The Rural Aged and their Health: A Poverty-Health Viewpoint

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Abstract

Introduction: In Jamaica, rural poverty is twice that of urban poverty with about 50 percentage points of elderly residing in rural zones. Poverty is not only a measure of the economic reality; it is also a critical driver of the health challenge being experienced by this vulnerable group.

Objectives: The present study aims to 1) evaluate health of rural elderly, 2) determine factors that influence self-rated health status of the rural aged, 3) determine factors of self-reported illness among rural aged in Jamaica, and 4) examine the changing patterns of diseases of the rural aged Jamaicans over a 5-year period.

Methods: This paper utilizes a cross sectional probability survey design from the Jamaica Survey of Living Conditions (JSLC) dataset. JSLC is a modification of the World Bank Living Standard Survey. Two of the JSLC were used for this research, 2002 and 2007. This research extracted rural aged (60+ year olds) from each year, 2,010 and 404 respectively. Descriptive statistics provide pertinent information on the socio-demographics characteristics of the sampled respondents. Logistic regressions were used to established health models, and a p value <5% was used to determine statistical significance.

Findings: In 2002, 23.2% of rural elderly were below the poverty line. This rose by 6.5% in 2007; wherein at least 66% sought medical care; 27.3% had poor self-rated health status, and self-reported illness was 39.4% in 2002 and this rose by 14.0% in 2007 over 2002. Of those who reported an illness, 75.4% had chronic conditions with 44.0% had hypertension.

Conclusion: The findings which emerged from this inquiry offer more to the literature on elderly, health status, ageing and health and rural health studies.

Keywords: Chronic illness; Elderly; Epidemiology; Developing nation; Health conditions; Health statistics; Self-rated health status; Poverty; Rural aged

Introduction

One of the challenges of poverty is its impact on human survivability as well as the retardation of health and health care choices. Poverty is not only a constriction of material resources and nutritional intakes; it is also a health and health care challenge. A Report of the World Health Organization (WHO) showed that 80% of chronic illnesses were in low and middle income countries, highlighting that there is an association between poverty and lowered quality of life [1]. The poverty-illness discourse was further strengthened by research emanating from the WHO highlighting that 60% of global mortality was caused by chronic illness. This they concluded had implications for vulnerable groups like the elderly in low-to-middle income countries, particularly those who are classified as living alone or, single, unemployed, non-pensioners and shut-ins. Does a developing nation like Jamaica subscribe to the same mortality, illness and poverty phenomena as outlined by the WHO?

Using stratified cross-sectional national data for Jamaica, Bourne [2,3] found a positive statistical correlation between poverty and illness as well as an association between poverty and not seeking medical care. Utilizing national data for Jamaica, Bourne and McGrowder [4,5] further established empirically that those with chronic illnesses were more likely to be poor and dwell in rural areas. This study expanded the scope of the Report of WHO by adding insights to the poverty-illness elderly phenomenon. It concluded that poverty does not only impact on illness, it causes pre-mature deaths, lowers quality of life, and lowered life and healthy life expectancy. There was also a direct correlation between, low development and other social ills such as crime, teenage pregnancy, and social degradation of the community and poverty. The plight of rural residents who have a greater probability of being poor and aged than those who dwell in urban or peri- urban areas was now being more fully understood.

In Jamaica, rural poverty is about two times more than that of urban poverty and in 2007, 27.7% of rural residents were living below the poverty line. This has remained almost the same in 2010 [6], which are greater than the national prevalence rate of poverty (rural 23.2%; urban 14.4; national 20.3%). Having more elderly citizens living in rural areas in Jamaica [7], highlights not only the poverty dilemma of rural residents; but it gives a preview to the travails of elderly rural residents. Statistics from the Planning Institute of Jamaica and the Statistical Institue of Jamaica [6] confirm three facts (1) poverty is greater among rural than urban residents, (2) more elderly dwelled in rural areas and (3) that poverty has been on the increase since 2008,

