used to compare proportions on sale of assets, sources of income, types of expenditure, and the individual characteristics of HIV caregivers, other caregivers, and noncaregivers.

HIV/AIDS Caregivers and Caregiving Context

A caregiver was defined as someone who had provided either financial, instrumental, psychosocial, or nursing care to a person with a chronic illness, that is, any illness that persisted for three months or longer over a three-year period preceding the survey. A broad

definition of caregiving was adopted for this study. Financial care includes catering for financial needs such as for daily subsistence or paying for medical expenses. Instrumental care consists of doing household work such as cooking or laundry that the caregiver would not usually be doing for the care recipient if the person were not ill. Assisting the ill person with bathing, feeding, dressing, or help with use of the toilet is classified as nursing care. This normally occurs when the care recipient is severely ill and sometimes confined to a bed. Health-related care included making decisions about where and when to seek treatment, accompanying the person receiving care to hospital, or consulting with health professionals on their behalf, whereas psychosocial support or care involves provision of counseling, encouragement, and spending time with the ill person. These forms of care are not mutually exclusive and are therefore provided simultaneously.

Care recipients who were reported to present with at least one of the major signs or symptoms identified by the World Health Organization to define an AIDS case were categorized as having an HIV/AIDS-related illness. The presentation of these major signs or conditions in an AIDS patient usually indicates advanced progression from asymptomatic HIV stage to full-blown AIDS (Grant and De Cock 2001). About 11% of older people reported to have provided care to someone with a chronic illness, out of whom 41% were classified as having cared for someone with an HIV-related illness (HIV caregivers), whereas 59% were those who were providing care to people with other illnesses (other caregivers). Noncaregivers are therefore older people who had not provided care to anyone with a chronic illness over the three-year period preceding the survey.

The average duration the HIV caregivers provided care was 30 months. Men generally provided care for longer durations compared with women (38 months vs. 29 months, respectively). The duration of care in a study conducted in Thailand was on average 3 months, with the care provided being more demanding at the terminal stage of the illness (Knodel and Im-em 2004). Studies in Malawi and Botswana found an average of 4 months and ranged from 3 to 8 months (Chimwaza and Watkins 2004; Ndaba-Mbata and Seloilwe 2000). The type of care PLWHA need and receive does vary depending on the stage of the illness, with the demand for personal or nursing care rising during the symptomatic or last stage of the infection. Therefore, defining caregiving as provision of nursing care may account for a shorter duration of care reported in other studies. The present study found the average duration of care slightly higher for women during periods when the care recipient is critically ill (27 months vs. 23 months, respectively). The observed variation in duration of care and timing between men and women may arise from gender differences in caregiving roles, with women mainly providing nursing care and assistance with instrumental care while men mainly provide financial care. The demand for financial care may begin at the onset of the illness, due, for instance, to medical expenses and the need for support toward living expenses during bouts of illness. As a result, women provide care mainly during critical illness. Although a majority of the women provided instrumental (75%) and nursing care (69%), some of the men also provided these forms of care (20% and 26%, respectively). The division of labor across gender was therefore not mutually exclusive.

The reference period for caregiving covered a three-year period preceding the interview. Of the HIV caregivers, two thirds (67%; $n = 49$) were providing care at the time of the survey while 24 cases terminated care with the death of the care recipient prior to the interview date. The duration of illness and care was significantly different for those receiving care at the time of the interview compared with those cared for previously ($\chi^2 = 25.98$, $p = .000$ and $\chi^2 = 17.14$, $p = .000$, respectively). Care recipients who died had been ill for an average of 19 months, unlike 42 months for those receiving care at the time of the interview. Consequently, the average duration of care for those receiving care at the time of the interview was almost 2.5 times longer than cases that resulted in death. The shorter duration

of care for cases that resulted in death may indicate cases where the caregiver starts providing care when the disease was at an advanced stage. This is supported by similar studies where persons ill with HIV/AIDS were found to seek external care, usually at the advanced stage of the illness when they were physically and financially unable to care for themselves. Those migrating from elsewhere were found to receive care for shorter durations compared with those living near or with their caregiver before the onset of the illness (Dayton and Ainsworth 2004). The capacity of the caregiver, including financial ability to provide adequate care and support, can contribute to quality of care, thus prolonging the life of the care recipient and resulting in longer duration of care. Access to comprehensive quality care and support for HIV/AIDS patients contributes to the delay in disease progression and reduction in morbidity incidence and opportunistic infections, with the overall effect of prolonging the life of the PLWHA. The shorter duration of care for cases that resulted in death may be a pointer to the quality of care received by the ill person (Kitahata et al. 2002).

