Household Expenditures And Direct Medical Costs Among Older Adults In Ghana: Evidence From Who-sage Wave 2

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Abstract

Background: The Ghanaian population aged 60 years and older will almost double to reach 10% of the total population by 2050. Ascertaining the pattern of health expenditures among this growing population group is important to inform policy makers about the targets for financial risk protection as part of achieving Universal Health Coverage (UHC) by 2030. This study aimed to estimate household expenditures among older adults and determine the direct medical costs.

Methods : The World Health Organization's Study on global AGEing and adult health (SAGE) Wave 2 was conducted in China, Ghana, India, Mexico, Russian Federation, and South Africa between 2014 and 2015, as a follow-up to Wave 0 in 2003 to 2004 and Wave 1 in 2007 to 2010. Survey questions explored sources of income and total direct expenditures in the year preceding interview. SAGE Ghana was implemented using face-to-face interviews in a nationally representative sample of persons aged 50+ years with a comparison sample of younger adults aged 18–49 years.

Findings : Analyses included a total of 4,735 participants, with 1,948 (41.1%) males and 2,787 (58.9%) females, of median and mean ages of 58 years and 57.6 (±16.7), respectively. The average annual household expenditures were US$ 1,893.44 (±3,501.14). Older adults had higher expenditure levels at US$ 1,902 (± 3,876), as compared to younger adults, US$ 1,867 (±1,937). Direct health-related costs and food expenditure accounted for 18% and 46% respectively of the total household expenditure of older Ghanaian adults. The prevalence of catastrophic health expenditure among older adults in Ghana was 4.5% (95% CI 3.5% to 5.8%)

Conclusion: These updated estimates on household expenditure among older adults provide needed evidence to support the inclusion of social protection mechanisms in the national ageing agenda. The National Health Insurance as presently did not reduce the financial burden for households with older adults.

Background

The introduction of the National Health Insurance Scheme in 2003 has contributed to Ghana's targets to achieve Universal Health Coverage (UHC), although inequalities remain in health service coverage and financial risk protection (1). Older adults in Ghana are often at higher financial risk of impoverishing health expenditures as a result of often having greater health and long-term care needs than younger people.

The population aged 60 years and older in Ghana is currently 5.3% and is projected to reach 10% by 2050 (2,3). The ageing population typically shifts disease burden patterns in countries, with increasing impact of age-related health conditions (3,4).

A National Ageing Policy for Ghana (6) was adopted in 2010, seeking to achieve holistic social, economic and cultural re-integration of older people into mainstream society. It also sought to equip them to

participate fully in the national development process. Enforcing social protection systems for this population group would be a crucial component of achieving the National Ageing Policy objectives, and would support older Ghanaians to get the health care services they need in the pursuit of Universal Health Coverage (UHC). Despite some comprehensive policies, not much has materialized towards implementing the National Ageing Policy and Implementation Action Plan (7,8)

Ascertaining the pattern of expenditure among this unique group does not only inform policy makers about heterogeneity in demand among older people, but gives an idea of how demand and costs are evolving in this population (9). A degree of ambiguity remains in the relationship between ageing populations and health care expenditure per person (10). The objective of this study is therefore to explore the levels and patterns of household expenditures in a nationally representative sample of Ghanaian households, with a focus on determining direct medical costs within overall expenditures.

Methods

Data collection

Data was obtained from the 2014/15 World Health Organisation (WHO) Study on global AGEing and adult health (SAGE) Ghana Wave 2. This included a follow-up sample from Wave 1, that consisted of nationally representative cohorts of adults aged 50 years and older, and smaller comparative samples of people aged 18–49 years (younger adults). Further information on SAGE, with country-specific household-level and person-level analysis weights, was made available by WHO (11).

Participants, sampling and variables

Recruitment of participants and implementation of the study was coordinated by the SAGE Ghana Team. SAGE Ghana employed a stratified random sampling strategy with households as the final sampling units (12). More details about the sampling strategies are available elsewhere (13). The sociodemographic characteristics information collected included age, sex, educational level, financial assistance, marital status and health insurance. Participants also self-assessed their perception of health as being 'Very Good', 'Good', 'Moderate', 'Bad', or 'Very Bad'. Outcome variables were total household expenditures and total direct medical costs over the year preceeding the interview, generated by the variables listed in Table 1.