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which effectively means that rural elderly must become a focal point in any discussion on health, poverty and health care delivery. Bourne and Mc Growder's study provides some understanding of the health challenge of rural Jamaicans as it revealed that 1) most of these people have at most secondary level education (96.5%); 2) 43.8% of them received some type of social support; 3) 47.8% were poor (below poverty line, 24.4%, poor, 23.4%); 4) an alarmingly high percentage of them have no health insurance coverage, 94.1%; and 5) 17.2% reported living with an illness. The socio-economic realities of the elderly are somewhat similar to those of the general populace of Jamaica as Bourne [8] found that 1) 56% of Jamaicans received social support; 2) 66.8% resided in rural areas; 3) 63.2% had at most primary level education; 4) general wellbeing was low (3.8 out of 14), and 5) 14.7% utilized health care services. This is compounded by the general challenges of many elderly viz. 1) unemployed, 2) not seeking employment, 3) non-pensioners, 4) poor and 5) experience more ill-health conditions that those of the population. These socio-economic disparities are distinctly seen same across Latin America and the Caribbean in the rural-urban residents and the elderly [9]. Those realities are compounded in periods of inflation, reduced national expenditure on social programmes, and increased unemployment of the working age population and increased cost of health care, thus exacerbating the vulnerability of the elderly.

Studies in Jamaica and the wider English-speaking Caribbean have established the statistical correlation between ageing and health conditions [10-15], however a dearth exists in analyzing the linkages among poverty, rural area, health and ageing. Although ageing and health is widely studied in the region [16-21], the aged people have never been investigated from a poverty-health viewpoint. The growing percentage of people living beyond 60+ in the world, including the Caribbean, denotes that rural elderly and health are critical to policy planning and formulation of programmes for this increasing cohort. The health discourse is not adequately served by merely providing empirical studies in silos on the elderly, health, ageing and health, and rural health.

A discourse on the elderly cannot be comprehensively served by singly evaluating 1) elderly, 2) ageing and health and 3) ageing and life expectancy, as when poverty is brought into the discourse many other drivers need to be analyzed and examined to expand the perspective on the ageing and health issues. The health disparities between rural and urban elderly are not the same as 'rural ageing and health' as the focus here is the rural aged and their health. The present study therefore aims to 1) evaluate health of rural elderly, 2) determine factors that influence self-rated health status of rural aged, 3) determine factors of self-reported illness among rural aged in Jamaica, and 4) examine the changing patterns of diseases of the rural aged Jamaicans over a 5-year period.

Methods and Materials

This study utilizes secondary data analysis from a national cross-sectional survey [22]. The current study examines data from the 2002 and 2007 Jamaica Survey of Living Conditions (JSLC) [23]. The 2007 JSLC had 6,783 respondents and for 2002, there were 25, 018 respondents [22,23]. The present work extracted a sub-sample of 404 people 60+ years from the 2007 sample and 2,010 elderly from the 2002 sample. The only inclusion and exclusion criteria for the sub-sample were 1) people 60+ years and 2) resided in rural areas. The surveys (2002 and 2007 JSLC) were drawn using stratified random sampling. The design was a two-stage stratified random sampling design using a Primary Sampling Unit (PSU) and a selection of dwellings from the primary units. The PSU is an Enumeration District (ED), which consists of a minimum of 100 dwellings in rural areas and 150 in urban areas. An ED is an independent geographic unit that shares a common boundary. This means that the country was grouped into strata of Equal size based on Dwellings (EDs). Based on the PSUs, a listing of all the dwellings was made, and this became the sampling frame from which a Master Sample of dwelling was compiled, which in turn provided the sampling frame for the labour force. One third of the Labour Force Survey (i.e. LFS) was selected for the survey. The sample was weighted to reflect the population of the nation.

The Jamaica Survey of Living Conditions (2002 and 2007) was administered by the Statistical Institute of Jamaica (STATIN) and the Planning Institute of Jamaica (PIOJ). For the 2007 survey, data were collected between May and August; and for the 2002 survey, data were collected between April and July. A self-administered questionnaire was used to collect the data which were stored and analyzed using SPSS for Windows 21.0 (SPSS Inc; Chicago, IL, USA). The questionnaire was modelled from the World Bank's Living Standards Measurement Study (LSMS) household survey [23]. There are some modifications to the LSMS, as JSLC is more focused on policy impacts. The questionnaire covered areas such as socio-demographic, economic and health variables. The primary purpose of using the 2002 and 2007 data was to display the changing pattern of health conditions as well as socio-demographics occurring in Jamaica over the 5-year period.