Results

Background Characteristics of Study Participants

The population of older people in the study area is predominantly male with a very high sex ratio, which is characteristic of most cities in sub-Saharan Africa. Although the proportion of women migrants has been on the increase, forcing the sex ratio to gradually fall, men still outnumber women among migrants to urban areas. In addition, the majority of the current older people in Nairobi migrated to the city during the pre-independence period and immediately following independence when there was a strong bias toward single male labor migrants (Byerlee 1974; Gould and Oucho 1993). The demographic and other descriptive information comparing HIV caregivers, other caregivers, and noncaregivers is shown in Table 1.

Sociodemographic Characteristics

The caregivers differed significantly with the noncaregivers in age, gender, education, and with regards to their household composition. HIV caregivers and other caregivers have similar mean ages (57.4) and were significantly younger than noncaregivers (59.7). The manual day-to-day tasks relating to caregiving, such as assisting the care recipient with instrumental and activities of daily living, may require the carer to be physically able to perform these tasks, thereby self-selecting relatively younger people as carers. Similarly, women are disproportionately represented among the HIV caregivers probably due to the range of caregiving tasks associated with caring for a person with HIV/AIDS, particularly during the terminal stage of the disease, which usually requires nursing care. The three groups were also significantly different in terms of the highest education level attained. For instance, a higher proportion of the caregivers (17%) had secondary education or higher compared with only 13% of noncaregivers. Education is therefore positively associated with providing care in view of the fact that having a higher level of education facilitates employment and in turn having more financial resources. This may indicate selectivity of people with higher education and consequently access to material resources to provide care compared with those with none or lower education and hence have limited access to resources. There was no significant difference between the comparison groups with regard to marital status.

Size and Composition of Household

HIV caregivers lived in large households compared with other caregivers and noncaregivers. For instance, about 37% of HIV caregivers live in households with five people or more compared with only 26% of other caregivers and about 30% of noncaregivers. Large

household size imposes a strain on its resources, which have to be shared between the large number of people and especially if the majority of the members are economically inactive. Moreover, households providing care to someone ill with HIV/AIDS are highly likely to devote a substantial proportion of resources in favor of the ill person. Intrahousehold distribution can therefore be detrimental to other members of the household, including older people.

HIV caregivers were also significantly more likely to live in households with children younger than 15 years of age compared with the two comparison groups, where on average HIV caregivers lived with 1.36 children aged younger than 15 years, unlike 0.91 for other caregivers or 0.99 for noncaregivers. Whereas coresidence between young people or grandchildren with older people is a common feature in sub-Saharan Africa (Isiugo-Abanihe 1985), a large proportion of these children are orphans (Chepnego-Langat 2008), supporting the extensively documented evidence of a growing number of orphans in sub-Saharan Africa, especially due to HIV/AIDS, and the role older people play in caring for these children (Zimmer and Dayton 2005). The presence of young dependents in the household has both immediate and long-term implications on their welfare and also that of the older person, who in most instances is responsible for their well-being.

Differentiation Based on Economic Indicators

The results of the regression models showing the regression coefficients, standard errors, and significance levels for participatory wealth ranking, per capita income, and per capita expenditure are presented in Tables 2, 3, and 4, respectively. The explanatory variables included in the models are education level, type of employment, gender, number of adults living in the household, and the household size. These variables showed the expected association with the dependent variables. Caregiving was positively associated with participatory wealth ranking across all the models and with per capita income and per capita expenditure after controlling for level of education, type of employment, household composition, and care-related attributes (Models 3 and 4). HIV caregiving was significant in the models for participatory wealth ranking, albeit marginally and not in predicting per capita income or expenditure. Therefore, HIV caregivers are more likely to live in wealthier households compared to noncaregivers even after taking differences in education and employment into account. Given that PWR is a measure of the overall wealth status of a household, it may not be as sensitive to household shocks such as illness and caregiving in the immediate term relative to per capita income and expenditure.