Data analysis

Total direct medical costs and total household expenditures were estimated by summing the costs of the individual categories (Table 1). Variables which were ascertained for a 30-day period were multiplied by 12 to obtain estimates of annual costs. All estimated costs were converted into US$ using an exchange rate of GHS 3.21 (the exchange rate at the time this study was conducted). The catastrophic health expenditure was also determined as the ratio of health care to total household consumption expenditures,

and defined as a proportion of the number of participants with direct health costs accounting for 40% or more of the total household expenditure (13,14).

All variables were analyzed using Stata (Version 14). Descriptive statistics were used to describe participant characteristics. Student's t-test was used to compare outcome mean values between groups and Chi-square test was used to test association between categorical variables, with an alpha level of 0.05.

Table 1: Description of input variables for the selected analytical outcomes

Dependent Variable	Category	Description
Direct medical costs	Consultations	Registration and consultation fees by doctors, nurses, or trained midwives that did not require an overnight stay
	Traditional or alternative health care	Care by traditional or alternative healers
	Investigations	Diagnostic and laboratory tests such as X-rays or blood tests
	Medications	Medications or drugs form prescription, non-prescription, traditional, homeopathic practitioners
	Dental	Oral and dental care
	Mandatory health insurance	Mandatory health insurance premiums or pre-paid health plans
	Voluntary health insurance premiums	Voluntary health insurance premiums (including, community health insurance schemes
	Health-related items	Items such as prescription glasses, hearing aids, canes, prosthetic devices
	Overnight stays	Costs associated with overnight stays in a hospital or health facility
	Care facility	Costs associated with long-term care facility
	Others	Any other health care products or services that were not included above
Total household expenditure	Food	
	Housing and utilities	Rent, mortgage, electricity, heating/cooking fuel, water, telephone
	Clothing	Footwear, hats, shirts, pants, dresses, skirt, jackets, coat and other personal items, such as soap, shampoo, cosmetics, shaving cream etc.
	Transportation	Bus fares, cab/taxi fares, vehicle repair costs, petrol
	Recreation and entertainment	Expenditure on entertainment and recreation
	Education	Costs of educational fees and supplies, such as tuition, course fees and books
	Durable goods	Televisions, phones, bed sheets, towels, tools, furniture (tables, chairs, beds) and appliances (refrigerators, washing machines
	Taxes	Property tax, vehicle tax, income tax, etc and non-health related insurance (personal, vehicle, household, life)
	Others	All other goods and services aside health related ones which are not listed above

Results

A final sample of 4,735 was used for analysis. This consisted of 1,948 (41.1%) males and 2,787 (58.9%) females ranging from 18 years to 110 years with median and mean ages of 58 years and 57.6 (±16.7) respectively. Nearly three-quarters (75.5%) of the participants were 50 years or older (Table 2). Over a quarter (26.1%) of the participants had received financial assistance within the past year (Figure 1). Of

these, 1063 (43%) were in the older adult group, compared to 165 (16.9%) of the younger adult population (P<0.001). Similarly, most of the participants with no formal education were older adults (49.9%), compared to the 18.3% of the younger adult population (P<0.001). Older adults were significantly more likely than younger adults to perceive their health to be either 'bad' or 'very bad' (OR=3.9, P<0.001). The marital status and health insurance coverage distribution among older adult age groups did not vary significantly.

The average annual household expenditures among adults in Ghana varied considerably among different subgroups (Table 2). However, the average expenditure per annum for the entire population was US$ 1,893.44±3,501.14, with a US$ 318±2,736 average annual expenditure on health. Direct medical costs accounted for 16.8% of the total household expenditures with levels different for younger (12.5%) and 18.1% among the older adults. The proportions of the household expenditure components among older adults are shown in Figure 2. The prevalence of catastrophic health expenditure among older people in Ghana was 4.5% (95% CI 3.5% - 5.8%). That of the entire population was however 4.9% (95% CI 3.9% - 6.0%).

