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ORIGINAL ARTICLE

The Self-Evaluated Health And Health Conditions Of Rural Residents In A Developing Country

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ABSTRACT

Background: In Jamaica, in 1989, the national poverty rate was 30.5% and this exponentially fell by 208.1% in 2007, but in the latter year, rural poverty was 4 times more than in the peri-urban areas and 3 times more than the urban poverty rate. Yet, there was no study on health status and health conditions in order to examine the changes among the rural residents.
Aims: The present study aimed to [1] examine epidemiological shifts in the typology of the health conditions in rural Jamaicans, [2] determine the correlates and the estimates of the self-evaluated health status of the rural residents, [3] determine the correlates and estimates of the self-evaluated health conditions of the rural residents and [4] assist policy-makers in understanding how intervention programmes can be structured to address some of the identified inequalities among the rural residents in Jamaica.
Methods and Material: The current study involved the extraction of the samples of 15,260 and 3,322 rural residents from two national cross-sectional surveys (2002 and 2007 Jamaica Survey of Living Conditions).
Setting and Design: 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 and a selection of dwellings from the primary units.
Statistical Analyses: Statistical analyses were performed by using the Statistical Package for the Social Sciences. Descriptive statistics such as mean, standard deviation, frequency and percentage were used to analyze the socio-demographical characteristics of the sample. The Chi-square test was used to examine the association between the non-metric variables and multiple logistics were used to establish the factors that explained a dichotomous dependent variable.
Results: In 2002, 14% of the respondents indicated having an illness in the 4-week period of the survey as compared to 17% in 2007. In 2002, there were 12 determinants of health: 11 social and 1 psychological, whereas in 2007, there were 7 determinants of health: 6 social and 1 biological. The determinants accounted for 22.6% of the explanatory power of the health model for 2002 and 44.7% for 2007.
Conclusion: With the exponential increase in diabetes mellitus and the health inequalities that exist today in rural Jamaica, public health authorities and other policy-makers need to use multidimensional intervention strategies to address those inequalities.

Key Words: Self-evaluated health, health conditions, illness, rural residents, determinants of health

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Introduction

The health of a population is critical to all forms of development. This is a justifiable rationale for the governments investing in health care and the health system. Despite governments in Latin America and the Caribbean increasing their investment in health since the 1980s [1], there are still many inequalities in health among and within their nations [2]. This is evident in the indicators of the health disparities as well as in the social determinants of health [3],[4],[5],[6]. The advancement in technology and medical sciences has not removed the disparities in infant mortality, poverty, health service utilization, and health differentials within and among the Latin American and Caribbean nations or within and among the social hierarchies. Casas et al. [4] cited that the improvements in health in the region are not in keeping with the region's economic development rates and the same can be said of the health differences between the wealthy and the poor. In Jamaica, which is an English-speaking country in the Latin America and Caribbean region, the national poverty rate in 1989 was 30.5% and this fell exponentially by 208.1% in 2007, but in the latter year, rural poverty was 4 times more than the peri-urban poverty and 3 times more than the urban poverty rate [9]. Most of the wealthy reside in the urban or peri-urban areas than in the rural areas.

Statistics from the World Health Organization (WHO) for 2007, showed that both life expectancy and healthy life expectancy at birth was at least 4 years more for females than malesand that these were greater in developed than in developing countries, as was the case for infant mortality [7]. The health disparity is aptly demonstrated by the WHO [8]. They opined that 80% of the chronic illnesses were in the low and middle income countries, that 60% of global mortality was caused by chronic illness and that "In reality, the low and middle income countries were at the centre of both the old and new public health challenges" [8]. They went on that "...People who are already poor are the most likely to suffer financially from chronic diseases, which often deepen poverty and damage long term economic prospects"[8].

Many empirical studies have found that rural residents have lower health status and/or more health conditions, higher levels of poverty and lower levels of education as compared to their urban counterparts [8],[9],[10],[11],[12],[13],[14],[15],[16],[17],[18], and this is also the case in Jamaica [19]. Statistics from the Planning Institute of Jamaica and the Statistical Institute of Jamaica, since 1989, demonstrate that poverty is area and gender specific (rural and female). These disparities speak about the socio-economical and health inequalities within and among the states. Although there are empirical findings which reveal that health inequalities and inequities do exist between rural and urban residences, as well as among social hierarchies and between the sexes in Latin America and the Caribbean, particularly Jamaica, only a few studies were found to have examined the health status of rural people in the region [14], [19],[20],[21],[22],[23],[24],[25],[26],[27],[28].

Inequities and/or inequalities in health can only be addressed in the region if they are understood through research within each nation and policy-makers cannot rely on the funding of studies outside their region or in developed countries, in order to effectively remedy the challenges that they face. The relationship between poverty and ill health is empirically established, but the focus of the region since the 1980s has been poverty reduction and while this has been progressing, the health disparities are still evident today [3]. Embedded in the literature, therefore, are income mal-distribution, working conditions and health outcome inequalities, inequalities in health determinants and lower material wellbeing and poverty, which have a direct influence on health. Poverty also indirectly influences health service utilization, the quality of received care and healthy life expectancy. With poverty being substantially a rural phenomenon [9], investment in health in rural areas requires an understanding of the changes occurring in the health conditions among the residents.