Descriptive statistics, such as mean, Standard Deviation (SD), frequency and percentage were used to analyze the socio-demographic characteristics of the sample. Chi-square was used to examine the association between non-metric variables. Logistic regression examined the relationship between the dependent variable and some predisposed independent (explanatory) variables, because the dependent variable was a binary one (self-reported health status: 1 if reported moderate health status and 0 if poor health) and self-reported illness (1=indicated having an illness, 0=otherwise).

The results were presented using unstandardized B-coefficients, Odds ratio and confidence interval (95% CI). The predictive power of the model was tested using the Omnibus Test of Model to examine goodness of fit of the model. The correlation matrix was examined in order to ascertain if autocorrelation (or multicollinearity) existed between variables. The Odds Ratio (OR) for the interpreting of each significant variable, and Wald statistics were used to determine the magnitude (or contribution) of each statistically significant variable in comparison with the others. A p-value of 0.05 was used to test the significance level. Length of illness was excluded from all the models, because it had 87% of missing cases.

Operational definitions

Self-reported illness (or self-reported dysfunction): The question was asked: "Is this a diagnosed recurring illness?" The answering options are: Yes, Cold; Yes, Diarrhoea; Yes, Asthma; Yes, Diabetes; Yes, Hypertension; Yes, Arthritis; Yes, Other; and No. A binary variable was later created from this construct (1=presence of illness, 0=otherwise) in order to use in the logistic regression.

Self-reported illness was dummied as 1=reporting an illness and 0=not reporting an ailment or dysfunction or illness in the last four weeks. While self-reported ill-health is not an ideal indicator actual health status as people may underreport their health condition. However, it is still an accurate proxy of ill-health and mortality.

Self-rated health status: "How is your health in general?" And

the options were very good; good; fair; poor and very poor. A binary variable was later created from this variable (1=good and very good health, 0=otherwise). It should be noted that data for self-rated health status was collected in 2007 for the first time in the JSLC.

Private Health Insurance Coverage: This is a dummy variable, where 1 denotes self-reported ownership of private or public health insurance coverage and 0 is otherwise.

Social support (or network) denotes different social networks with which the individual has or is involved (1=membership of and/or visits to civic organizations or having friends who visit loved ones' home or with whom one is able to network, 0=otherwise).

Poverty: For this study, poverty is viewed from an absolute perspective. The Planning Institute of Jamaica employs an absolute approach in the measurement of poverty. Poverty is measured by way of 1) annual survey of living conditions, 2) components in food basket and a menu which is priced by the Ministry of Health and 3) pricing the items in the basket which is done by the Statistical Institute of Jamaica. The menu is based on particular nutritional requirements of a family of five.

Social class: This variable was measured based on income quintile: The upper classes were those in the wealthy quintiles (quintiles 4 and 5); middle class was quintile 3 and poor those in lower quintiles (quintiles 1 and 2).

Health care-seeking behaviour. This variable came from the question "Has a doctor, nurse, pharmacist, midwife, healer or any other health practitioner been visited?" with the option (yes or no). This was dummied as 1=reporting a doctor's visit and 0=otherwise.

Findings

Table 1 presents the socio-demographic characteristics of the sampled populations of 2002 and 2007. The sex distribution of the sampled populations were relatively the same across the two surveyed populations (2002: male, 47.7%; female, 52.5% and 2007: male, 48.2; female, 51.8%). Marginal differences occurred among married, never married and widowed respondents across the two surveyed years, while the percentage of divorced respondents increased by 100% in 2007 over 2002 with a 220% decline in the number of separated elderly. Furthermore, marginally more elderly were in poverty in 2007 over 2002 (29.7% and 23.2% respectively). There was a 14.0% increased in self-reported illness recorded for 2007 over 2002, with self-reported illness in 2007 being 44.9%.

Table 2 presents a cross tabulation between self-reported illness and self-reported diagnosed health conditions for 2002 and 2007. There was no significant statistical relationship between the two aforementioned variables for 2007 (χ^2=1.289, P=0.973). However, a statistical association emerged for the two variables in 2002 (χ^2=80.306, P<0.0001). Among the three non-communicable chronic conditions (diabetes, hypertension and arthritis), an increase was observed for hypertension (by 6.1%), while the others showed reduction. Almost 75% of those who indicated an illness reported that it was a non-communicable chronic condition.