Comparing the pattern of direct medical costs and total expenditure across the sociodemographic characteristics, the average household expenditure differed significantly among educational levels, as well as marital status. The same observation was made for the average direct medical cost among sub-populations for having received financial assistance or not (Table 2). Out-of-pocket expenditures on transportation and traditional or alternative health therapies were higher among older adults, compared to the younger adult population. Though not significant, the inverse was observed for expenditurs on medications, dental care, food, housing and utilities (Table 3).

Table 2: Average expenditure across participant sociodemographic characteristics, SAGE Ghana Wave 2.

Variable	Number (n)	Percent (%)	Average Annual Expenditure (SD)	P-value	Average Health Expenditure (SD)	P-value	Catastrophic Expenditure (%)
ex			2,071±4,332	0.115		0.322	
Male	1,948	41.1	1,785±2,879		405±3,572		4.3
Female	2,787	58.9			264±2,069		5.2
ge categories			1,867±1,937	0.865		0.491	
Less than 50	1,160	24.5	1,902±3,876		234±792		5.9
50 and older	3,575	75.5			345±3,116		4.5
nancial assistance			2,116±5,607	0.142		0.016*	
=4,674)	1,228	26.1	1,818±2,402		601±5,176		5.2
Yes	3,446	73.3			222±969		4.7
No							
ormal Education			1,353±1,773	0.021*		0.327	
None	1,996	42.5	1,658±2,191		183±1,129		4.9
Less than primary	653	23.8	2,203±2,704		147±451		2.3
Primary school	701	25.6	2,132±4,420		301±919		6.5
Secondary school	707	25.8	3,164±7,200		429±3,752		3.5
High school	524	19.1	2,805±2,538		941±6,503		8.2
University	147	5.4	3,816±943		187±226		2.0
Post graduate	7	0.3			520±512		-
elf-reported health			1,707±2,007	0.113		0.616	
Very good	651	13.9	2,116±4,278		309±1,443		3.5
Good	2,541	54.1	1,677±2,655		424±3,820		4.7
Moderate	1,114	23.7	1,542±2,517		186±528		5.1
Bad	329	7.0	2,682±5,359		150±292		7.3
Very bad	61	1.3			319±649		6.7
arital status			2,104±3,971	0.008*		0.372	
Married/cohabiting	2,693	56.9	1,636±2,806		373±3,056		4.2
Single	2,042	43.1			250±2,286		5.6
ealth Insurance			1,969±3,960	0.158		0.113	
Yes	3,449	73.0	1,690±1,742		384±3,191		5.0
None	1,276	27.0			139±465		4.4

US$1.00 equivalent to GHS3.21 (Bank of Ghana average monthly interbank exchange rate, December 2014)

Table 3: Pattern of expenditure among adults in Ghana, SAGE Ghana Wave 2, 2015

Cost area	Less than 50 (±SD)	50 and older (±SD)	P-value
Traditional/alternative health care	84.75±78.77	129.89±302.59	0.822
Medications	166.68±589.91	130.96±355.82	0.208
Dental	47.24±22.27	40.10±28.36	0.377
Food	895.37±938.41	861.81±1,068.64	0.580
Housing and utilities	1,335.26±21,510.42	169.58±307.80	0.071
Clothing	112.02±163.03	96.63±245.38	0.248
Transportation	139.03±137.06	151.58±350.48	0.759

Discussion

This study set out to determine the pattern of expenditure among older adults in Ghana, while ascertaining their direct medical costs. The results from this study comes as pertinent for several reasons, especially in a low-middle income country such as Ghana and similar counties in the subregion. Ghana has shown a gradual change in its demographic characteristics due to population ageing (16). The somewhat gradual pace provides valuable lead time for strategic planning and policy development to ensure systems are prepared for the coming changes. Estimates of household expenditure, such as those from this study, could therefore be used to inform policies, with regards to prioritization, health insurance, reimbursements, social services, housing, transportation and agriculture among older persons. Despite considerable attempts to include as many older Ghanaians as possible onto the NHIS, among other policies (8), this study suggests that the NHIS did not significantly reduce the average household expenditure, nor the direct cost on health for households with older adults. These results will therefore feed into efforts to refine and extend coverage of the NHIS so that older adults are included in UHC targets.

