

Living Beyond the Life Expectancy: A Self-Rated Health Viewpoint

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Abstract

Introduction: One of the drawbacks to using life expectancy to evaluate the health status of a country is the absence of capturing 'healthy' years and/or the quality of lived years. Self-rated health provides more information to the health discourse, which are not supplied by life expectancy.

Objectives: In the current study we seek to 1) determine the health conditions of people living beyond the life expectancy in Jamaica, 2) examine the health status of people living beyond the life expectancy in Jamaica, and 3) evaluate factors that influence good self-rated health status of people living beyond the life expectancy in Jamaica.

Methods: For this work, data from 2007 Jamaica Survey of Living Conditions was utilised. The sub-sample for this study was 321 men and women beyond 71 years and 74 years respectively.

Findings: Fifty-one percent of the sample reported an illness (females, 51.9%; males, 50.0%); 3.6 times more females were diagnosed with diabetes mellitus than males and 1.3 times more females having hypertension than males. However, 2.7 times more males were diagnosed with arthritis than their female aged counterparts ($\chi^2 = 25.844$, $P < 0.0001$). A statistical relationship existed between self-reported illness and self-rated health status ($\chi^2 = 51.547$, $P < 0.0001$).

Conclusion: There is enough empirical evidence to support gendered health and area-specific perspectives in the health care and management of people living beyond the life expectancy and that intervention programmes must be tailored with these new knowledge.

Keywords: Elderly; Developing nation; Health; Life expectancy; Surpassing the life expectancy; Social determinant

Introduction

Life expectancy is a concept developed by demographers to represent the number of years an infant is expected to live if he/she subscribes to the mortality pattern of people in a particular locality. It is an objective approach that essentially measures mortality; but is equally employed to evaluate longevity and health status of a population. Embedded in life expectancy is its reliance on mortality data in interpreting survivorship, life expectation and health status. It assumes that living means one is healthy and that the individual who is alive would have outlived ailment and injury, making him/her healthy. The use of mortality data to estimate health of a population dates back to the late seventeenth century (the work of John Graunt entitled *Bills of Mortality*) [1] and even earlier by the Romans [2] because of its positivistic nature - stressing an epistemological priority of models and by extension causal explanations.

Life tables emerged from mortality statistics and they were employed by demographers, actuaries, and health practitioners to measure mortality patterns, which was a noble approach at the time to estimate health status. Since the first life table was developed and published in 1693 by Halley, where the researcher collected and used data on birth and death registration for the city of Breslau during 1687 and 1691 [3], it is widely applied and primarily relied upon to determine the health of a population. In 2009, the Statistical Institute of Jamaica wrote that "Mortality improvements have been reflected in overall life expectancy"[4], which accounts for the dominance of mortality statistics in various statistical publications such as the World Health Statistics, US Census Bureau, United Nations Population statistics, and Demographic Statistics by STATIN.

The rationale why *healthy life expectancy* is important in ageing discourse is primarily because ageing means increased dysfunctions and the unavoidable degeneration of the human body. Therefore, in its attempt to capture 'quality of lived years', in 1999, the WHO has introduced an approach that allowed us to evaluate this, 'disability adjusted life expectancy' (DALE) [5]. Today, health-adjusted life

expectancy (HALE, formerly DALE) is not only concerned with length of years to illustrate health and well-being status of an individual or a nation, but the number of years an individual lives without disabilities. Such an approach is fitting in the ageing and health discourse as living beyond 60 years or even the calculated life expectancy for a particular geopolitical zone does not effectively estimate or measure quality of life of these people. The WHO found that these account for a 14 percent reduction in life expectancy from poorer countries and 9 percent from developed nations [6]. This system is in keeping with a more holistic approach to the measure of health and well-being with which this study seeks to capture. By using the biopsychosocial model in the evaluation of well-being of aged Jamaicans, we will begin to understand factors that are likely to influence the quality of lived years of the elderly, and not be satisfied with the increased length of life of the populace.