Table 3 presents a logistic regression of self-reported illness of selected variables. Of the nine selected variables placed in this model, only three emerged as factors of self-reported illness (health status; health insurance and marital status) thus, accounting for 36.6% of the variability in self-reported illness among rural elderly. Ninety-six percentage points of the sample (n=388) were used to established this model, with the model being statistical significant (χ^2=115.6, P<0.0001),

Details	2002, n=2010		2007, n=404	
	n	%	n	%
Gender				
Male	968	48.2	192	47.5
Female	1042	51.8	212	52.5
Marital status				
Married	801	40.6	158	40.0
Never married	562	28.5	122	30.9
Divorced	27	1.4	11	2.8
Separated	47	2.4	3	0.8
Widowed	534	27.1	101	25.6
Social Assistance				
Yes	1112	44.7	103	26.0
No	898	55.3	293	74.0
Population Income quintile				
1=Poorest 20%	466	23.2	120	27.7
2=Poor	450	22.4	85	21.0
3=Middle	414	20.6	93	23.0
4=Second wealthy	364	18.1	64	15.8
5=Wealthiest 20%	316	15.7	42	10.4
Head of household	1376	68.6	277	68.6
Health seeking behaviour				
Yes	528	67.9	120	66.3
No	250	32.1	61	33.7
Health Insurance Coverage				
Yes	70	3.6	84	21.6
No	1897	96.4	305	78.6
Self-rated health status				
Excellent			31	7.8
Good			120	30.3
Moderate	No data		137	34.6
Poor			87	22.0
Very poor			21	5.3
Self-reported illness				
Yes	777	39.4	178	44.9
No	1195	60.6	218	54.1
Health care utilization				
Public facilities	319	61.3	61	53.5
Private facilities	249	47.4	64	56.1
Age cohort				
Young old (60-74 years)	842	33.9	261	64.6
Old Old (75-84 years)	534	53.5	109	27.0
Oldest Old (85+ years)	197	12.4	34	8.4

Table 1: Socio-demographic characteristics of the sampled respondents, 2002 and 2007.

Details	2002 [1]			2007 [2]		
	Self-reported Illness			Self-reported Illness		
	No	Yes	Total	No	Yes	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Self-reported Health Conditions						
Influenza (including cold)	0 (0.0)	39 (5.0)	39 (5.0)	0 (0.0)	10 (5.7)	10 (5.7)
Diarrhoea	0 (0.0)	11 (1.4)	11 (1.4)	0 (0.0)	2 (1.1)	2 (1.1)
Asthma	0 (0.0)	24 (3.1)	24 (3.1)	0 (0.0)	7 (4.0)	7 (4.0)
Diabetes	0 (0.0)	152 (19.6)	152 (19.4)	0 (0.0)	31 (17.8)	31 (17.7)
Hypertension	2 (22.2)	295 (38.1)	297 (37.9)	1 (100.0)	76 (43.7)	77 (44.0)
Arthritis	2 (22.2)	134 (17.3)	101 (17.1)	0 (0.0)	24 (13.8)	24 (13.7)
Other	5 (55.6)	120 (15.5)	26 (12.9)	0 (0.0)	24 (13.8)	24 (13.7)
Total	9	775	784	1	174	175

Note 1: χ^2= 0.306, P<0.0001
Note 2: χ^2=1.289, P=0.973

Table 2: Cross tabulation between self-reported illness and self-reported diagnosed health conditions, 2002 and 2007.

	B	Std. Error	Wald	P value	Odds ratio	95% C.I.	
						Lower	Upper
Total Expenditure	0.000	0.000	7.568	0.006	1.00	1.000	1.000
Head of Household (1=yes)	0.065	0.291	0.049	0.824	1.07	0.604	1.885
Good to Excellent health status	-2.471	0.332	55.325	0.000	0.09	0.044	0.162
Moderate health status	-0.967	0.301	10.312	0.001	0.38	0.211	0.686
Poor health status					1.00		
Middle class	-0.122	0.366	0.111	0.738	0.89	0.432	1.813
Upper class	0.322	0.470	0.469	0.493	1.38	0.549	3.468
Poor					1.00		
Old Elderly	0.949	0.492	3.720	0.054	2.58	0.985	6.777
Oldest Elderly	0.624	0.852	0.538	0.463	1.87	0.352	9.908
Young Elderly					1.00		
Health Insurance (1=yes)	0.769	0.308	6.244	0.012	2.16	1.180	3.946
Gender (1=male)	-0.399	0.267	2.221	0.136	0.67	0.397	1.134
Social Assistance (1=yes)	0.284	0.290	0.954	0.329	1.33	0.752	2.345
Married	0.773	0.337	5.263	0.022	2.17	1.119	4.189
Single	0.040	0.342	0.014	0.906	1.04	0.532	2.036
Separated, Divorced, Widowed					1.00		
Constant	1.433	2.225	0.414	0.520	4.19		

R^2=0.366; -2LL=410.6
Hosmer and Lemeshow: χ^2=5.944, P=0.653
Model χ^2=115.6, P<0.0001

Table 3: Logistic regression of self-reported Illness and selected variables, n=388.

