Original Article

Health of females in Jamaica: using two cross-sectional surveys

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Abstract

Background: The 21st Century cannot see the examination of health status of elderly, population, children and adolescents; but not for females**. Aims**: current study are 1) to examine the health conditions; 2) provide an epidemiological profile of changing health conditions in the last one half decade (2002-2007); 3) evaluate whether self-reported illness is a good measure of health status; 4) compute the mean age of females having particular health conditions; 5) calculate the mean age of being ill compared with those who are not ill; and 6) assess the correlation between health status and income quintile. **Methods and Results**: In 2002, a subsample of 12,675 females was extracted from the sample of 25,018 respondents and for 2007; a subsample of 3,479 females was extracted from 6,783 respondents. **Results:** There is reduction in the mean age of females reported being diagnosed with chronic illness such as diabetes mellitus (60.54 ± 17.14 years); hypertension (60.85 ± 16.93 years) and arthritis 59.72 ± 15.41 years). The greatest decline in mean age of chronically ill diagnosed females was in arthritic cases (by 7.41 years). Concurrently, the mean age of females with unspecified health conditions fell by (33%, from 54.62 ± 21.77 years in 2002 to 36.42 ± 23.69 years in 2007). **Conclusion**: Although healthy life expectancy for females at birth in Jamaica was 66 years, improvements in their health status cannot be neglected as there are shits in health conditions (to diabetes mellitus) as well as the decline in ages at which females are being diagnosed with particular chronic illnesses.

Keywords: Health, health status, health conditions, self-reported health, public health, female, epidemiological shifts in diseases, Jamaica.

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Introduction

Life expectancy is among the objective indexes for measuring health for a person, society, or population. In 1880-1882, life expectancy at birth for females in Jamaica was 39.8 years which was 2.79 years more than that for males. One hundred and twenty-two year (2002-2004), this health disparity increased to 5.81 years: life expectancy at birth for female was 77.07 years [1]. For the world, the difference in life expectancy for the sexes was 4.2 years more for females than males: for 2000-2005, life expectancy at birth for females was 68.1 years [2]. Within the expanded conceptual framework offered by the World Health Organization (WHO) in the late 1940s, health is

more than the absence of morbidity as it includes social, psychological and physiological wellbeing [3].

Some scholars [4] opined that using the opposite of ill-health to measure health is a negative approach is health is more than this biomedical approach. Brannon and Feist [4] forwarded a positive approach which is in keeping with the 'Biopsychosocial' framework developed by Engel. Engel coined the term Biopsychosocial when he forwarded the perspective that patient care must integrate the mind, body and social environment [5-8]. He believed that mentally patient care is not merely about the illness, as other factors are equally influence the health of the

patient. Although this was not new because the WHO had already stated this, it was the application which was different from the traditional biomedical approach to the study and treatment of ill patients. Embedded in Engel's works were wellbeing, wellness and quality of life and not merely the removal of the illness, which psychologists like Brannon and Feist called the positive approach to the study and treatment of health.

Recognizing the limitation of life expectancy, WHO therefore developed DALE –Disability Adjusted Life Expectancy – which discounted life expectancy by number of years spent in illness. The emphasis in the 21st Century therefore was healthy life and not length of life (i.e. life expectancy) [9]. DALE is the years in ill health which is weighted according to severity, which is then subtracted from the expected overall life expectancy to give the equivalent healthy years of life. Using healthy years, statistics revealed that the health disparity between the sexes in Jamaica was 5 years in 2007 [10], indicating that health status of females on average in Jamaica is better than that for males. This is not atypical to Jamaica as females in many nations had a greater healthy life expectancy than males.

The discipline of public health is concerned with more than accepting the health disparity as indicated by life expectancy or healthy life expectancy, as it seeks to improve the quality of life of the populace and the various subgroups that are within a particular geographical border. In order for this mandate to be attained, we cannot exclude the study of females' health merely because they are living longer than males and accept this as a given; and that there is not need therefore to examine their health status.

Many empirical studies that have examined health of Caribbean nationals were on the population [11-15]; elderly [16-25]; children [26, 27]; adolescents [28-30] and females have been omitted from the discourse. A comprehensive search of health literature in Caribbean in particular Jamaica revealed no studies. The values for the healthy life expectancy cannot be enough to indicator the health status of females neither can use health status of population, children, elderly and adolescents to measure that of females.