With the WHO proposition that health is more than the absence of diseases (or dysfunctions) [7,8], many social scientists have sought to use self-reported health status and/or quality of life (or well-being) [9-14]. Caribbean scholars have joined the health discourse, particularly ageing and health, [11,15-18], but a search of the literature revealed no study that has examined health status of those living beyond the life expectancy of their geopolitical locality, particularly Jamaica. There is much research on ageing (60+ years), ageing and self-rated health, and ageing and self-reported health conditions in the English-speaking Caribbean nations [11,14-18]; but they stop short of investigating health indices of people living beyond the life expectancy. This study will provide pertinent information to fill the gap in the literature by evaluating the health status of those living beyond the life expectancy of their localities. The objectives of the current study are 1) to determine the health conditions of people living beyond the life expectancy in Jamaica, 2) to examine the health status of people living beyond the life expectancy in Jamaica, and 3) to evaluate factors that influence good self-rated health status of people living beyond the life expectancy in Jamaica. In 2007, the Statistical Institute of Jamaica reported that the life expectancy at birth for males was 71.3 years and 74.1 years for females [4], which would be the values used to determine whether an individual is living (or not) beyond the life expectancy in Jamaica.

Materials and Methods

This study is a secondary data analysis, which used a national cross-sectional survey. The current study utilizes data from 2007 Jamaica Survey of Living Conditions (JSLC) [19]. The sample for this study was of 321 men and women beyond 71 years and 74 years respectively. This sub-sample represents 4.7% of the total respondents and 38.9% of the elderly sample (n=802). The only inclusion and exclusion criterion for the sub-sample was elderly who have surpassed the life expectancy for men (71 years) and women (73 years). The survey (2007 JSLC) was drawn using stratified random sampling. This design was a two-stage stratified random sampling (design where there was 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 researchers chose this survey based on the fact that it is the latest survey on the national population and that it has data on self-rated health status of Jamaicans. 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 [20]. 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. For 2007, the non-response rate for the survey was 26.2 percent.

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-to-good health status and 0 if poor-to-very poor health).

Binary logistic regression was utilized to examine factors that influence 1) moderate-to-excellent self-rated health status (1=yes and 0=otherwise), and 2) self-reported illness (1=yes, 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. Hosmer and Lemeshow test was used to determine the predictability of the model [21]. A p-value of 0.05 was used to determine the level of statistical significance.

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 be used in the logistic regression.

Self-reported chronic illness was taken from the question list of the types of illness that one may have. This variable was dummied to 1=yes to chronic illness (hypertension, diabetes and arthritis) and 0=otherwise (acute conditions such as cold, asthma and diarrhoea).

Self-rated health status: "How is your health in general?" And the options were very good; good; fair; poor and very poor. For this study the construct was categorized into 3 groups – (i) good; (ii) fair, and (iii) poor. A binary variable was later created from this variable (1=good and very good health, 0=otherwise).

Household crowding: This is the average number of persons living in a room.

Average income (i.e.: per person per household) is total expenditure divided by the number of persons in the household

Age: The number of years lived, which is also referred to age at last birthday. This is a continuous variable, ranging from 72 to 99 years (males, 72+ years; females, 75+ years) as those ages are beyond the life expectancy for males and females respectively.

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 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 a summary of particular health indicators and the socio-demographic characteristics for the sampled population. One in every two elderly living the life expectancy in Jamaica was male; 41.2% were either divorced, separated or widowed; 20.7% received social assistance from governmental agencies; 39% were living in some state of poverty, with 21.2% living below the poverty line; 73% sought medical care in the last four weeks (i.e. in the survey period), and 29.3% indicated having at least poor health status compared to 31.5% who indicated at least good health status. Furthermore, 51.0% indicated that they have experienced some form of ill-health in the last 4-week in the survey period of 2007. Fifty-two percentage points of the sampled respondents lived in rural areas compared to 28.7% who resided in urban centres and 19.3% in peri-urban, with 68.2% being heads of households.