	B	Std. Error	Wald	P value	Odds ratio	95% C.I.	
						Lower	Upper
Total Expenditure	0.000	0.000	0.111	0.739	1.00	1.000	1.000
Head of Household (1=yes)	-0.005	0.294	0.000	0.985	1.00	0.559	1.769
Middle class	-0.335	0.362	0.854	0.355	0.72	0.352	1.455
Upper class	0.350	0.536	0.427	0.514	1.42	0.496	4.060
Lower class					1.00		
Old Elderly	1.087	0.491	4.911	0.027	2.97	1.134	7.759
Oldest Elderly	2.168	0.873	6.160	0.013	8.74	1.578	48.415
Young Elderly					1.00		
Health Insurance_(1=yes)	-0.055	0.305	0.033	0.856	0.95	0.520	1.721
Gender (1=male)	0.299	0.274	1.191	0.275	1.35	0.788	2.307
Social Assistance (1=yes)	-0.154	0.287	0.289	0.591	0.87	0.489	1.503
Married	0.090	0.340	0.070	0.791	1.09	0.562	2.132
Single	-0.166	0.349	0.226	0.634	0.85	0.427	1.679
Separated, Divorced, Widowed					1.00		
Self-reported illness (1=yes)	-1.648	0.276	35.763	0.000	0.19	0.112	0.330
Constant	8.804	2.309	14.540	0.000	6658.2		

R^2=0.366; -2LL=410.6
Hosmer and Lemeshow: χ^2=3.610, P=0.891
Model χ^2=63.6, P<0.0001

Table 4: Logistic regression of self-rated health status and selected variables, n=388.

73.5% of the overall values were corrected classified (classification of those who reported having in an illness, 70.6%; those who indicated otherwise, 75.8%).

Table 4 shows a logistic regression of self-rated health status and selected variables. Of the nine selected variables placed in this model, only three emerged as factors of self-rated health status (i.e. self-reported illness; health insurance and age) which, account for 21.9% of the variability in self-rated health status among rural elderly. Ninety-six percentage points of the sample (n=388) were used to establish this model, with the model being statistically significant (χ^2=63.6, P<0.0001), 74.2% of the overall values were corrected classified (classification of those who reported at least moderate health status, 90.8%; those who indicated otherwise, 69.2%).

Discussion

When Bourne and McGrowder [7] opined that, "poverty is mainly concentrated in rural areas and that the rural population also generally experienced excessive deficiencies in health care access, social services, and other goods and services needed for living", they were offering a lens through which to preview the dilemma of rural elderly. The extent of the poverty-challenge is embodied in the disparity between national poverty and elderly rural poverty. In 2002, the prevalence of poverty in Jamaica was 19.7 percentage points [8] compared to 23.2 percentage points among rural elderly. Similarly in 2002 there was a disparity between the prevalence of poverty in Jamaica and that of the elderly, with the national poverty being 9.9 percentage points and poverty among the elderly being 27.7 percentage points, uncovering the socio-economic

burden faced by aged Jamaicans. The various studies on elderly in the Caribbean, particularly Jamaica, have focused on general health status, health realities, functionality and dysfunctionality of the aged [2,5,8,16-19] and these would appear sufficient to address the health realities of rural aged. Although Bourne [8] found that 56 percentage points of elderly received social support, 14.7 percentage points accessed health care services, and Eldemire-Shearer [17] opined that they form the majority of hospital utilization and 80 percentage points were functionally independent, those issues are not sufficiently the same as those specifically for the rural aged. With studies establishing that two in every three elderly dwelled in rural areas [8], a closer reading of the data revealed that only 2 percent of rural Jamaicans received retirement income and 6 percent had health insurance coverage [7]. Poverty as a rural phenomenon therefore exacerbates the prevalence of ill-health of the rural elderly. The socio-economic conditions of the elderly are not the same as the conditions for the general population understanding that creates an urgency to investigate the health status of the rural aged.