It is important to establish that though the pattern of household expenditure holds great predictive value in planning, it is affected by many individual preferences which may be difficult to account for (behavioural heterogeneity) (9). There are also assertions of age-associated health conditions which could increase the household expenditures among older adults.

This study found the average household cost among the study participants to be US$ 1,893. These low estimates, though excluding taxes, are considered characteristic of low income countries which Ghana was, at the time of the study. Furthermore, the average direct medical cost, being US$ 318, accounted for 18.1% of the average total expenditure among the elderly. It has been suggested that at low income levels, spending diversity is low, as food and health care might be expected to dominate spending (9). In corroboration with this, food and healthcare took a proportionate 46% and 18.1% of the total household expenditure among the elderly in this study, the highest among the variables investigated. In comparison to these, average annual health expenditure was estimated to be US$7,439 among older populations in Australia at about the time of this study (10). Also, in this study, 7% of household income was accrued by medications, while an equal amount was spent on herbal/alternative medicines. This further substantiates the high prevalence of alternative/traditional medicine usage among older Ghanaian adults (17).

Aside being a LMIC, the pattern of expenditure among older Ghanaians generally differs from that that of Japan (18), UK (1,14), and the USA (20), due to the entire prevailing social, political and cultural systems. For instance health financing in Ghana is mainly publicly funded through the National Health Insurance scheme (NHIS), which as of the commencement of this study in 2014, covered some 10.4 million Ghanaians, approximating 40% of the country's population (21). The fairly large coverage, which is free for adults aged 70-plus years, and the 'core poor' defined as the unemployed with no visible source of income, no fixed residence, and not living with someone employed and with a fixed residence (22), could significantly have contributed to the comparatively lower out-of-pocket expenditure on health. Also, Ghana has a deep-rooted housing crises which has seen several attempts at reforms over the past few

decades (23). With rising cost of rent, cheaper alternatives and settlements, especially in rural areas could be the preference among older adults. The 16% 'Other' category (Fig. 1) could be a reflection of the heterogeneity of the study population. Included in this category are taxes, gifts, recreation, among others.

Safeguarding people from catastrophic payments, that is, financial hardship caused by health payments, has come to be a widely accepted index, and a desirable objective in health policy. This study found the prevalence of catastrophic health expenditure among older adults in Ghana to be 4.5%, using a 40% threshold. As catastrophic health spending is generally thought to be rising, our figure relates to the 7% prevalence found in India (15). Over a quarter of the participants had obtained financial assistance, while many of the participants (30%) had salaries being the major source of financing. A significant 34% of older population had to borrow money or sell their property to finance their expenditure. Nearly half of the older population had also not had any formal education, an observation which could inform the policy process and its implementation.

Conclusion

This study in many ways highlights the unmet need for social support for older Ghanaians. In providing estimates and pattern of the expenditure of this group, detailed planning could be incorporated into social interventions. Findings from this study could also be used in hypotheses generation for future studies to explore how the older population in Ghana is evolving.

Abbreviations

LMIC: Lower-Middle Income Countries; NHIS: National Health Insurance Scheme; WHO: World Health Organization; SAGE: Study on global AGEing and adult health; UHC: Universal Health Coverage

Declarations

We the undersigned declare that this manuscript is original, has not been published before and is not currently being considered for publication elsewhere.

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome. We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us.

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property. We understand that the Corresponding Author is the contact for the Editorial process (including Editorial Manager and direct communications with the office). He is

responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs. We confirm that we have provided a current, correct email address which is accessible by the Corresponding Author and which has been configured to accept email from BMC Public Health.

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Authors' contributions

AY, SH and PKB conceptualized and designed the study. PKB and SH were responsible for extraction of data. PKB, SH, NM, KP, ML and AY analyzed and interpreted the data. All authors drafted, read and approved the final manuscript.