The living arrangement of the care recipient and whether the caregivers have had multiple experiences in the three-year reference period are the care-related attributes included in the models. Caregivers who were residing with the care recipient in the same household reported lower per capita income and expenditure compared to older people in other households, although they were more likely to be living in households ranked to be better off according to the participatory wealth ranking. Having the care recipient in the household obviously decreases the amount of income and expenditure per capita. None of the care-related attributes were statistically significant, however, and their inclusion weakened the overall model as measured by the adjusted R^2 .

Allocation of Expenditure Account

The percentage of total household expenditure allocated to specific items is presented in Table 5, comparing HIV caregivers with the comparison groups. More than half of total expenditure is spent on food items and an additional one third is devoted to essential items such as rent, energy for cooking or lighting, and water, across all the three groups. This is typical of resource-poor settings where a large portion of expenditure is devoted to essential

items, especially food (Pinstrup-Andersen 1985). The differences, however, across these groups is that HIV caregivers and other caregivers live in households spending a higher proportion of expenditure budget on scholastic items, health, and other miscellaneous items compared with older people who were not providing care. The higher expenditure on scholastic items reflects the differences in household composition between the comparison groups and the increased likelihood of caregivers to live in households with children. Only the difference in the proportion of expenditure devoted to health care between HIV caregivers and noncaregivers was statistically significant.

The similarity in the proportion of expenditure spent on health care by households between HIV caregivers and other caregivers, where, on average, both spent 3% of the total budget, may reflect the considerably subsidized health care provided by government or nongovernmental organization hospitals and clinics for HIV/AIDS/TB care. The Kenyan government has gradually increased the amount of financial expenditure allocated to HIV/AIDS through financial support from the Global Fund, among other bilateral donors. For instance, the expenditure allocated to HIV/AIDS increased by 70% between 2000-01 and 2004-05 financial years, with treatment and care comprising more than half of the HIV/AIDS budget (Institute of Policy Analysis & Research 2004). The number of comprehensive care centers offering management of opportunistic infections and ARTs located in government facilities, including subdistrict hospitals, has also been scaled up (World Health Organization 2005). Despite the fact that treatment and care of HIV/AIDS patients has been scaled up in the recent past, the delay in diagnosis and treatment of HIV-positive people means that the majority do not benefit from existing medical care and therapies throughout the illness. Most patients seek testing and treatment only at advanced stages of immunosuppression and disease progression due to delays caused by a range of social, personal, and physical barriers to obtaining care (Grant and De Cock, 2001).

Sources of Income

When faced with economic hardships or shocks, households employ various strategies to minimize income losses, loss of labor, or to cover for unexpected financial costs (Bachmann and Booyesen 2003; Barnett and Whiteside 2002). The prolonged nature of HIV/AIDS illness implies that those who are affected adopt strategies to mitigate and absorb the financial impact. Such strategies include use of savings, borrowing, and selling of household assets. Nonetheless, these strategies are dependent on the prior wealth of the household (Barnett and Whiteside 2002; Nkurunziza and Rakodi 2005). These strategies might follow a sequence where savings and available cash are used up first before resorting to selling assets or alternatively multiple strategies are used simultaneously (Sauerborn, Adams, and Hien 1996). Table 6 compares the main sources of income for HIV caregivers and the comparison groups.

A large share of income for HIV caregivers comes from salaries and wages (45%) compared with other caregivers (33%) and noncaregivers (39%). This may be a reflection of the dominant type of employment among HIV caregivers where the majority are in formal employment (21%) compared with 17% of other caregivers and an even smaller proportion of those who had not been providing care (15%). Working in the formal sector implies regular wages and explicit job contracts that provide secure longer term employment and a source of income, unlike the informal sector, which is largely not protected or regulated by labor laws, often offering low and irregular income and lacking legal or social protection. This result provides support for the assertion that caregiving is selective of individuals with higher and more secure financial status to begin with.