Of the 159 males who are living beyond the life expectancy in Jamaica (72 years old), 27.7% (n=44) were living 10 years after the life expectancy and 3.1% lived at least 20 years after the average life expectancy. As it relates to women, 26.5% were living 10 years post the life expectancy of females and 3.7% lived beyond 20 years of the life expectancy of women in the population of Jamaica.

Disaggregating health-care seeking behaviour by gender revealed that 74.1% of the sampled females indicated having used health care services in the survey period compared to 71.4% of males, which was statistically the same ($\chi^2 = 0.139$, $P = 0.709$). Furthermore, 46.3% of those who sought medical care visited public health care facilities compared to 53.7% who sought private health care services.

Details	N	Percentage
Gender		
Male	159	49.5
Female	162	50.5
Marital status		
Married	111	35.7

Never married	72	23.2
Divorced	8	2.60
Separated	7	2.30
Widowed	113	36.2
Social Assistance		
Yes	65	20.7
No	249	79.3
Area of residence		
Urban centres	92	28.7
Peri-Urban	62	19.3
Rural	167	52.0
Population Income quintile		
1=Poorest	68	21.2
2=Poor	57	17.8
3=Middle	81	25.2
4=Second wealthy	62	19.3
5=Wealthiest 20%	53	16.5
Head of household	219	68.2
No formal education	321	100.0
Health-care seeking behaviour		
Yes	115	72.8
No	43	27.2
Health Insurance Coverage		
Yes	82	26.3
No	230	73.7
Self-rated health status		
Excellent	22	7.0
Good	77	24.5
Fair	123	39.2
Poor	74	23.6
Very poor	18	5.7
Self-reported illness		
Yes	159	51.0
No	153	49.0
Health care utilization		
Public facilities	57	46.3
Private facilities	66	53.7

Age	80.4 years ± 5.7 years; 95% CI: 79.7 – 81.0 years
Duration of illness	61 days ± 166 days; 95% CI: 33 – 88 days

A cross tabulation between area of residence and self-reported illness revealed no significant statistical association between the two variables (Table 2; $\chi^2 = 3.031$, $P = 0.221$). However, 54.7% of rural respondents indicated having had an illness compared to 52.5% of those in peri-urban centres and 43.3% of urban dwellers.

Table 1: Socio-demographic characteristics and health indicators of the sampled population, n = 321

Details	Area of residence			Total
	Urban	Peri-Urban	Rural	
	n (%)	n (%)	n (%)	n (%)
Self-reported illness				
Yes	39 (43.3)	32 (52.5)	88 (54.7)	159 (51.0)
No	51 (56.7)	29 (47.5)	73 (45.3)	153 (49.0)
Total	90	61	161	312

Table 2: Self-reported illness of sampled population by area of residence, n=312

Fifty-two percent of females indicated having had an illness in the past four weeks (i.e. the survey period) compared to 50.0% of males, with there being no statistical relationship between self-reported illness and gender of the respondents (Table 3; $\chi^2 = 0.115$, $P=0.734$).

Details	Gender		Total
	Male	Female	
	n (%)	n (%)	n (%)
Self-reported illness			
Yes	78 (50.0)	81 (51.9)	159 (51.0)
No	78 (50.0)	75 (48.1)	153 (49.0)
Total	156	156	312

Table 3: Self-reported illness of sampled population by gender, n=312

	Sex		Total
	Male	Female	
Cold	8 (10.8)	1 (1.2)	9 (5.8)
Diarrhoea	0 (0.0)	4 (4.9)	4 (2.6)
Respiratory (or asthma)	3 (4.1)	1 (1.2)	4 (2.6)
Diabetes	5 (6.8)	20 (24.7)	25 (16.1)
Hypertension	28 (37.8)	39 (48.1)	67 (42.3)
Arthritis	15 (20.3)	6 (7.4)	21 (13.5)
Other	15 (20.3)	10 (12.3)	25 (16.1)
Total	74	81	155