The WHO [8] opined that 80% of the chronic illnesses were in the low and middle income countries, thus suggesting that illness interfaces with poverty and other socio-economical challenges. Poverty does not only make an impact on illness, it causes premature deaths, lowers the quality of life, creates lower life and unhealthy life expectancy, low development and other social ills such as crime, high pregnancy rates, and the social degradation of the community. According to Bourne and Beckford [15], there is a positive correlation between poverty and unemployment, poverty and illness and crime and unemployment. Embedded in those findings are the challenges of living in poverty and the perpetual nature of poverty and illness, poverty and unemployment, economic deprivation and the psychological frustration of poor families. Sen [18] encapsulated this well when he postulated that low levels of unemployment in the economy are associated with higher levels of capability. This highlights the economic challenge of unemployment and equally explains the labour incapacitation on the account of high levels of unemployment, which goes back to the WHO's perspective that chronic illnesses are more often experienced by low-to-middle income people. According to the WHO [8], 60% of global mortality is caused by chronic illness and this should be understood within the context that four-fifths of chronic dysfunctions are in the low-to-middle income countries.

Within the aforementioned findings, area of residence, in particular rural areas, is too much of an important variable to be treated as an explanatory concept. Montgomery [17] opined that urban causes of mortality and disability provide an understanding of urban-rural health differentials. The paper provides answers to some of the urban health disparities in developing countries and compares these situations with those faced by the rural residents. Montgomery's findings [17] were generally on the developing countries and while his work does give some insights into the urban-rural health inequalities, it cannot be used to formulate policies or intervention strategies, specifically for Jamaica. The rationale embedded in this argument is the fact that not all developing countries are at the same socio-economical stage of development, and therefore, research is required for any intervention techniques which are chosen for effecting health changes. Concurrent investment in health is critical to economical development [29]; once again, this has not resulted in the removal of health inequalities in Latin America and the Caribbean and in particular, Jamaica [3],[4],[5]. Therefore, the present study aims to [1] examine epidemiological shifts in the typology of the health conditions in rural Jamaicans, [2] determine the correlates and the estimates of the self-evaluated health status of the rural residents, [3] determine the correlates and the estimates of the self-evaluated health conditions of the rural residents and [4] assist policy-makers in understanding how intervention programmes can be structured to address some of the inequalities which have been identified among the rural residents in Jamaica.

Methods And Materials

Setting And Design

The current study involved the extraction of the samples of 15,260 and 3,322 rural residents from two surveys, collected jointly by the Planning Institute of Jamaica and the Statistical Institute of Jamaica for 2002 and 2007, respectively [30,31]. The method of selection of the sample from each survey was solely based on rural residence. The survey (Jamaica Survey of Living Conditions) was begun in 1989 and collected data from Jamaicans in order to assess government policies. Each year since 1989, the JSLC has added a new module in order to examine that phenomenon which is so critical to the nation. In 2002, the foci were on 1) social safety nets and 2) crime and victimization; and for 2007, there was no focus. The sample for the earlier survey was 25,018 respondents and for the latter, it was 6,783 respondents.

The survey was drawn by 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

is comprised of a minimum of 100 residences in rural areas and 150 in the urban areas. An ED is an independent geographical unit that shares a common boundary. This means that the country was grouped into a 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 dwellings was compiled, which in turn provided the sampling frame for the labour force. One third of the Labour Force Survey (i.e. the LFS) was selected for the JSLC [30], [31]. The sample was weighted to reflect the population of the nation.

The 2007, JSLC [30] was conducted in May and August of that year, while the 2002 JSLC was administered between July and October of that year. The researchers chose this survey based on the fact that it is the latest survey on the national population and that it contains data on the self-reported health status of Jamaicans. An administered questionnaire was used to collect the data, which were stored and analyzed by using SPSS for Windows 16.0 (SPSS Inc; Chicago, IL, USA). The questionnaire was modelled on the World Bank's Living Standards Measurement Study (LSMS) household survey. There were some modifications to the LSMS, as the JSLC was more focused on policy impacts. The questionnaire covered areas such as socio-demographical variables, for example, education, daily expenses (for the past 7days), food and other consumption expenditures, inventory of durable goods, health variables, crime and victimization, social safety nets, and anthropometry. The questionnaire contained standardized items such as socio-demographical variables, excluding crime and victimization which were added in 2002 and later removed from the instrument, with the exception of a few new modules each year. The non-response rate for the survey for 2007 was 26.2% and 27.7%. The non-response section included refusals and cases which were rejected in data cleaning.

Measurement

Dependent Variable

Self-reported illness (or self-reported dysfunction): The question was asked: "Is this a diagnosed recurring illness?" The answering options are: Yes, Influenza; Yes, Diarrhoea; Yes, Respiratory diseases; Yes, Diabetes; Yes, Hypertension; Yes, Arthritis; Yes, Other; and No. A binary variable was later created from this construct (1 = no 0 = otherwise) to be applied in the logistic regression. This was used to indicate the health status (i.e. dependent variable) for 2002.

The self-rated health status was measured by using people's self-rating of their overall health status [32], which ranged from excellent to poor health status. The question that was asked in the survey was "How is your health in general?" And the options were very good; good; fair; poor and very poor. For the purpose of the model in this study, self-rated health was coded as a binary variable (1 = good and fair, 0 = Otherwise) [33],[34],[35],[36],[37],[38]. The binary good health status was used as the dependent variable for 2007.

Covariates

Age is a continuous variable, which is the number of years alive since birth (using last birthday)

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

Medical care-seeking behaviour was taken from the question 'Has a health care practitioner or pharmacist been visited in the last 4 weeks?' with there being two options Yes or No. Medical care-seeking behaviour therefore was coded as a binary measure where 1 = Yes and 0 = otherwise.