The proportion of income from borrowing and savings was one percentage point higher among HIV caregivers compared with the comparison groups. Having access to credit or

loans either from formal or informal sources can be an indication of ability to pay and therefore reflect financial capacity. Conversely, indebtedness can have negative consequences if individuals are faced with difficulty in servicing the debts or being forced to cut back on spending on essentials items such as food or health care.

Sale of Durable Assets

HIV caregivers are also compared with the comparison groups on ownership and sale of assets (Table 7). The assets are divided into two groups: electronic equipment and various durable assets that include household furniture and other utility items. Information on the sale of assets referred to the year preceding the survey. The items reported sold were mainly mobile phones, bicycles, and radios. A similar proportion of HIV caregivers and other caregivers sold assets (4%) compared with only 2% of noncaregivers, although the difference was not statistically significant at the 5% level. Selling of assets as a strategy to cope with financial hardships may not be a viable option for this population because above all, ownership is low and proceeds from the sale of these assets may not be substantial due to low resale value (Naidu and Harris 2005). However, the level of asset ownership is relatively low across all the three groups. In addition, there was no significant difference between the three groups in terms of ownership or the type of assets owned.

Discussion and Conclusion

Older people play an important role in caring for people ill with HIV/AIDS. For instance, in Thailand, older people provided care to 70% of those people infected (Knodel et al. 2001) while Ntozi and Nakayiwa (1999) in a study conducted in six districts of Uganda found that close to two thirds of AIDS patients were cared for by their older parents. Apart from health and psychological effects, HIV caregivers are also affected economically as they incur costs relating to care. This study therefore compared the economic status of older people who had provided care to someone with an HIV-related illness (HIV caregivers) with other caregivers and noncaregivers. Various indicators to measure economic welfare are used.

HIV caregivers were rated to be in wealthier households as measured by the participatory wealth ranking, household per capita income, and expenditure. This finding runs counter to our initial hypothesis where we expected HIV caregivers to be living in households with significantly poor economic indicators compared to the comparison groups. Similar findings were reported in a recent longitudinal study that followed up older people in rural parts of Tanzania whose households had experienced an adult death (Adhvaryu and Beegle 2008), and no significant differences in changes in health and economic status were detected between the caregivers and other older people. The findings may be indicative of the fact that caregiving is selective of those with the ability to meet the financial demands of care, given that caring for someone with a chronic illness requires fairly significant financial resources to cope with the caring demands. Qualitative studies conducted in the slums where this study was conducted highlighted the fact that HIV caregivers are sought after by the care recipients due to their resources or financial ability (Chepngeno-Langat 2008). The results may also reflect selectivity of the risk of contracting HIV/AIDS where relatively wealthier individuals have higher risks compared with those who are poorer.

The caregiving role entrusts older people with financial responsibility, which may in the immediate or longer term disadvantage them economically. Older people provide care not only to their biological children but also to extended family members such as siblings, grandchildren, and sons- or daughters-in-law (Chepngeno-Langat 2008). The diverse nature of relationships between the caregiver and the care recipient therefore draws attention to the role of older people not only as heads of their immediate family but also the extended family network. This responsibility is not only limited to social roles but also includes financial

commitment. Despite being portrayed as needy or recipients of care and support within their households (Aboderin 2006), older people are heads of their households not only in terms of seniority or status, but in providing for the economic welfare as well (Bongaarts and Zimmer 2002; HelpAge International 2002). These strong social and financial ties with individuals or families across space result in migration of people in search of care. Although slum residents have poorer social and economic outcomes compared with nonslum residents, they still enjoy advantages such as access and proximity to health services, albeit marginally, compared with their rural counterparts. The urban advantage, therefore, acts as a pull factor for people in need of care and to those who wish to access health care and HIV/AIDS-related services available in the city.

The family and kinship relations that form the extended family network characteristic of African societies still provide valuable support where members share responsibility in absorbing shocks experienced by other members, especially in economically deprived communities. Relatively well-off family members usually share their resources with those undergoing stress by providing direct support to multiple extended family members. Those in need, therefore, rely on relatives who are capable of helping them. Whereas some scholars have expressed doubt on the ability of the extended family network to cope with HIV/AIDS (Ankrah 1993), the extended family continues to be pivotal in spite of changes in social and cultural contexts, for instance urbanization, on which it operates.