Table 4: Self-reported diagnosed health conditions of sampled population, n=155

Of the 51.0% (n=159) of the sampled respondents whom indicated having had an illness in the last four weeks of the surveyed period, 97.5% (n=155) reported on the kind of health conditions (Table 4). Of those surveyed, 72.9 percent indicated having a chronic health condition, with the majority having hypertension 42.3 percent. The cross tabulation between self-reported diagnosed health conditions and gender revealed a significant statistical relationship ($\chi^2 = 25.844$, $P < 0.0001$). There is a gendered health chronic condition occurring among the sampled respondents as diabetes and hypertension are female health conditions compared to arthritis which is a male phenomenon. In fact, 3.6 times more females have been diagnosed with diabetes mellitus than males and 1.3 times more females having hypertension than males. However, 2.7 times more males were diagnosed with arthritis than their female aged counterparts

The cross tabulation between self-reported illness and self-rated health status revealed a significant statistical association ($\chi^2 = 51.547$, $P < 0.0001$; Table 5). Table 4 showed that as respondents self-rated health status worsen, self-reported illness increases. In fact, 83.3% of those whom indicated having had very poor health status had an illness compared 72.6% of those whom indicated poor health status

and only 13.6% of those whom indicated having excellent health status. The 14.2 percentage points of the variability in self-rated health status can be explained by a 1% change in self-reported illness or vice versa. Furthermore, of those who reported having had an illness,

13.6% indicated excellent health status; 27.3% had good health status; 54.9% reported having had fair health status and 72.6% mentioned poor self-rated health status, with 83.3% had reported very poor self-rated health.

Self-reported illness	Self-rated health status					Total
	Excellent	Good	Fair	Poor	Very poor	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Yes	3 (13.6)	21 (27.3)	67 (54.9)	53 (72.6)	15 (83.3)	159 (51.0)
No	19 (86.4)	56 (72.7)	55 (45.1)	20 (27.4)	3 (16.7)	153 (49.0)
Total	22	77	122	73	18	312

Note n denotes number of respondents

Table 5: Cross tabulation between self-reported illness and self-rated health status

Table 6 presents a binary logistic regression of selected socio-demographic variables and health-care seeking behaviour on self-rated health status. Of the seven variables used in the model, only two emerged as factors of self-rated health status. The two factors are gender and health-care seeking behaviour of the respondents, and they

illustrate the 14.7% (Nagelkerke squared R) of the variability in self-rated health status. Respondents who seeks medical attention are less likely to rate his/her health as at least moderate and a male is less likely to rate his health as at least moderate ($\chi^2 = 18.281, P = 0.050; -2LL=196.55$).

	B	Std. Error	Wald statistic	P	Odds ratio	95% C.I.	
						Lower	Upper
Married	0.265	0.431	0.380	0.538	1.304	0.561	3.032
Single	0.487	0.510	0.912	0.340	1.627	0.599	4.417
Separated, etc					1.000		
Gender (1=male)	-0.686	0.380	3.249	0.007	0.504	0.239	1.062
Health Seeking Behaviour	-1.306	0.424	9.489	0.002	0.271	0.118	0.622
Age	-0.021	0.035	0.368	0.544	0.979	0.915	1.048
Total expenditure	0.000	0.000	0.185	0.667	1.000	1.000	1.000
Middle class	-0.249	0.456	0.298	0.585	0.780	0.319	1.904
Upper class	-0.040	0.612	0.004	0.948	0.961	0.289	3.188
Lower class					1.000		
Urban Area	0.634	0.453	1.959	0.162	1.885	0.776	4.578
Peri-Urban	0.735	0.471	2.440	0.118	2.086	0.829	5.250
Rural					1.000		
Constant	2.743	2.871	0.912	0.339	15.530		

Table 6: Binary logistic regression of self-reported illness and likely factors, n=307