Statistics from a national cross sectional survey published in the Jamaica Survey of Living Conditions (JSLC) revealed that in 2002, 12.6% of Jamaican reported having an illness [8] compared to 39.4% of rural elderly. The health disparity between the national and rural elderly widened in 2007 with 15.5 percentage points of the Jamaicans reported having illness compared to 44.9 percentage of rural elderly. The reality is 2.9 times more rural elderly reported having an illness compared to the population. Using data for 2002 on rural Jamaicans, Bourne and McGrowder [7] found that 17.2 percent reported having an illness which is greater than the national figure and substantially lower than that of the rural elderly. Examining data for Peru, Cortez [24,25] found that 42.9 percent of elderly reported experiencing an illness compared to 27.2 percent for the society, which is somewhat in keeping with the illness-disparity between elderly and the general populace in Jamaica. In the case of Colombia, self-reported illness is greater among women than men, more for rural than urban residents, and for the elderly than other age cohorts [26]. This highlights the similarities among the nations in Latin America and the Caribbean. Clearly, health-inequalities are constant across the Region and merely examining elderly, rural residents and general health status, will not provide comprehensive insights into what obtains for rural elderly residents.

The health challenge of rural elderly is embedded in the current findings on self-rated health status as only 38.1 percent of them indicated having at least good health status while 75 percent reported having a chronic illness. Bourne and McGrowder's study revealed that 17.2 percent had an illness compared to 45 percent of those in the present study (i.e. rural elderly). This foregrounds the health disparity between the rural and rural elderly residents. This research also showed that self-reported illness among the rural elderly is on the rise and chronic conditions have remained relatively stable over the studied period, suggesting that there are pre-existing issues accounting for the health conditions among rural elderly residents. In this research, we went further into the health status of rural residents and found that those with good-to-excellent health status were 0.91 times less likely to report an illness than those with moderate health status which were 0.62 times less probable to mention having an illness. With nine out of every 20 rural elderly reporting an illness in 2007 and 75 percent of the illness as being diagnosed as chronic non-communicable conditions (such as diabetes, hypertension and arthritis), poverty is seen as a driver of the health challenges of rural aged people. Statistics from the WHO revealed that 60% of global mortality is caused by chronic illnesses. And those four-fifths of chronic dysfunctions are in low-to-middle income countries. In supporting the WHO study this study has safely

narrowed the discourse to rural elderly. With the high rate of ill-health among the rural elderly in Jamaica, particularly chronic conditions, is it clear that there will be a perpetuating cycle of illness and poverty, and need for social support at an increased level than before which will be burdensome for the working age population.

The challenge for the society is now based on the percent of elderly who are in need of social support, and health care services. This becomes more problematic when typologies of health condition are brought into the discussion. Studies in developing countries [27] and other societies [28-31] on non-communicable diseases as increasingly categorizing hypertension as an age-dependent, socio-economic influenced, gendered condition. In other words, hypertension was become a disease of the poor, aged, rural elderly and feminine gender. Bourne and Charles's study [32] found that 57 out of every 100 hypertensive Jamaicans dwelled in rural zones and that 2 out of every 5 hypertensive were living in poverty. For this work, it was revealed that the prevalence of rural aged with a diagnosed illness is on the rise and that 9 out of every 20 rural elderly indicated a health condition, and of those who reported an illness 75% had a non-communicable condition, with 44% reporting a condition of hypertension. One of the leading chronic conditions among Jamaicans is hypertension and a study found that the rate of pre-hypertension is even greater than the rate of hypertension [33]. The study also showed that 28.6 percentage points of rural Jamaicans age 15-74 years old had hypertension compared to 23.4 percentage points of urban peoples and that 66.1 percentages of peoples ages 65-74 years had hypertension (females, 71.3 percentages; males, 60.5 percentages).