Caregivers usually employ various strategies to deal with the economic shock of caregiving to someone with prolonged illness. However, their ability to keep up with the challenge might be unsustainable in the long run as the strategies may provide only temporary relief. For instance, a higher proportion of households with HIV caregivers sold assets during the one year preceding the survey compared with noncaregivers. Inability to replenish resources and savings might compromise both the immediate and long-term welfare. This might, therefore, have permanent effects and increase the likelihood of pushing households that are relatively nonpoor into poverty and those already poor into destitution. The economic consequences of caregiving have a rippling effect. Indeed, all the consequences of caregiving may not be felt immediately as long-term effects begin to manifest at later stages. The fact that older people who are providing care to someone with an HIV-related illness on average live in larger households and more importantly with young children younger than the age of 15 years compared with noncaregivers implies longer term financial obligation beyond the duration of the care recipients' illness. In addition, intrahousehold resource allocations may not benefit all the members equally.

Whereas some studies have indicated that the financial situation of those who are providing care recovers in the long term, older people might not be able to recover from the economic shock given their declining ability to generate wealth and participate in the labor market. Returning to work or taking on extra work to be able to meet the costs of caregiving are some of the strategies taken by older people (Knodel and Im-Em 2004; VanLandingham et al. 2000). However, this will depend on the skills that the person has and availability of employment opportunities. In addition, older people are often disadvantaged in the job market because of their physical and health status associated with the aging process. A higher proportion of households with HIV caregivers compared with other caregivers or noncaregivers rely on salaries as their main source of income. This might not be sustainable in the longer term given the challenges older people face in their attempt to continue participating in the labor market due to age discrimination and competition with younger people for limited job opportunities, usually in the informal sector that often depend on physical strength or capability. This places them in a precarious position, especially in urban areas where labor force participation is crucial for survival and where a substantial share of income is spent on food. The majority of older people do not have access to pensions or

formal social security support, therefore the ability to earn an income is crucial in avoiding falling into extreme poverty or destitution. This study recommends the introduction of a basic pension for older people as this will assist in alleviating financial challenges. Such programs have been successful in countries such as South Africa, Botswana, Namibia, and Lesotho. There is also a need for community-based organizations that specifically target older people affected by HIV/AIDS.

This study sought to establish an association between providing care to someone with HIV/AIDS and socioeconomic outcomes. One limitation, however, is that the causal relationship cannot be determined due to the cross-sectional nature of the study. These can be addressed through a longitudinal study that would allow for measurement of the timing and sequencing of events, especially given that the impact of HIV/AIDS manifests itself over a longer period and the full extent of the effects can only be measured if individuals are observed over a longer period. A longitudinal study will also enable the isolation of intervening factors that may impact on the outcome being studied. The other limitation of the study is that it did not take into account heterogeneity among caregivers. The sample size of HIV caregivers did not however allow for stratification or differentiation based on these intervening factors.

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Table 1**Background Characteristics by Caregiving Experience of Study Participants**

Variable	HIV caregivers	Other caregivers	Noncaregivers	Total
Mean age **	57.4	57.4	59.7	59.4
Gender *				
Female	52.1	33.0	40.0	40.2
Male	47.9	67.0	60.0	59.8
Marital status				
Not married	38.4	25.0	34.8	34.4
Currently married	61.6	75.0	65.2	65.6
Household size (grouped)				
1 to 2	39.7	53.4	48.2	48.1
3 to 4	23.3	20.5	22.4	22.3
5+	37.0	26.1	29.4	29.6
Average household size	4.1	3.4	3.5	3.6
Children 0 to 14 years in household **				
No	42.5	63.6	57.4	57.0
Yes	57.5	36.4	42.6	43.0
Average number of children in household	1.4	0.9	1.0	1.0
Adults of working age (15-49) in household				
None	30.1	43.2	40.0	39.8
1	32.9	26.1	25.7	26.0
2+	37.0	30.7	34.3	34.2
Average number (15-49)	1.4	1.2	1.3	1.3
Level of education ***				
No education	28.2	9.1	33.3	31.7
Primary	54.9	73.9	54.0	55.2
Secondary+	16.9	17.0	12.7	13.1
Type of employment				
Not working	4.1	6.8	8.2	7.9
Runs own business	50.7	46.6	53.2	52.7
Informal employment	24.7	29.6	24.0	24.3
Formal employment	20.6	17.1	14.7	15.1
Total	100	100	100	100
Number of cases	73	88	1,426	1,587