Crowding is the total number of individuals in the household divided by the number of rooms (excluding kitchen, verandah and bathroom). Age is a continuous variable in years.

Sex: This is a binary variable where 1 = male and 0 = otherwise.

Social supports (or networks) denote different social networks with which the individual is involved (1 = membership of and/or visits to civic organizations, or having friends who visit

one's home, or with whom one is able to network, 0 = otherwise).

Psychological conditions are the psychological state of an individual and this is subdivided into positive and negative affective psychological conditions [39], [40]. Positive affective psychological condition is the number of responses with regard to being hopeful and optimistic about the future, as well as life generally. Negative affective psychological condition is the number of responses from a person on having lost a breadwinner and/or family member, having lost property, being made redundant, or failing to meet household and other obligations.

Statistical Analysis

Descriptive statistics such as mean, standard deviation (SD), frequency and percentage were used to analyze the socio-demographical characteristics of the sample. Chi-square was used to examine the association between the non-metric variables. Multiple logistic regressions were used to analyze factors that explained the current usage of a contraceptive method. Odds ratios were determined from the use of a binary logistic regression model. Where collinearity existed ($r > 0.7$), the variables were entered independently into the model to determine those that should be retained during the final construction of the model. To derive accurate tests of statistical significance, we used the SUDDAN statistical software (Research Triangle Institute, Research Triangle Park, NC) and this was adjusted for the survey's complex sampling design. A P-value < 0.05 (two-tailed) was used to determine statistical significance.

Results

Demographic

Table 1 [Table/Fig 1] examines the demographic characteristics of the samples for 2002 and 2007. The samples were 15,260 and 3,322 rural respondents for 2002 and 2007, respectively. The findings revealed that 96.3% of the sample for 2002 responded to the question 'Have you had any illness in the past 4 weeks', and the rate was 97% for 2007. In 2002, 14% of those who responded to the question of illness claimed 'yes', as compared to 17% in 2007. When the respondents were asked to state the health conditions which they experienced in 2002, 1.3% answered, as compared to 14.8% in 2007. Self-reported health conditions showed exponential increases in influenza and respiratory conditions in 2007 over 2002. Hypertensive and arthritic cases fell by 44.1% and 75.7% respectively, while diabetes mellitus increased by 150% over the studied period.

Eighty-one percentage points of the sample claimed to have at least good health status and 6% at least poor health. Of those who indicated at least good health, 37% stated very good (or excellent) health as compared to 1.1% who claimed very poor health, of those who indicated at least poor health status.

When the respondents were asked 'Why did you not seek medical care for your illness?' in 2002, 23.2% stated that they could not afford it; 41.3% were not ill enough and 22.2% used home remedies. For 2007, 17.4% claimed that they were unable to afford it, 43.3% were not ill enough and 16.8% stated that they used home remedies.

(Table/Fig 1) Demographic characteristics, 2002 and 2007

Variable	2002		2007	
	N	%	n	%
Sex				
Male	7,727	50.6	1,654	49.8
Female	7,524	49.3	1,668	50.2
Marital status				
Married	2,460	25.6	513	24.1
Never married	6,436	66.6	1,462	68.7
Divorced	56	0.6	22	1.0
Separated	104	1.1	20	0.9
Widowed	610	6.3	112	5.3
Social hierarchy				
Lower	7,298	47.8	1,828	55.0
Middle	3,169	20.8	650	19.6
Wealthy	4,791	31.4	844	25.4
Self-reported illness				
Yes	1,987	13.5	536	16.6
No	12,713	86.5	2,688	83.4
Self-reported health conditions				
Acute				
Influenza	1	0.5	80	16.3
Diarrhoea	4	2.1	19	3.9
Respiratory diseases	6	3.1	51	10.4
Chronic				
Diabetes mellitus	10	5.2	64	13.0
Hypertension	82	42.9	118	24.0
Arthritis	48	25.1	30	6.1
Other	40	20.9	130	26.4
Medical care-seeking behaviour				
Yes	1,302	63.8	349	63.3
No	740	36.4	202	36.7
Medical care utilization				
Public hospitals	499	39.1	127	37.2
Private hospitals	80	6.3	8	2.3
Public health care centres	285	22.3	76	22.3
Private health care centres	528	41.3	158	46.3
Health insurance coverage				
Yes	1,036	7.0	464	14.5
No	13,714	93.0	2,715	85.5
Age median, in years, range)	23 (0 to 99)		25 (0 to 99)	
Length of illness, in days, median (range)	7 (0 to 90)		7 (0 to 99)	

Bivariate Analyses

Table 2 [Table/Fig 2] presents the self-reported health conditions by sex, age, health care-seeking behaviour, and the length of illness of the sample. Females were more likely to indicate suffering from different health conditions than males, except for respiratory diseases. Of those who stated particular health conditions, those with chronic illnesses such as hypertension and arthritis were more likely to spend more time suffering from the diseases.