Table 7 shows a binary logistic regression of self-reported illness and selected variables that may (or not) influence self-reported illness. Of the selected variables examined on self-reported illness, only two emerged as factors. The two factors for self-reported illness model were social assistance and self-rated health status (Model $\chi^2 = 63.794, P < 0.0001; -2LL = 361.614$). The two factors accounted for 25.0% of the variability in self-reported illness (Nagelkerke squared R), with self-

rated health status contributing more to model than social assistance (Hosmer and Lemeshow $\chi^2 = 2.289, P = 0.972$). An elderly that has surpassed the life expectancy in Jamaica who received social assistance was 2.8 times more like to report an illness compared to one who did not receive social assistance from state agencies. In addition, an elderly who rated his/her health as at least moderate was 0.809 time less likely to indicate having an illness.

	B	Std. Error	Wald statistic	P	Odds ratio	95% C.I.	
						Lower	Upper
Age	-0.026	0.025	1.107	0.293	0.975	0.929	1.023
Crowding	-0.107	0.073	2.141	0.143	0.898	0.778	1.037
Total Expenditure	0.000	0.000	1.067	0.302	1.000	1.000	1.000
Health Insurance Coverage (1=yes)	0.433	0.304	2.024	0.155	1.542	0.849	2.801
Gender (1=male)	-0.476	0.292	2.657	0.103	0.621	0.350	1.101
Social Assistance (1=yes)	1.028	0.359	8.200	0.004	2.795	1.383	5.649
Married	0.636	0.336	3.589	0.058	1.889	0.978	3.649
Single	-0.601	0.345	3.040	0.081	0.548	0.279	1.077
Separated, etc.					1.000		
Urban	-0.111	0.316	0.123	0.726	0.895	0.482	1.663
Peri-Urban	0.140	0.348	0.161	0.688	1.150	0.582	2.273
Rural					1.000		
Moderate to Excellent Health	-1.655	0.311	28.240	0.000	0.191	0.104	0.352
Constant	3.700	2.104	3.094	0.079	40.463		

Table 7: Binary logistic regression of self-reported illness and likely factors, n=307

Limitation of study

This study was constrained by the use of secondary data. It limits the researchers from examining issues that are outside of the dataset inspite the importance of the phenomenon.

Discussion

According to the Statistical Institute of Jamaica, in 1910-12, life expectancy was 39 years for men and 41 years for women [4]. In 2006-2008, life expectancy was 71.3 years for men and 74.1 for women [4], reflecting the improvement in public health measures, water quality, and technology. There is increased life expectancy, globally, but while it is a good indicator of long life span, it stops short of providing information on quality of lived years. Using data from a Statistical Institute of Jamaica’s publication, the researchers computed that 10.9% of Jamaicans are 60+ years old with 34.7% living beyond the life expectancy (i.e.74 years). The Jamaican elderly, like those in other nations, are living beyond the life expectancy of their geographic locations and there are studies published, which show that people are living beyond even 100 years (or life expectancy) [22,23].

According to Serra et al. [22] and Poulain [24] many factors account for why people live beyond the average life expectancy by twenty or more years. These factors included lifestyle practices, nutrition, exercise, obesity and avoiding smoking. The present study found that 27.7% of Jamaican male elderly surpassed the life expectancy in 2007 by 10 years and 3.7% by least 20 years compared to 26.5% of elderly females by 10 years and 3.7% by at least 20 years. Although studies have provided likely reasons why some people surpassed the life expectancy in their geopolitical locality, there is no empirical evidence on health indicators of these individuals. The

current research found that 51 in every 100 elderly who surpassed the life expectancy in Jamaica experienced an illness; 73 in every 100 sought medical care; 32 in every 100 rated their health at least good; 29 out of 100 reported at least poor health and the majority of them had moderate self-rated health (39 out of 100). Furthermore, 42.1% of those whom reported an illness indicated that moderate self-rated health status. So when an article entitled ‘Life expectancy increases as region gets healthier, prosperous [addressing Latin America and the Caribbean]’ [25], it must be contextualized within the present health realities of that those whom have happened to surpassed the life expectancy.