Ethical requirements

SAGE was approved by the World Health Organization's Ethical Review Board (reference number RPC149) and the Ethical and Protocol Review Committee, College of Health Sciences, University of Ghana, Accra, Ghana. Written informed consent was obtained from all study participants.

Consent for publication

Not applicable

Declaration of interests

The authors declare that there are no conflicts of interest regarding the publication of this article

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Figures
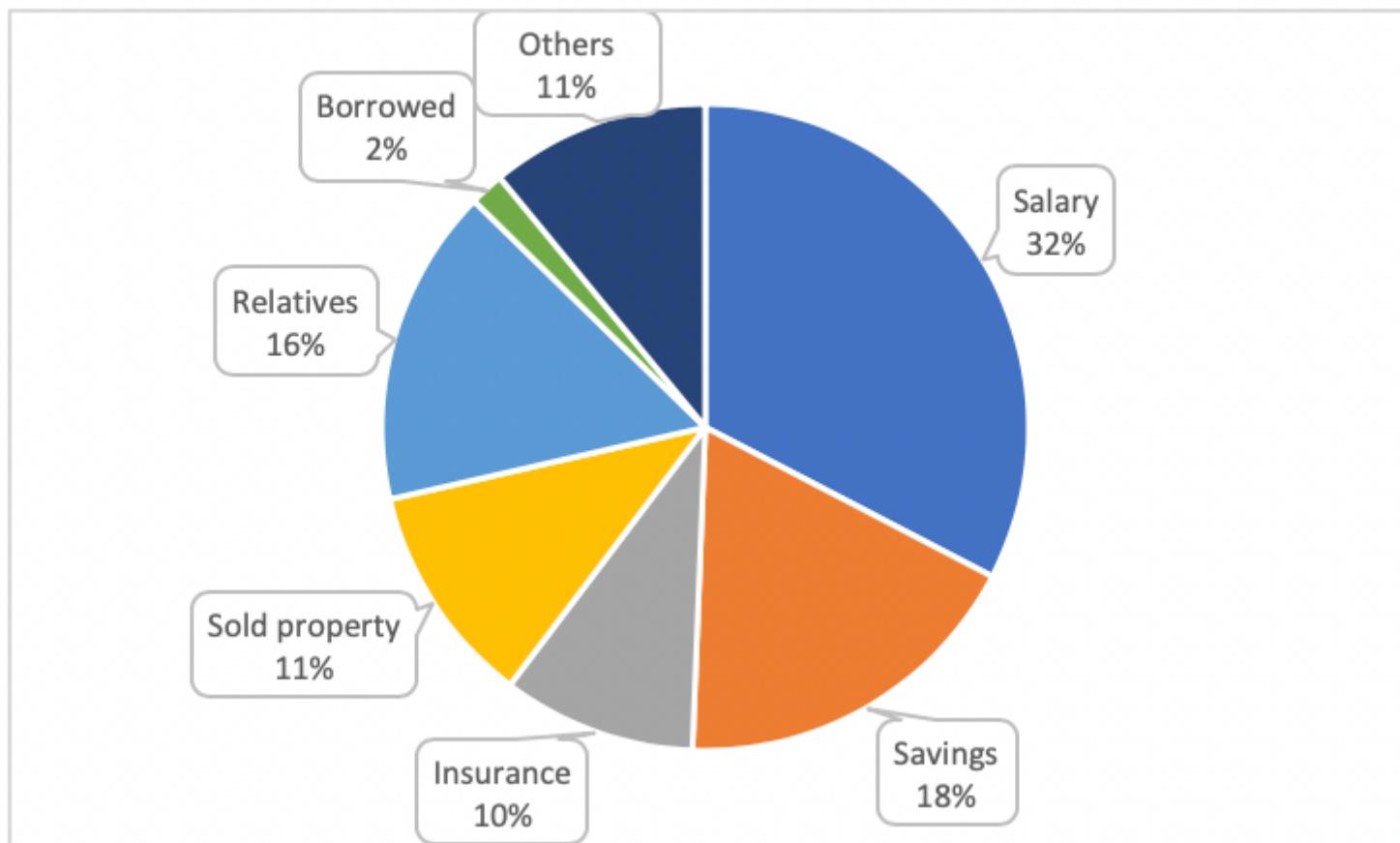
Figure 1