(Table/Fig 2) Self-reported health conditions by particular social variables

Variable	Health conditions								P
	Acute conditions			Chronic					
	Influenza	Diarrhoea	Respiratory	Diabetes mellitus	Hyper-tension	Arthritis	Other		
2002									
Sex (%)									0.045
Male	0.0	25.0	83.3	20.0	30.5	20.8	35.0		
Female	100.0	75.0	16.7	80.0	69.5	79.2	65.0		
Total	1	4	6	10	82	48	40		
Age - in years- mean (SD)	80.0 (0.0)	1.8 (1.7)	14.0 (24.6)	63.7 (13.2)	68.7 (13.7)	68.4 (12.60	56.0 (23.4)		< 0.0001
Health care-seeking behaviour									
Yes (%)	0.0	75.0	100.0	88.9	79.3	83.3	65.0		0.05
Total	10	14	6	9	82	48	40		
Length of illness – in days – Mean (SD)	3 (0)	4 (2)	11 (5)	12 (11)	16 (11)	18 (11)	19 (12)		0.045
2007									
Sex (%)									<0.0001
Male	42.5	36.8	56.9	20.3	27.1	46.7	43.1		
Female	57.5	63.2	43.1	79.7	72.9	53.3	56.9		
Total	80	19	51	64	118	30	130		
Age - in years- mean (SD)	19.5 (24.8)	20.1 (28.5)	24.3 (23.8)	56.5 (17.4)	64.0 (17.1)	68.3 (12.0)	36.0 (25.0)		<0.0001
Health care-seeking behaviour									< 0.0001
Yes (%)	41.3	52.6	62.7	75.0	64.4	46.7	70.5		
Total n	80	19	51	64	118	30	129		
Length of illness – in days – Mean (SD)	8 (6)	5 (2)	42 (172)	76 (135)	104 (239)	112 (217)	57 (188)		0.004

Table 3 [Table/Fig 3] examines the health care-seeking behaviour by sex, self-reported illness, health coverage, social hierarchy, educational levels and the age and length of illness for 2002 and 2007. Based on Table 3, the mean age of someone who sought medical care is greater than someone who did not. There was no significant statistical association between medical care-seeking behaviour and self-reported illness, but there was a relationship between the length of illness and medical care-seeking behaviour.

(Table/Fig 3) Health care-seeking behaviour by sex, self-reported illness, health coverage,social hierarchy, education, age and length of illness, 2002 and 2007

Variable	2002			2007		
	Health care-seeking behaviour		P	Health care-seeking behaviour		P
	Yes	No		Yes	No	
	N (%)	N (%)		N (%)	N (%)	
Sex			0.011			0.112
Male	511 (39.2)	333 (45.0)		134 (38.4)	89 (44.1)	
Female	791 (60.8)	407 (55.0)		215 (61.6)	113 (55.9)	
Self-reported illness			0.360			0.130
Yes	1261 (97.0)	713 (96.6)		335 (96.3)	199 (98.5)	
No	39 (3.0)	25 (3.4)		13 (3.7)	3 (1.5)	
Health insurance coverage			0.197			0.013
Yes	89 (6.9)	40 (5.4)		270 (77.4)	173 (86.1)	
No	1210 (93.1)	700 (94.6)		79 (22.6)	28 (13.9)	
Social hierarchy			<0.0001			0.104
Lower	545 (41.9)	363 (49.1)		167 (47.9)	115 (56.9)	
Middle	248 (19.0)	157 (21.2)		79 (22.6)	41 (20.3)	
Wealthy	509 (39.1)	220 (29.7)		103 (29.5)	46 (22.8)	
Educational level			<0.0001			0.623
Primary or below	402 (40.5)	208 (41.5)		336 (96.3)	191 (94.6)	
Secondary	569 (57.4)	279 (55.7)		11 (3.2)	9 (4.5)	
Tertiary	21 (2.1)	14 (2.8)		2 (0.6)	2 (1.0)	
Age mean (SD) – in years	46.4 (27.4)	40.4 (28.3)	<0.0001	43.5 (27.5)	37.9 (146.8)	0.025
Length of illness mean (SD) – in days	12 (11)	10 (9)	<0.0001	7 (20)	5 (15)	0.01

Multivariate analyses

Table 4 [Table/Fig 4] represents information on the social and psychological determinants of the health of the rural residents for 2002 and 2007. Based on Table 4, in 2002 there were 12 determinants of health: 11 social and 1 psychological. On the other hand, in 2007, there were 7 determinants of health: 6 social and 1 biological. The determinants accounted for 22.6% of the explanatory power of the health model for 2002 and 44.7% for 2007. Sixty-eight percentage points of the health status model can be accounted for by self-reported illness (i.e. R squared = 30.4%).

(Table/Fig 4) Stepwise Logistic regression: Social and psychological determinants of self-evaluated health, 2002 and 2007

Explanatory variables:	2002				2007			
	Coefficient	Std. Error	Odds ratio	95% CI	Coefficient	Std. Error	Odds ratio	95% CI
Income	0.000	0.000	1.00	1.00-1.00	0.000	0.000	1.00	1.00-1.00
Age	-0.044	0.002	0.96	0.93-0.96	-0.052	0.004	0.95	0.94-0.96
Middle	NS	NS	NS	NS	0.321	0.196	1.38	0.94-2.02
Wealthy	-0.311	0.090	0.73	0.61-0.88	NS	NS	NS	NS
†Lower			1.00				1.00	
Total Durable good	0.058	0.013	1.06	1.03-1.09	NS	NS	NS	NS
Separated, divorced or widowed	-0.367	0.109	0.69	0.56-0.86	NS	NS	NS	NS
Married	-0.307	0.077	0.74	0.63-0.86	NS	NS	NS	NS
†Never married			1.00		NS	NS	NS	NS
Tertiary	-0.175	0.065	0.84	0.72-0.98	NS	NS	NS	NS
†Primary or below			1.00					
Social support	-0.229	0.070	0.80	0.70-0.90	NID	NID	NID	NID
Male	0.803	0.011	2.23	1.95-2.56	0.563	0.134	1.76	1.35-2.28
Negative affective conditions	-0.062	0.037	0.94	0.92-0.96	NID	NID	NID	NID
Number of females in household	0.123	0.025	1.13	1.05-1.22	NID	NID	NID	NID
Number of children in household	0.056	0.006	1.06	1.01-1.11	NID	NID	NID	NID
Length of illness	-0.039	0.193	0.96	0.95-0.97	NS	NS	NS	NS
Crowding	NS	NS	NS	NS	-0.081	0.029	0.92	0.87-0.98
Medical care-seeking = yes	NS	NS	NS	NS	-1.01	0.26	0.36	0.21-0.60
Self-reported illness					-2.225	0.15	0.11	0.08-0.15
-LL	6,381.3				1,562.6			
N	12,666				2,817			
Nagelkerke R square	0.226				0.447			
χ^2	1220.5				670.0			