The reality in Jamaica is that people whom have surpassed the life expectancy are more likely to report an illness, 21 out of every 50 experienced an illness. Of those whom indicated that their illnesses were diagnosed by a medical practitioner, 72.8% reported that these were chronic health conditions. Despite the positive of having lived beyond the life expectancy in Jamaica, these elderly on average spend 61 days experiencing an illness, suggesting that 18.1% of the years experiencing ill-health. It can be deduced from the findings of elderly Jamaicans whom have surpassed the life expectancy that many of them are lower quality of life owing to their health conditions. Furthermore, 32 percent of elderly that have surpassed the life expectancy reported at least good health compared to 49% among those 75-84 years old in an earlier study done by Bourne [17]. Not only are they experienced lowered health status because of the chronic conditions, there is gendered illness for those who surpassed the life expectancy.

In this work, we found that hypertension and diabetes are female health conditions while arthritis is a male health phenomenon, which is in keeping with an early study done by Bourne [17]. Outside of the gendered chronic health conditions among elderly in Jamaica, it can

be extrapolated from present findings that many Jamaican elderly that lived beyond the life expectancy have experienced long period of ill-health. This means that living longer comes with health burden and a greater probability of experiencing some kind of chronic ailment. In an earlier study done by Bourne [17], 23.4% of elderly Jamaicans ages 75-84 years old reported being diagnosed with hypertension compared to 43.2% of those in this work, which is the opportunity cost of surpassing the life expectancy. In addition, Statistics from the Planning Institute of Jamaica and the Statistical Institute of Jamaica revealed that in 2007, 15.5% of the population reported and illness [20]; but this work found that Jamaican elderly that have surpassed the life expectancy were 3.3 times more likely to report an illness compared to the general population.

Another indicator which emerged in this work is the positive statistical correlation between social assistance and ill-health among those elderly who surpassed the life expectancy. One in every 5 respondent in this study received social assistance, with the elderly being 2.8 times more likely to report an illness. Living beyond the life expectancy in Jamaica denotes not only chronic health conditions; but it speaks to 1) poverty, 2) being a head of household, 3) being separated, divorced or widowed and 4) living with a chronic health condition. It can be deduced from the findings that many of elderly Jamaicans who surpassed the life expectancy are living alone in poverty and are residents of rural areas. So when Serra et al, declared that "Living longer does not necessarily mean living in good health" this is indeed the case among elderly Jamaicans whom have surpassed the life expectancy of their gender. The socio-economic challenges of the elderly that have surpassed the life expectancy in Jamaica must be contextualized within those of the society as statistics revealed that 9.9% of Jamaicans were living below the poverty line [20] and this was 2.1 times more among the elderly whom have lived beyond their respective gendered life expectancies.

A critical finding which emerged from this work is that as people surpassed the life expectancy in a particular geopolitical zone, what influence their self-reported illness and self-rated health status drastically changes. In a study of elderly Jamaicans age 60+ years old, Bourne found that eleven factors explain good health status [18] and they account for 45.9% of the variability in self-rated good health, which was clearly not the case in the present work. The factors were social support (or assistance); area of residence; education; age; crowding; physical environment; affective psychological conditions; gender and property ownership. In this research, only two factors (health-seeking behaviour and gender) accounted for changes in self-rated health status and social assistance as well as self-rated health status explains variances in self-reported illness. Clearly what affect self-rated health status among people 60+ years is not the same as those for people surpassing the life expectancy (males, 72+ years; females, 74+ years old), and as such social intervention for elderly 60+ cannot be the same as for those surpassing the life expectancy of their respective genders.