The association between poverty and ill-health is well established in the academic literature [34] and clearly there is an economic burden of illness. The focus is placed on the elderly. Poverty worsens the health conditions of rural aged residents, because they are unable to access the required health care services, medication, and nutrition. Health insurance decreases the economic burden for those experiencing ill-health; but the challenge is only 22 percent of rural residents have access to health insurance coverage. According one research, seniors indicated that the major problem of health care is the cost of medication, which means that health insurance would reduce this burden. With the introduction of JADEP in Jamaica (Jamaica Drugs for the Elderly Programme), which is a public health insurance coverage for aged Jamaicans, Eldemire [17] indicated that the health care burden has been lessened among the elderly. The health care costs burden that were designed to be lowered among elderly Jamaicans still obtain as 78 percent as rural aged Jamaicans do not have this health insurance coverage. This means that economic burden of health care for the elderly, particularly those in rural areas, is both an individual and societal costs. Like the WHO [1], Bourne indicated that "Diabetes mellitus and any other typology of chronic diseases do more than affect healthy life expectancy; they are directly correlated with mortality" [33], suggesting that rural living among the elderly is resulting in premature mortality because of inability of people to access health care services, medication, nutrition and other health requirements. A study by Morris et al. [35] captured the likeliness of premature mortality among rural people, in this case men 55+ years. They found that as they found that 44.2%, 60.1% and 48.2% of aged men reported being diagnosed with diabetes, hypertension and cancer respectively; yet only 32.4% sought medical care. The reality of merely providing health insurance coverage for elderly will not increase the active seeking of medical care as there are other costs association with health care and survivability, and the latter may be such that they override the former's demands.

Since 2007, Jamaica has implemented a "no user fees" for public health care delivery. Despite the free public health care, the present research found that only 54 percent of rural elderly accessed the services compared to 49 percentage points of rural aged residents [18]. The low utilization of public health care services in Jamaica are owing to delays, poor customer services, cost of foods, and gulf between medical practitioners and clients as related to treatment, which retards coverage at these institutions. Unlike in Jamaica, 60 percent of ill people in Peru utilize public health care facilities [25], indicating that merely making public health care for the population will not result in majority utilization when there are inherent weaknesses surround the quality of care, which is outside of prescription medicine. This extends to the low usage of public health care insurance coverage for the elderly and those with chronic illnesses. The nation does not have a public health insurance scheme, but one that is geared towards the two aforementioned groups.

Clearly there is a misconception that merely providing health insurance coverage, cheaper medications and knowledge of health care issues will improve the health of people, particularly among the vulnerable. This misconception is not supported empirically as evidenced by many rural elderly who still do not have JADEP coverage, even though it is a free public health insurance coverage for senior citizens. The challenge with the JADEP coverage is its delivery and reaches to those whom need it most. According to Eldemire-Shearer [17], "In several studies, seniors have identified the major health care problems as the cost of medication", which can be deduced that the JADEP can solve many of the challenges experienced by the elderly and this is clearly not the case. It is being suggested that programmes' organizers use the skills set of social workers to intervene in the approach to serving rural communities and provide relevant services to shut-ins and other elderly. Abel-Smith [36] opined that providing a health insurance scheme requires formidable administrative tasks, which would suggest that careful planning must be the hallmark of this scheme and service must extend beyond access to coverage as well as fulfilling its mandate. The JADEP programme was designed to provide health insurance coverage for seniors who were experiencing difficulty in meeting health care services charge, particularly for medications. It is tempting to speculate that a country like Jamaica with 49 out of every 100 rural elderly being poor; 28 out of every 100 being below the poverty line; 45 out of every 100 reporting an illness with, 75 percent of those reporting on illness having at least one chronic condition that JADEP could have been a solution. The current situation however, shows that only 22 out of every 100 are holders have a health insurance including JADEP, it follows that the coverage of the public health insurance for elderly is meeting its mandate of providing coverage for all seniors whom are experiencing ill-health. The programme however cannot be designed around coverage primarily as poor accessibility and knowledge are key factors limiting use. There are rural elderly with no access or low access to the programme despite its availability.

With the high percentage of vulnerable elderly in rural areas, there is a need for mobile medication services for rural elderly in Jamaica. Medication, medical practitioners and social workers should be scheduled to visit with the elderly instead of waiting for them to seek health care services. This service will reduce the economic burden of health care to the potential user though not necessarily to the supplier. It will increase access, widen coverage and reduce the other economic costs with are outside of health care service delivery. The mobile team will take with them the JADEP applications, have these completed and forwarded to the relevant agents with responsibility to process the applications and return same to the mobile agents.