NS – not significant (P > 0.05)
NID – not in dataset and/or could not be measured based on the available data

Table 5 [Table/Fig 5] shows the contribution of each explanatory variable to the model for 2002 and 2007. Based on Table 5, of the social and psychological determinants of health, age explains more of the variability in health than any other determinant. Income contributed at most 0.2% to the health of respondents. Using the non-reporting of an illness to measure the health of rural respondents, age accounted for 77% of their health; but when self-reported health status was used to measure health, age accounted for only 11.5%.

(Table/Fig 5) Stepwise Logistic regression: R-squared for social and psychological determinants of self-evaluated health, 2002 and 2007

Explanatory variables:	2002 R squared	2007 R squared
Income	0.1	0.2
Age	17.4	11.5
Middle	NS	0.4
Wealthy	0.1	NS
Total Durable good	0.2	NS
Separated, divorced or widowed	0.1	NS
Married	0.2	NS
Tertiary	0.1	NS
Social support	0.2	NS
Male	2.2	1.2
Negative affective conditions	0.4	NID
Number of females in household	0.5	NID
Number of children in household	0.1	NID
Length of illness	1.0	NS
Crowding	NS	0.2
Medical care-seeking = yes	NS	0.8
Self-reported illness		30.4

NS – not significant (P > 0.05)
NID – not in dataset

Discussion

The current health status of rural respondents was good (i.e. 81 out of every 100), but 17 out of every 100 respondents had an illness. In spite of reporting an illness, the present study found that 36 out of every 100 ill respondents had not sought medical care. Of those who did not utilize medical care although they indicated an illness, at least 41% claimed financial inadequacies and in 2007, 17% used home remedies. The results revealed that rural respondents had a conceptualization of illness that medical care outside of the home should be utilized based on length of illness and not merely on the ailment. Similarly, illness accounted for most of the current health status, an indication of the dominance of the biomedical perspective in viewing health and health care in rural Jamaica. While self-reported chronic health conditions fell by over 41% in 2007 over 2002, the percentage of those who reported acute conditions increased by over 436%. Of the higher number of cases of acute conditions, respiratory diseases accounted for 235%, while influenza accounted for a 3160% increase over 2002. Although the overall self-reported chronic health conditions saw a decline for 2007 over 2002, diabetes mellitus was the only condition that showed an increase in the study (i.e. 150%). Interestingly, the current findings showed that 107.1% more rural residents were covered by health insurance in 2007 than in 2002, but this reflected a minimal reduction in those seeking medical care. The number of rural residents who were classified into the lower (i.e. working) class, increased by 15.1% and 19.1% of those in the wealthy class, dwelt in rural areas With income being positively correlated with good health, an increase in the number of people in the lower class highlighted the diminished health noted for 2007. Males continued to report better health status than females, but this fell from 2.3 times more in 2002 to 1.8 times in 2007, which suggested that the reduction in income substantially influenced the quality of life of the rural males.

The current findings concurred with the literature in demonstrating that the severity of illness (or length of illness), age and health coverage were more positively related to medical care-seeking behaviour than illness [41],[42],[43]. Statistics from national cross-sectional surveys in Jamaica since 1989 [9] revealed that females were approximately twice as likely to report an illness and utilize medical care, than males. When the absolute figures from the surveys were cross-tabulated, it was found that the statistical association which existed in 2002 disappeared in 2007. This is not atypical to Jamaica, as a qualitative study in Pakistan on street children found that boys who attended formal health care were more likely to do so, based on the severity of illness than on whether it affected their economic livelihood [41]. Another study conducted in Anyigba, North-Central Nigeria, found that [42] 85 out of every 100 respondents waited for less than a week after the onset of illness to seek medical help and that 57 out of every 100 were confident that they would recover without treatment. In this research, it was revealed that 43 out of every 100 rural residents indicated that they were not ill enough, which suggested that they believed they would recover in time.

Health care facilities in Jamaica are primarily operated by females and with the perception in the culture that males must be masculine, which includes exhibiting strength and power and avoiding weakness, it explains the rationale for the severity of illness accounting for medical

care-seeking behaviour as against actual illness [41],[42],[43]. Dunlop et al.'s work, which found that females utilize health care facilities more than males [44], partially concurs with this research, in discovering this to be the case in 2002. In 2002, 1.6 times more females sought medical care than males, but the study found that there was no significant association between sex and medical care-seeking behaviour for 2007. The explanation for this is embodied in (1) income, (2) inflation and (3) the increased number of people who were classified into the lower class.