One Caribbean scholar claimed that the elderly accounted for the largest percentage of hospital utilization [26] and within the current findings (46.3% of illness who sought public health care), the type of health conditions and length of time that they experienced the health conditions, the milestone of surpassing the life expectancy must be interpreted within existential perplexities, multiple pathologies and the health cost burden that must be borne by the society. Bogue [26] opined health conditions shift from low at ages 65 -74 years to moderate at ages 75 - 84 years, which offers yet another explanation

for what is happening among those surpassing the life expectancy in Jamaica and the higher mortality among these people.

This study goes further than others in the health or ageing discourse by evaluating probability of surpassing the life expectancy by 10 years and 20 years. We found that probability of surpassing the life expectancy in Jamaica was 0.543 (male, 0.277; female, 0.265), which suggests that probability of dying before 10 years after the life expectancy is 0.457. However, the probability of living 20 years surpassing the life expectancy is 0.068 (male, 0.031; female, 0.371), which shows the progressing degeneration of the human body and how mortality substantially increases with ageing at older ages (male, 92+ years; females, 94+ years). Emerging from the current work is that 88.1% of men who surpassing the life expectancy by 10 years will die before the next decade and figure is 86.1% of women, which shows the progressively mortality after surpassing the life expectancy.

The degeneration of the human body towards mortality at older ages is recorded in the literature [27-30], which means that death increases with ageing whether are few or many communicable or non-communicable diseases. Although females who surpass the life expectancy in this study were 1.2 times more likely to be diagnosed with particular non-communicable illness (ie. diabetes, hypertension and arthritis) than their male counterparts; yet the latter had a higher progressive probability of dying at older ages than the former.

Organism aged naturally, which is explained in biological ageing. This approach emphasizes the longevity of the cells, in relation to the number of years the organism can live. Thus, in this construction, the human body (an organism) is valued based on physical appearance and/or state of the cells. Embedded in this apparatus is the genetic composition of the survivor. This occurs where the body's longevity is explained by genetic components [30]. Gompertz's law in Gavrilov and Gavrilova [28] shows that there is fundamental quantitative theory of ageing and mortality of certain species (the examples here are as follows - humans, human lice, rats, mice, fruit flies, and flour beetles [see also, (29)]. Gompertz's law went further to establish that human mortality increase twofold with every 8 years of an adult life, which means that ageing increases in geometric progression and this therefore accounts of the mortality 20 years surpassing the life expectancy of Jamaicans. Unlike Gompertz's theory, we found that every 10 years after the life expectancy in Jamaica, mortality increases by 8 times. This phenomenon means that human mortality increases with age of the human adult, particularly after the life expectancy of the gender, and this becomes progressively greater with advanced ageing. Thus, biological ageing is a process where the human cells degenerate with years (i.e. the cells die with increasing in age), which is explored in evolutionary biology [31-34].

Studies have shown, however, that using evolutionary theory for "late-life mortality plateaus", and fail because of the arguably unrealistic set of assumptions that the theory uses to establish itself [35-38]. The latter, based on Gavrilov and Gavrilova [28], can occur because of accidents and acute infection, which is called "extrinsic causes of death. While Gompertz's law speaks to mortality in ageing organism due to age-related degenerative illnesses such as heart diseases and cancers, a part of the reliability function is Gompertz's function as well as the non-ageing component. Gompertz's law provides a comprehensive understanding of the ageing process beyond the life expectancy in Jamaica. The reality is, 15.1% of elderly surpassing the life expectancy in Jamaica who had diagnosed illness indicated experiencing at least good health compared to 31.5% of elderly surpassing the life expectancy. Such a finding explains the

burden of non-communicable diseases on the elderly [38]. With ageing being a feminized phenomenon, it stands to reason that the burden of non-communicable diseases is more experience for ageing women [39]. The price of living longer is mortality, morbidity, lower quality health status, and separation from partner(s) as well as the complexities of living in the present society.

Conclusion

Living beyond the life expectancy in Jamaica is a gendered health phenomenon. There is enough empirical evidence to support gendered health and area-specific perspectives in the health care and management of people living beyond the life expectancy and that intervention programmes must be tailored with this new knowledge.

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