The issue for many elderly is not that they do not want to seek medical care, but it is the economics of ageing. The literature clearly shows that ageing is associated with the degeneration of cells which will impact on one's health conditions [10-12]; Ageing, particularly for many rural residents who do not have retirement incomes or pension or other incomes and who might be unemployed, increases the cost of survivability. The structure of rural economies in developing nations is such that when illness arises and the individual is incapacitated by economic livelihood it substantially reduced and people are forced to put the cost of health care against those of subsistence. In this study, two out of every 3 ill rural elderly sought medical care during a period of illness, which speaks to the economic drawback of ageing, ill-health and economics of survivability. This could account for the delay in seeking medical care as they prioritize the expenditure on food, shelter and other needs over health care. When medical care becomes critical that is when it is sought, which explains the likely premature mortality as death may be the result of inactions or too late of an action in seeking preventative care. Poverty, therefore, incapacitates the elderly's wellbeing and ability to afford basic necessities will supersede healthcare as people tend to sacrifice their food intake when they believe that mortality is likely to occur. The challenge for many people is food affordability especially healthy foods. This is not limited to peoples in developing nations as Abel-Smith [36] highlighted that healthy foods in Britain sometimes cost twice as much as unhealthy foods. With healthy foods costing more than unhealthy foods, the poor in developing countries which spend between 60-80 percent of their income on foods will be less concerned with preventative health care measures as their priority turns to survivability items, foods. It is in keeping with the aforementioned reality that government must institute rural mobile clinics, rural mobile pharmacies, and nutritional components for rural aged poor residents.

The calls for the new approaches to health care for rural elderly are within the context of economics of health. Alleyne [34] therefore advocated for a policy function in public health given that poverty is a major cause of disease. The reality is people are restricted by their economics, functionality and social milieu, which mean that it requires more than knowledge of an event to increase usage and change lifestyle/behavioral practices, especially among the elderly. It is simplistic and borders on absurdity to believe that merely providing coverage for public health insurance and free public health care delivery for vulnerable groups that this will improve their health status. In Brazil, there is a public health care delivery that can be accessed by all its citizens; yet, Campino et al. [37] opined that the system is broken, inadequate and underfunded. Again, the poor is not best served because there is an accessible public health care system as free health care service does not necessarily translate into an effective system for preventative care for the poor. This is supported by the literature, as although Peru has a public health care system, Cortez [25] found that 33 percent of the poor access health care and the percentages are lower among those in extreme poverty (26.2 percent). Economics are important in health status of a population, which is no different at the individual level, and in a stratified cross-sectional probability national survey a group of researchers found that only 31.5 percentage points of Jamaicans indicated that present economic situation (in 2007) was at least good, with the poor reporting the least health status [38]. It can be extrapolated from the aforementioned issues that the elderly poor, particularly elderly citizens are languishing from the economics of survivability and that urgent socio-economic measures are needed to provide them with reasonable quality of life. There should be a national survey in Jamaica to determine all poor elderly and the information should be used to implement a national poor registry. The national

poor elderly registry will be used to 1) provide medical assistance including mobile care, 2) supply health insurance, 3) supply nutrients and foods, and 4) a team should be assigned to such elderly including gerontologist, medical practitioner, nutritionist, social workers and pharmacist.

Conclusion

The reality which is uncovered by this study highlights the socio-economic challenges of rural elderly. Statistics from the World Health Organization (WHO) showed that 80% of chronic illnesses were in low and middle income countries which when translated to Jamaica read as a more rural elderly phenomenon and not for the general population. Poverty continues to erode the quality of life of rural elderly residents and economic-health costs of rural elderly could be borne by the society as well as the individual. Rural elderly is synonymous with poverty, ill-health, being female and head of household, which can be extrapolated to mean that there are premature mortalities among this cohort. Nevertheless, there is a positive outcome to residing in rural areas as longevity is greater therein. It can be concluded from the current work that merely studying elderly, life expectancy, rural residents and health status of the aged people is not the same as singly researching rural elderly and their health. The findings provided by this inquiry offer more to the literature on elderly, health status, ageing and health and rural health studies, and increase our understanding of ageing and health research. Rural aged and their health, therefore, must be contextualized within poverty, ill-health and economic challenges, which offer a preview into the public health reality of ageing. These findings warrant public health interventions and measures that are critical to alleviating the economic-health care costs experienced among rural elderly.

Conflict of Interests

The authors have no conflict of interest to report at this time.

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