Income is positively correlated with social hierarchy, health and employment status [16], [45],[46],[47],[48],[49],[50]. Income, which is among the social determinants of health, is directly associated with health through material wellbeing, but it is also associated with occupational and social hierarchies. The poor received less income than the middle and the wealthy classes, which indicated that with an increase in the number of people in the lower class, their income would be reduced and so would their health status. It should be noted here that poverty, which affects health, was exponentially greater in rural Jamaica and also that there were more females in rural households. In 2007, inflation increased by 194% over 2006 [20] and coupled with the lower income, rural respondents, in particular females who were more likely to be unemployed, owned less material resources and were increasingly becoming single parents [9]. This would justify the narrowing of the health care-seeking gap that existed in 2002. Williams et al. [42] found that medical care-seeking behaviour did not differ significantly between the sexes, a factor which is in keeping with the situation for 2007 in this study.

The WHO [8] found that poverty was associated with increased health conditions. Empirical evidence existed, showing that poverty was related to low levels of choice, income, access to health care services and opportunities and this was highlighted in the present study. The Latin American and the Caribbean governments have increased their investment in health care and in 2006, the Jamaican government removed the public health care utilization fees for children (0 to 18 years) and expanded the 'drugs for the elderly' programme to include all people who suffer from specific chronic illnesses. While these undoubtedly increased the health outcomes which would have been lower without those opportunities, health inequalities still exist among the rural residents.

With all the investment in health from the decentralization of the health care system, drugs for the elderly programmes and the removal of health care user fees for public health care interventions, there was a rise in acute health conditions, in particular influenza and respiratory diseases. The good news was the reduction in chronic health conditions. But this good news was nothing to celebrate, as diabetes mellitus increased exponentially in the last half a decade. The reduction in numbers of hypertensive and arthritic cases corresponded to lowered ages in reporting having those illnesses. The mean age of reporting hypertension declined by 5 years (to 64 years) and 7.2 years (to 56.5 years). Furthermore, Morrison [51] postulated that hypertension and diabetes were now twin problems in the Caribbean and although the current study has shown a reduction in self-reported hypertension in rural Jamaica, 24 out of every 100 health conditions were accounted for by hypertension. Diabetes mellitus accounted for 13 out of every 100 health conditions, which spoke about a future rural health problem. Another researcher found that 50% of the people with diabetes had a history of hypertension and this too suggested a future health challenge for policy-makers and public health practitioners. The lowered ages of reporting particular chronic illnesses indicated that rural residents would be living longer with those conditions and this would measurably increase the burden on the health care system in the future.

A critical issue emerging from this study was the value that the rural residents ascribed to illness in determining their health status. There was a strong negative statistical correlation

between self-reported illness and good health status. The findings indicated that 68% of the explanatory power of good health status could be accounted for by illness. This is not atypical, as research by Hambleton et al. on the Barbadian elderly population found that illness accounted for 88.0% of health status. It can be extrapolated from those findings that (1) the older one gets, the more emphasis one places on illness in the evaluation of health status, (2) the relationship between illness and health appears to be more a causal one than an associative one, (3) the biomedical approach to measuring health still predominates in people's perceptions, and (4) the culture which fashions the conceptualization of health is influencing health care-seeking behaviour. Those issues were among the principal reasons why care was curative and not preventative in Jamaica and this was captured in the finding which showed that health care-seeking behaviour was negatively correlated with good health. Rural respondents who sought medical care were 64% less likely to report good health status, pointing to the embedded cultural dominance of the biomedical approach in the conceptualization of health. The dominance of the biomedical approach to the study of health in Jamaica was even high among medical researchers, as a study conducted in 2007/08 examined medical history; health care-seeking behaviour; health (i.e. diseases, medication consumption), mental health, sexual practices, dietary habits; lifestyle (i.e. violence and injury; smoking, narcotics and alcohol consumption), community and home milieu, suggesting the greater weight on health from the perspective of illness, its treatment and measurable outcome, as against people's assessment of their health status [53]. The current study bridges this gap and goes further by using self-assessed heath status in addition to self-rated health and health care-seeking behaviour and provides other pertinent health information on rural Jamaicans.

Conclusion

Health inequalities in rural Jamaica still exist today. The current study found that in the future, health care institutions will be called on to invest more in the health system, in order to address the health challenges of increased diabetes mellitus as well as respiratory diseases. On the other hand, despite government investments in health, progress in technology, public health services, increased levels of education and income since the last century, decision-makers, public health practitioners and other health care providers need to recognize that increased life expectancy and lowered infant mortality rates have not addressed the challenges inherent in the health of the rural population in Jamaica. General financial investment in health is needed, to control communicable diseases that are particularly detrimental to children, such as diarrhoea and respiratory diseases, which are on the increase in the rural areas. This means that the level of economic development since the 20th Century does not provide answers to the differences in the health outcomes within a country. The identified health disparities in rural Jamaica denote that investments in health and health intervention strategies are not effectively addressing the health inequalities which underlie the health statistics. This means that the health inequalities in those areas in Jamaica will fuel future public health challenges for the society, as well as increase the economic burden borne by the health care system. The analyses provided in the current study clearly highlight the need for thinking that will incorporate the health realities of rural populations into the agenda of policy-makers.