WHO forwarded a position that there is a disparity between contracting many diseases and the gender constitution of an individual [31], suggesting that population health cannot be used to measure female health. Females have a high propensity than males to contract particular conditions such as depression, osteoporosis and osteoarthritis [31]. A study conducted by McDonough and Walters [32] revealed that women had a 23 percent higher distress score than men and were more likely to report chronic diseases compared to males (30%).   It was found that men believed their health was better (2% higher) than that self-reported by females. McDonough et al used data from a longitudinal study named Canadian National Population Health Survey (NPHS). Those aforementioned realities justify a study on female health in Jamaica.

The current study fills the gap in the health literature by investigating health of females in Jamaica. The objectives of the current study are 1) to examine the health conditions; 2) provide an epidemiological profile of changing health conditions in the last one half decade (2002-2007); 3) evaluate whether self-reported illness is a good measure of health status; 4) compute the mean age of females having particular health conditions; 5) calculate the mean age of being ill compared with those who are not ill; and 6) assess the correlation between health status and income quintile.

Materials and Methods

The current study extracted subsample of females from two secondary cross-sectional data collected by the Planning Institute of Jamaica and the Statistical Institute of Jamaica [33, 34]. In 2002, a subsample of 12,675 females was extracted from the sample of 25,018 respondents and for 2007; a subsample of 3,479 females was extracted from 6,783 respondents. The survey is called the Jamaica Survey of Living Conditions (JSLC) which began in 1989. The JSLC is modification of the World Bank's Living Standards Measurement Study (LSMS) household survey. A self-administered questionnaire is used to collect the data from Jamaicans. Trained data collectors are used to gather the data; and these individuals are trained by the Statistical Institute of Jamaica

The survey 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 constitutes a minimum of 100 residences 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 labor force. One third of the Labor Force Survey (i.e. LFS) was selected for the JSLC. The sample was weighted to reflect the population of the nation. The non-response rate for the survey for 2007 was 26.2% and 27.7%.

Self-reported illness (or Health conditions): The question was asked: "Is this a diagnosed recurring illness?" The answering options are: Yes, Cold; Yes, Diarrhea; Yes, Asthma; Yes, Diabetes; Yes, Hypertension; Yes, Arthritis; Yes, Other; and No.

Self-rated health status (health status): "How is your health in general?" And the options were very good; good; fair; poor and very poor. The first time this was collected for Jamaicans, using the JSLC, was in 2007.

Social class: This variable was measured based on the income quintiles: 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 behavior: This is a dichotomous variable which came from the question "Has a doctor, nurse, pharmacist, midwife, healer or any other health practitioner been visited?" with the option (yes or no).

Statistical analysis
The data were collected, stored and retrieved in SPSS for Windows 16.0 (SPSS Inc; Chicago, IL, USA). Descriptive statistics were used to provide information on the socio-demographic variables of the sample. Cross Tabulations were employed to examine correlations between non-metric variables, and Analysis of Variance (ANOVA) was utilized to examine statistical associations between a metric and non-metric variable. The level of significance used in this research was 5% (i.e. 95% confidence interval). Bryman and Cramer [35] correlation coefficient values were used to determine, the strength of a relation between (or among) variables: 0.19 and below, very low; 0.20 to 0.39, low; 0.40 to 0.69, moderate; 0.70 to 0.89, high (strong); and 0.90 to 1 is very high (very strong).

Results
Demographic characteristic of sample

In 2002, 14.7% of sample reported an illness and this increased by 19.1% in 2007. Over the same period, health insurance coverage increased by 81.0% (to 21.0% in 2007); those seeking medical care increased to 67.6% (from 66.0%); the mean age in 2007 was 30.6±21.9 years which marginal increased from 29.4 ± 22.3 years; diabetic cases exponentially increased by 227.7% (in 2007, 15.4%); hypertension decline by 45.5% (to 24.8% in 2007) and arthritic cases felt by 66.1% (to 9.4% in 2007). Urbanization was evident between 2007 and 2002 as the number of females who resided in urban areas increased by 114.7% (to 30.4% in 2007), with a corresponding decline of 19.4% in females zones.

Table 1 revealed that the increase in self-reported illness was substantially accounted for by increased cases in the rural sample (from 12.9% in 2002 to 20.0% in 2007). The drastic increase in health insurance coverage in 2007 was due to public establishment of public health insurance coverage. The greatest increase was observed in semi-urban areas 17.8%) followed by urban (9.6%) and rural (7.8%) (Table 1). The increases in self-reported illness can be accounted for by diabetes mellitus, asthma and other dysfunctions. Concurrently, most of the increased cases were diabetic in semi-urban zones (17.1%); other health conditions in semi-urban areas (12.4%) and asthma in urban zones (12.0%) (Table 1).