Source: Authors' analysis of NUHDSS Membership Data File, 2006 and Survey of Older People's Data 2006/2007.

Note: χ^2 test for between caregiving differences and *F*-test significance levels

< .001

**
< .01

*
< .05.

Table 2

Multiple Regression Models of Participatory Wealth Ranking

Explanatory variables	Model 1	SE	Model 2	SE	Model 3	SE	Model 4	SE
Caregiving experience								
Noncaregivers (reference)								
Other caregivers	0.184	0.167	0.118	0.167	0.122	0.167	0.008	0.385
HIV caregivers	0.416	0.182*	0.396	0.184*	0.370	0.184*	0.411	0.467
Level of education								
No education (reference)								
Primary			0.205	0.089*	0.229	0.089**	0.217	0.091**
Secondary+			0.457	0.131***	0.469	0.131***	0.451	0.134***
Type of employment								
Not working (reference)								
Runs own business			0.269	0.158	0.273	0.157	0.255	0.159
Informal employment			0.099	0.169	0.110	0.169	0.079	0.177
Formal employment			0.384	0.183*	0.395	0.182*	0.360	0.190
Number of adults in working age group					0.092	0.070	0.092	0.071
Household size					0.022	0.022	0.022	0.022
Gender								
Female (reference)								
Male							0.040	0.091
Caregiving characteristics								
HIV care recipient lives in household							-0.049	0.470
Other care recipient lives in household							-0.076	0.329
HIV caregiver currently providing care							0.127	0.367

Explanatory variables	Model 1	SE	Model 2	SE	Model 3	SE	Model 4	SE
Other caregiver currently providing care							0.441	0.392
HIV caregiver multiple experiences							-0.162	0.385
Other caregiver multiple experiences							-0.724	0.390
Constant	3.611	0.040	3.228	0.149	3.042	0.160	3.050	0.160
Adjusted R^2 (%)	0.3		2		3		2	

Source: Authors' analysis of Household Amenities and Livelihood Data File, 2006.

Note: Number of cases = 1,587. Significance levels

*** < .001

** < .01

* < .05.

Table 3

Multiple Linear Regression Models of the Log of Per Capita Income

Explanatory variables	Model 1	SE	Model 2	SE	Model 3	SE	Model 4	SE
Caregiving experience								
Noncaregivers								
Other caregivers	0.118	0.099	0.049	0.098	0.041	0.076	-0.058	0.181
HIV caregivers	-0.067	0.104	-0.074	0.104	0.060	0.080	0.125	0.203
Level of education								
No education								
Primary		0.233		0.050 ***	0.129	0.039 ***	0.091	0.040 *
Secondary+		0.314		0.075 ***	0.282	0.058 ***	0.219	0.059 ***
Type of employment								
Not working								
Runs own business		0.072		0.090	0.057	0.070	0.005	0.070
Informal employment		0.154		0.097	0.099	0.075	-0.016	0.078
Formal employment		0.345		0.105 ***	0.276	0.081 ***	0.162	0.084 *
Number of adults in working age group					-0.226	0.031 ***	-0.231	0.031 ***
Household size					-0.135	0.010 ***	-0.136	0.010 ***
Gender								
Female							0.183	0.040 ***
Male								
Caregiving characteristics								
HIV care recipient lives in household							-0.061	0.206
Other care recipient lives in household							-0.024	0.148
HIV caregiver currently providing care							-0.147	0.159
Other caregiver currently providing care							0.214	0.182
HIV caregiver multiple experiences							0.246	0.166

Explanatory variables	Model 1	SE	Model 2	SE	Model 3	SE	Model 4	SE
Other caregiver multiple experiences							-0.201	0.179
Constant	7.636	0.023	7.354	0.086	8.128	0.071	8.125	0.070
Adjusted R^2 (%)	0.1		4		43		43	

Source: Authors' analysis of Household Amenities and Livelihood Data File, 2006.