The Way Forward

The present work highlights the lingering dominance of the biomedical perspective that continues to influence health and health care in rural Jamaica. Hence, the way forward for government and policy-makers, including health care practitioners, as well as public health educators, in order to reduce health inequalities, is a multi-dimensional approach to health and health care, as the current mechanism is not working. The researcher is proposing (1) mobile clinics, (2) community and house visits from medical practitioners, (3) restructuring health care facilities to reflect a new preventative thrust, (4) the introduction of a preventative care approach as a subject in all schools, (5) focusing not only on the extreme of income poverty and

health care access, but on opportunities, empowerment and the security of the poor and rural residents, (6) recognition of the need for a social security network that brings nutritious foods to rural residents, and (7) recognition of the need for a modification to the way public health programmes are fashioned and operated, as well as extending and re-defining the boundaries of public health intervention. These new mechanisms will be costly, but a reorganization of expenditure means that some of the money spent for curative care will be saved, as preventative care is the focal point and not curative health treatment. Another important thing which is needed is research on the value system of the rural residents and this should be done by using a longitudinal study in order to provide information for health care intervention strategies.

Conflict of Interest

The author has no conflict of interest to report.

Disclaimer

The researcher would like to note that while this study used secondary data from the Jamaica Survey of Living Conditions, none of the errors in this paper should be ascribed to the Planning Institute of Jamaica or the Statistical Institute of Jamaica, but to the researcher.

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References

[1] Pan American Health Organization (PAHO). Investment in health: Social and economic returns, Scientific and Technical Publication, No. 582. Washington DC: PAHO, WHO; 2001;900.

[2] Pan American Health Organization (PAHO). Equity and health: Views from the Pan American Sanitary Bureau, Occasional Publication, No. 8. Washington DC: PAHO, WHO; 2001;544-560

[3] Alleyne GAO. Health and economic growth. In: Pan American Health Organisation. Equity and health: Views from the Pan American Sanitary Bureau, Occasional Publication No. 8. Washington DC; 2001: pp. 265-269.

[4] Casas JA, Dachs NW, Bambas A. Health disparities in Latin America and the Caribbean: The role of social and economic determinants. In: Pan American Health Organisation. Equity and health: Views from the Pan American Sanitary Bureau, Occasional Publication No. 8. Washington DC; 2001: pp. 22-49.

[5] Wagstaff A. Poverty, equity, and health: Some research findings. In: Equity and health: Views from Pan American Sanitary Bureau. Pan American Health Organization, Occasional publication No. 8, Washington DC; 2001: pp.56-60.

[6] Suarez-Berenguela RM. Health system inequalities and inequities in Latin America and the Caribbean: Findings and policy implications. In: Pan American Health Organization (PAHO). Investment in health: Social and economic returns, Scientific and Technical Publication, No. 582. Washington DC: PAHO, WHO; 2001:pp.119-142.

[7] World Health Organization (WHO). World health statistics, 2009. Geneva: WHO; 2009;270

[8] World Health Organization. Preventing Chronic Diseases a vital investment. Geneva: WHO; 2005;742-786

[9] Planning Institute of Jamaica (PIOJ), Statistical Institute of Jamaica (STATIN). Jamaica Survey of Living Conditions, 1989-2007. Kingston: PIOJ, STATIN; 1989-2008;54

[10] Rodman H. Lower class families: The cultures of Poverty in Negro Trinidad. London: Oxford University press; 1971;939-942

[11] Lanjouw P, Ravallion M. Poverty and household size. The Economic J 1995; 105: 1415-1434.

[12] Fields GS. Poverty, inequality, and development. Cambridge, England: Cambridge University Press; 1980;1011

[13] WHO. Poverty reduction strategy papers: Their for health, second synthesis report. Geneva: WHO; 2004. Retrieved on 29th October 2009 from http://www.who.int/hdp/en/prsp.pdf.

[14] WHO. Dying for change - Poor peoples experience of health and ill health. Retrieved on 29th October from http://www.who.int/hdp/publications/en/index.html.

[15] Bourne PA, Beckford O. Poverty, Illness and Unemployment in Jamaica. Paper presented at the Caribbean Studies Association, CSA, 34th Annual Conference Hilton, Kingston, Jamaica, June 1-4, 2009.