Sources of financing among the elderly in Ghana
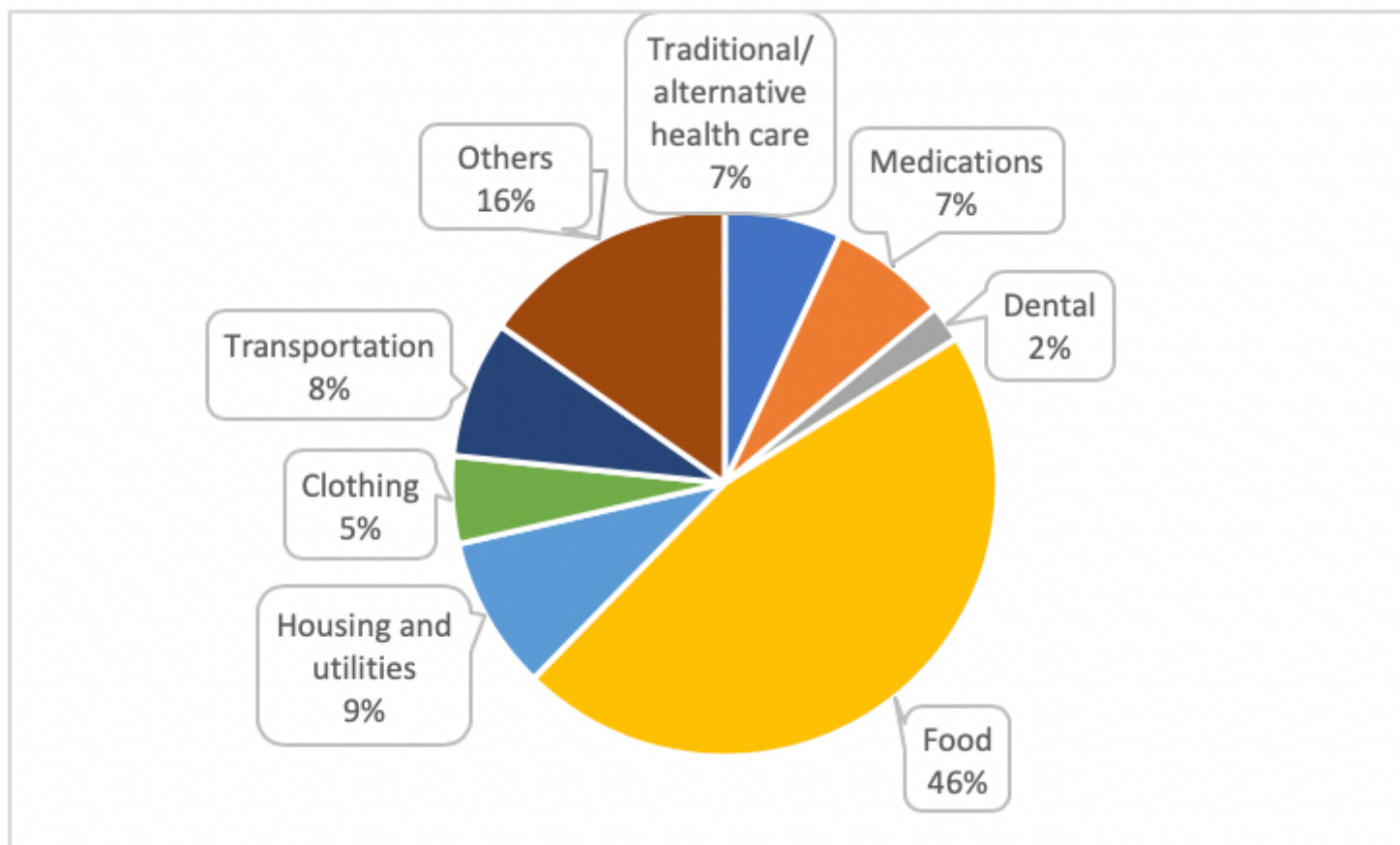
Figure 2

Proportions of cost areas among the elderly in Ghana