Table 1 Sociodemographic characteristics of sample by area of residence, 2002 and 2007

| Variable	2002			2007		
	Rural	**Semi-Urban**	**Urban**	**Rural**	**Semi-Urban**	**Urban**
Marital status						
Married	1232 (25.7)	568 (25.7)	243 (19.3)	262 (23.9)	111 (21.0)	161 (21.2)
Never married	3033 (63.3)	1452 (65.7)	907 (71.9)	723 (65.9)	362 (68.6)	523 (68.9)
Divorced	25 (0.5)	16 (0.7)	18 (1.4)	11 (1.0)	16 (3.0)	16 (2.1)
Separated	51 (1.1)	27 (1.2)	22 (1.7)	12 (1.1)	5 (0.9)	8 (1.1)
Widowed	453 (9.4)	147 (6.7)	71 (5.6)	89 (8.1)	34 (6.4)	51 (6.7)
Income quintile						
Poorest 20%	1864 (24.8)	450 (13.5)	206 (11.4)	498 (29.9)	77 (10.2)	97 (9.2)
Poor	1867 (24.8)	511 (15.3)	231 (12.7)	437 (26.2)	146 (19.4)	131 (12.4)
Middle	1559 (20.7)	652 (19.2)	331 (18.2)	342 (20.5)	161 (21.4)	212 (20.0)
Wealthy	1340 (17.8)	759 (22.7)	441 (24.3)	237 (14.2)	183 (24.3)	265 (25.0)
Wealthiest 20%	894 (11.9)	965 (28.9)	605 (33.4)	154 (9.2)	185 (75.2)	354 (33.4)
Health conditions						
Diagnosed Acute						
Cold	1 (0.7)	0 (0.0)	0 (0.0)	13 (7.8)	21 (20.0)	13 (7.8)
Diarrhea	3 (2.2)	1 (3.0)	0 (0.0)	2 (1.2)	2 (1.9)	2 (1.2)
Asthma	1 (0.7)	2 (6.1)	0 (0.0)	20 (12.0)	6 (5.7)	20 (12.0)
Diagnosed Chronic						
Diabetes mellitus	8 (6.0)	0 (0.0)	1 (4.2)	23 (13.8)	18 (17.1)	23 (13.8)
Hypertension	57 (42.5)	20 (60.6)	10 (41.7)	33 (19.8)	29 (27.6)	33 (19.8)
Arthritis	38 (28.4)	8 (24.2)	7 (29.2)	9 (5.4)	7 (6.7)	9 (5.4)
Other	26 (19.4)	2 (6.1)	6 (25.0)	45 (26.9)	13 (12.4)	45 (26.9)
Non-diagnosed	-	-	-	22 (13.2)	9 (8.6)	22 (13.2)
Self-reported illness						
Yes	1181 (16.3)	384 (12.0)	228 (12.9)	324 (20.0)	104 (14.2)	164 (16.0)
No	6051 (83.7)	2811 (88.0)	1540 (87.1)	1298 (80.0)	627 (85.8)	864 (84.0)
Health care-seekers						
Yes	791 (66.0)	261 (66.8)	145 (64.7)	215 (65.5)	65 (63.1)	125 (74.4)
No	407 (34.0)	130 (33.2)	79 (35.3)	113 (34.5)	38 (36.9)	43 (25.6)
Health insurance						
Yes, Private	540 (7.4)	539 (16.7)	341 (19.3)	114 (7.1)	117 (16.3)	191 (18.7)
Yes, Public	-	-	-	126 (7.8)	56 (17.8)	98 (9.6)
No	6723 (92.6)	2690 (83.3)	1430 (80.7)	1361 (85.0)	547 (76.0)	735 (71.8)
Age Mean (SD) in yrs	29.5 (23.0)	28.6 (21.2)	30.0 (21.0)	29.9 (22.3)	30.6 (21.1)	31.6 (22.0)

Health

There was a significant statistical correlation between health status and self-reported illness - χ^2 (DF = 4) = 700.633, P < 0.001; with there being a negative moderate relation between the variables – correlation coefficient = -0.412(Table 2). Based on Table 2, 10.7% of those who reported an illness had had very good health status compared to 40.2% of those who did not indicate an illness. On the other hand, 2.5% of those who did not report a dysfunction had at least poor health status compared to 19.8% of those who indicated having an illness. Even after controlling health status and self-reported illness by age, marital status and per capita annual expenditure, a moderate negative correlation was found – correlation coefficient = - 0.362.