[16] Marmot M. The influence of Income on Health: Views of an Epidemiologist. Does money really matter? Or is it a marker for something else? Health Affairs. 2002; 21: 31-46.
[17] Montgomery MR. Urban poverty and health in developing countries. Population Bulletin 2009; 64:1-20.
[18] Sen A. Poverty: An ordinal approach to measurement. Econometricia 1979;44, 219-231.
[19] Bourne PA. A theoretical framework of good health status of Jamaicans: using econometric analysis to model good health status over the life course. North Am J of Med Sci 2009; 1: 86-95.
[20] Bourne PA. Impact of poverty, not seeking medical care, unemployment, inflation, self-reported illness, health insurance on mortality in Jamaica. North Am J of Med Sci 2009; 1:99-109.
[21] Bourne PA. An epidemiological transition of health conditions, and health status of the old-old-to-oldest-old in Jamaica: a comparative analysis. North Am J of Med Sci 2009; 1:211-219.
[22] Bourne PA. Socio-demographic determinants of Health care-seeking behaviour, self-reported illness and Self-evaluated Health status in Jamaica. Int Journal of Collaborative Research on Internal Medicine & Public Health 2009;1: 101-130.
[23] Bourne PA, Rhule J. Good Health Status of Rural Women in the Reproductive Ages. Int J of Collaborative Research on Internal Medicine & Public Health 2009;1:132-155.
[24] Bourne PA. Health Determinants: Using Secondary Data to Model Predictors of Well-being of Jamaicans. West Indian Med J. 2008; 57:476-481.
[25] Bourne PA. Medical Sociology: Modelling Well-being for elderly People in Jamaica. West Indian Med J 2008; 57:596-604.
[26] Asnani MR, Reid ME, Ali SB, Lipps G, Williams-Green P. Quality of life in patients with sickle cell disease in Jamaica: rural-urban differences. J of Rural and Remote Health 2008; 8: 890-899.
[27] Hutchinson G, Simeon DT, Bain BC, Wyatt GE, Tucker MB, LeFranc E. Social and Health determinants of well-being and life satisfaction in Jamaica. Int J of Soc Psychiatry 2004; 50:43-53.
[28] Bourne PA, McGrowder DA. Rural health in Jamaica: examining and refining the predictive factors of good health status of rural residents. J of Rural and Remote Health 2009; 9: 1116.
[29] WHO. Macroeconomics and health: Investing in health for economic development. Geneva: WHO; 2001;12-40
[30] Statistical Institute Of Jamaica. Jamaica Survey of Living Conditions, 2007 [Computer file]. Kingston, Jamaica: Statistical Institute Of Jamaica [producer], 2007. Kingston, Jamaica: Planning Institute of Jamaica and Derek Gordon Databank, University of the West Indies [distributors], 2008;210-220
[31] Statistical Institute Of Jamaica. Jamaica Survey of Living Conditions, 2002 [Computer file]. Kingston, Jamaica: Statistical Institute Of Jamaica [producer], 2002. Kingston, Jamaica: Planning Institute of Jamaica and Derek Gordon Databank, University of the West Indies [distributors], 2003;1212-1415
[32] Kahneman D, Riis J. Living, and thinking about it, two perspectives. In: Huppert, F.A., Kaverne, B. and N. Baylis, The Science of Well-being, Oxford University Press; 2005;343-376
[33] Finnas F, Nyqvist F, Saarela, J. Some methodological remarks on self-rated health. The Open Public Health J 2008; 1: 32-39.
[34] Helasoja V, Lahelma E, Prattala R, Kasmel A, Klumbiene J, Pudule I. The sociodemographic patterning of health in Estonia, Latvia, Lituania and Finland. European J of Public Health 2006; 16:8-20.
[35] Molarius A, Berglund K, Eriksson C, et al. Socioeconomic conditions, lifestyle factors, and self-rated health among men and women in Sweden. European J Public Health 2007; 17:125-33.
[36] Leinsalu M. Social variation in self-rated health in Estonia: a cross-sectional study. Soci Sci and Medicine 2002; 55:847-61.
[37] Idler EL, Benjamin Y. Self-rated health and mortality: A Review of Twenty-seven Community Studies. J of Health and Social Behavior 1997; 38: 21-37.
[38] Idler EL, Kasl SV. Self-ratings of health: Do they also predict change in functional ability. J of Gerontology: Soc Sci 1995; 50B:S344-S353.
[39] Diener E. Subjective well-being: The science of happiness and a proposal for a national index. Am Psychological Association 2000; 55: 34-43.
[40] Harris PR, Lightsey OR Jr. Constructive thinking as a mediator of the relationship between extraversion, neuroticism, and subjective wellbeing. European J of Personality 2005; 19: 409-426.
[41] Ali M, de Muynck A. Illness incidence and health seeking behaviour among street children in Rawalpindi and Islamabad, Pakistan – a qualitative study. Child: Care, Health & Development 2005; 31:525-532.
[42] Williams RE, Black CL, Kim H-Y, Andrews EB, Mangel AW, Buda JJ, Cook SF. Determinants of health-care-seeking behaviour among subjects with irritable bowel syndrome. Alimentary Pharmacology & Therapeutics 2006; 23:1667-75.
[43] Chevannes B. Learning to be a man: Culture, socialization and gender identity in five Caribbean communities. Kingston, Jamaica: University of the West Indies Press; 2001;326-360
[44] Dunlop DD, Manheim LM, Song J, Chang RW. Gender and ethnic/racial disparities in health care utilization among older adults. J of Gerontology: Soci Sci 2002; 57B: S221-S33.

[45] Grossman M. The demand for health - a theoretical and empirical investigation. New York: National Bureau of Economic Research; 1972.
[46] Smith JP, Kington R. Demographic and Economic Correlates of Health in Old Age. Demography 1997; 34:159-70.
[47] Wilkinson RG, Marmot M. Social Determinants of Health. The Solid Facts, 2nd ed. Copenhagen: World Health Organization; 2003;450-515.
[48] Graham H. Social Determinants and their Unequal Distribution Clarifying Policy Understanding The Milbank Quarterly 2004; 82;101-124.
[49] Pettigrew M, Whitehead M, McIntyre SJ, Graham H, Egan M. Evidence for Public Health Policy on Inequalities: 1: The Reality According To Policymakers. J of Epidemiol and Community Health 2004; 5:811 – 816.
[50] Stronks K, Van de Mheen H, Van de Bos J, Mackenbach JP. The interrelationship between income, health and employment status. Int J of Epidemiol 1997; 26:592-600.
[51] Morrison E. Diabetes and hypertension: Twin trouble. Cajanus 2002; 33:61-63.
[52] Callender J. Lifestyle management in the hypertensive diabetic. Cajanus 2000; 33:67-70.
[53] Wilks R, Younger N, Tulloch-Reid M, McFarlane S, Francis D. Jamaica health and lifestyle survey 2007/08. Kingston: Epidemiology research unit, Tropical Medicine Research Institute, University of the West Indies, Mona; 2008;47-80