Note: Number of cases = 1,587. Significance levels

*** < .001
** < .01
< .05.

Table 4

Multiple Regression Models of the Log of Per Capita Expenditure

Explanatory variables	Model 1	SE	Model 2	SE	Model 3	SE	Model 4	SE
Caregiving experience								
Noncaregivers								
Otherers caregivers	0.183	0.091 *	0.118	0.090	0.109	0.071	0.076	0.167
HIV caregivers	-0.017	0.098	-0.048	0.098	0.058	0.077	0.231	0.196
Level of education								
No education								
Primary			0.179	0.048 ***	0.088	0.038 **	0.065	0.038
Secondary+			0.231	0.070 ***	0.184	0.055 ***	0.147	0.057
Type of employment								
Not working								
Runs own business			0.224	0.084 ***	0.203	0.066 ***	0.174	0.067 **
Informal employment			0.327	0.090 ***	0.272	0.071 ***	0.207	0.075 ***
Formal employment			0.536	0.098 ***	0.471	0.077 ***	0.406	0.080 ***
Number of adults in working age group					-0.174	0.030 ***	-0.175	0.030 ***
Household size					-0.136	0.009 ***	-0.136	0.009 ***
Gender								
Female							0.107	0.038 ***
Male								
Caregiving characteristics								
HIV care recipient lives in household							-0.206	0.197
Other care recipient lives in household							-0.073	0.140
HIV caregiver currently providing care							-0.059	0.154
Other caregiver currently providing care							0.108	0.168
HIV caregiver multiple experiences							0.125	0.162

Explanatory variables	Model 1	SE	Model 2	SE	Model 3	SE	Model 4	SE
Other caregiver multiple experiences							-0.032	0.165
Constant	7.243	0.022	6.846	0.080	7.583	0.067	7.577	0.068
Adjusted R ² (%)	1		5		41		41	

Source: Authors' analysis of Household Amenities and Livelihood Data File, 2006.

Note: Number of cases = 1,587. Significance levels

*** < .001

** < .01

* < .05.

Table 5**Household Expenditure Composition by Caregiving Status**

Expenditure items	Caregiving status		
	HIV caregivers	Other caregivers	Noncaregivers
Food items	54.9	51.8	58.4
Household utilities	31.6	32.7	32.1
Health care *	3.2	2.9	1.5
Scholastic items	4.2	3.9	2.5
Other expenditure	5.5	7.8	4.7
Total	100.0	100.0	100.0
Number of cases	73	88	1,426

Source: Authors' analysis of Household Amenities and Livelihood Data File 2006.

Note: χ^2 test for between caregiving status differences: significance levels

< .001

**
< .01

*
< .05.

Table 6

Proportion of Monthly Income From Various Sources by Caregiving Status

Source of income	Caregiving status		
	HIV caregivers	Other caregivers	Noncaregivers
Salaries	45.5	32.9	38.7
Business/small enterprises	45.3	55.5	49.8
Borrowing and savings	2.7	1.9	1.8
Other sources	6.5	9.4	9.5
Total	100.0	100.0	100.0
Number of cases	73	88	1,426

Source: Authors' analysis of Household Amenities and Livelihood Data File 2006.

Table 7

Percentage Distribution of Older People Owning and Selling Assets by Caregiving Status

	HIV caregivers	Other caregivers	Noncaregivers	Total
Owens electronic goods ^a	20.6	25.0	17.4	18.0
Owens other durable items ^b	28.8	29.5	25.3	25.7
Sold assets	4.1	3.4	1.8	2.0
<i>N</i>	73	88	1,426	1,587

Source: Authors' analysis of Household Amenities and Livelihood Data File 2006.

^aTV, radio, DVD player, sewing machine, iron, fan, phone, gas/electric stove.^bSofa, table, torch, lamp, kerosene stove, wall clock, mattress, blankets, bed.