Table 2 Health status by self-reported illness, 2007

Health status	Self-reported Illness	
	Yes	No
Very good	63 (10.7)	1114 (40.2)
Good	176 (29.8)	1305 (47.1)
Fair	234 (39.7)	281 (10.2)
Poor	104 (17.6)	55 (2.0)
Very poor	13 (2.2)	13 (0.5)
Total	590	2768

χ^2 (DF = 4) = 700.633, P < 0.001, correlation coefficient = - 0.412

On further examination of the self-reported illness by age, it was found that in 2002 the mean age of individual who reported an illness was 43.97 ± 26.81 years compared to 27.05 ± 20.41 years for who without an illness – t-test = 30.818, P < 0.001. In 2007, the mean age of reporting an illness was 42.83 ± 26.53 years compared to 28.16 ± 19.95 years for those who did not report an ailment – t-test = 15.263, P < 0.001.
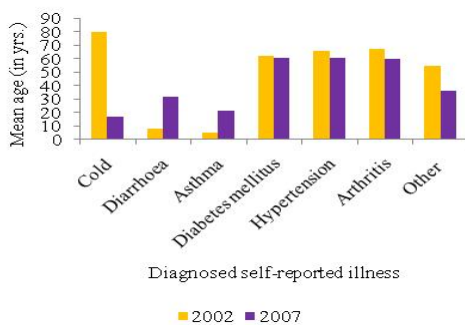
Fig. 1 Mean scores for diagnosed health conditions, 2002 and 2007.

Based on Figure 1, there is an increase in the mean age of females being diagnosed with diarrhea (32.00 ± 36.2 years) and asthma (21.73 ± 20.51 years). However, there is reduction in the mean age of females reported being diagnosed with chronic illness such as diabetes mellitus (60.54 ± 17.14 years); hypertension (60.85 ± 16.93 years) and arthritis 59.72 ± 15.41 years). The greatest decline in

mean age of chronically ill diagnosed females was in arthritic cases (by 7.41 years). Concurrently, the mean age of females with unspecified health conditions fell by (33%, from 54.62 ± 21.77 years in 2002 to 36.42 ± 23.69 years in 2007).

A cross tabulation between health status and income quintile revealed a significant statistical correlation - χ^2 (DF = 16) = 54.044, P < 0.001; with the relationship being a very weak one – correlation coefficient = 0.126 (Table 3). Based on Table 3, the wealthy reported the greatest health status (i.e. very good) compared to the wealthiest 20% (36.7%); with the poorest 20% recorded the least very good health status.

Table 3 Health status by income quintile, 2007

Health Status	Income Quintile				
	Poorest 20%	2.00	3.00	4.00	Wealthiest 20%
Very good	196 (30.2)	237 (34.0)	225 (32.4)	282 (42.4)	243 (36.7)
Good	287 (44.2)	320 (45.9)	326 (46.9)	268 (40.3)	284 (42.8)
Fair (moderate)	105 (16.2)	110 (15.8)	107 (15.4)	87 (13.1)	108 (16.3)
Poor	56 (8.6)	23 (3.3)	30 (4.3)	24 (3.6)	26 (3.9)
Very poor	6 (0.9)	7 (1.0)	7 (1.0)	4 (0.6)	2 (0.3)
Total	650	697	695	665	663

$\chi2$ (DF = 16) = 54.044, P < 0.001, correlation coefficient = 0.126

No significant statistical correlation was found between diagnosed self-reported illness and income quintile - χ^2 (DF = 28) = 36.161, P > 0.001 (Table 4).

Discussion

Health status of female Jamaicans can be measured using self-reported illness. The current study found a moderate significant correlation between the two aforementioned variables, suggesting that self-reported illness is a relatively good measure of female's health. In this study it was revealed that 60 out of every 100 who reported an illness had at most fair health status, with 20 out every 100 indicated a least poor health. It is evident from the findings that health status is wider than illness, which concurs with the literature [35, 36], which is keeping with the propositions of the WHO that health must be more than the absence of illness. Health status is people's self-rated perspective on their general health status [35], which includes a percentage of poor health (or ill-health). The other components of this status include life satisfaction, happiness, and psychosocial wellbeing. Using a sample of elderly Barbadians, Hambleton et al [37] found 33.5% of

Table 4 Diagnosed health condition by per capita income

Diagnosed Health Condition	Income Quintile				
	Poorest 20%	2.00	3.00	4.00	Wealthiest 20%
Yes, Cold	14 (11.4)	20 (17.5)	21 (15.8)	13 (11.8)	12 (10.3)
Yes, Diarrhea	2 (1.6)	5 (4.4)	6 (4.5)	1 (0.9)	2 (1.7)
Yes, Asthma	12 (9.8)	9 (7.9)	11 (8.3)	3 (2.7)	13 (11.1)
Yes, Diabetes	17 (13.8)	14 (12.3)	12 (9.0)	26 (23.6)	23 (19.7)
Yes, Hypertension	35 (28.5)	27 (23.7)	38 (28.6)	24 (21.8)	24 (20.5)
Yes, Arthritis	11 (8.9)	5 (4.4)	6 (4.5)	5 (4.5)	5 (4.3)
Yes, Unspecified	25 (20.3)	27 (23.7)	26 (19.5)	29 (26.4)	25 (21.4)
No	7 (5.7)	7 (6.1)	13 (9.8)	9 (8.2)	13 (11.1)
Total	**123**	**114**	**133**	**110**	**117**

χ^2 (DF = 28) = 36.161, $P > 0.001$

explanatory power of health status is accounted for by illness. There is a disparity between the current study and that of Hambleton's work as more of health status of the elderly is explained by current illness with this being less for females in Jamaica. Concomitantly, there is an epidemiological shift in the typology of illnesses affecting females as the change is towards diabetes mellitus. In 2007 over 2002, the 15 out of every 100 females reported being diagnosed with diabetes mellitus compared to 5 in 100 in 2002 indicating the negative effects of life behavior of female's health status. Another important finding of the current study is that diagnosed illnesses are not significant different based on income quintile in which a female is categorized. However, the health status of females in different social standing (measured using income quintile) is different. Embedded in this finding is the role of income plays in improving health status [38]. Like Marmot [38], this study found that income is able to buy some improvement in health status; but this work goes further as it found that income it does not reduce the typology is health conditions affecting the female.

Before this discussion can proceed, the discourse must address the biases in subjective indexes which are found in studies like this one. Any study on subjective indexes in the measurement of health (for example, happiness, life satisfaction; health status, self-reported illness) needs to address the challenges of biases that are found in self-reported data in particular self-reported health data. The discourse of subjective wellbeing using survey data cannot deny that it is based on the person's judgment, and must be prone to systematic and non-systematic biases [40]. Diener [36] argued that the subjective measure seemed to contain substantial amounts of valid variance, suggesting that there is validity to the use of this approach in the measurement of health (or wellbeing) like the objective indexes such as life expectancy, mortality or diagnosed morbidity. A study by Finnas et al [41] opined that there are some methodological issues surround the use of self-reported (or self-rated) health and that these may result in incorrect inference; but that this measure is useful in understanding health, morbidity and mortality. Using

life expectancy and self-reported illness data for Jamaicans, Bourne [42] found a strong significant correlation between the two variables (correlation coefficient, R = - 0.731), and that self-reported illness accounted for 54% of the variance in life expectancy.

When Bourne [42] disaggregated the life expectancy and self-reported illness data by sexes, he found a strong correlation between males (correlation coefficient, R = 0.796) than for females (correlation coefficient, R = 0.684). Self-reported data therefore do have some biases; but that it is good measure for health in Jamaica and more so for males. In spite of this fact, the current research recognized some of the problems in using self-reported health data (read Finnas et al. [41] for more information), while providing empirical findings using people's perception on their health.

Now that the discourse on objective and subjective indexes of is some out of the way, the next issue of concern is the reduced aged of reported illness and age of being diagnosed with particular chronic illness. In 2002, the mean age recorded for those who self-reported an illness was 44 years and this fell by 1 year in 2007, indicating that on average females are becoming diagnosed with an illness 2 months earlier. When self-reported illness was disaggregated into acute and chronic health conditions, it was revealed that on average females were being diagnosed 7.41 years earlier with arthritis in 2007 over 2002; 4.95 years earlier with hypertension and 1.13 years earlier with diabetes mellitus.

Conclusions

The current study has revealed that, although healthy life expectancy for females at birth in Jamaica is 66 years, improvements in their health status cannot be neglected as there are shits in health conditions (to diabetes mellitus) as well as the decline in ages at which females are being diagnosed with particular chronic illnesses.

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