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Original Research

Chronic diseases, self-rated health status, health care utilization and health insurance status of males in a caribbean nation

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Abstract

Previous research which has examined men's health have not coalesced in a single study chronic illness, self-rated health status, health care seeking behaviour, health insurance coverage and income function. The current study seeks to evaluate the general health status of males and association between chronic illness and particular socioeconomic factors, and model socioeconomic and other determinants of (1) chronic diseases; (2) self-rated health status; (3) health care utilization; (4) health insurance coverage status and (3) income. A total of 3,303 males were extracted from the 2007 Jamaica Survey of Living Conditions (JSLC). The JSLC is an annual cross-sectional probability sample survey which began in 1988. It is a modification of the World Bank's Living Standard Household Survey. Stepwise logistic and multiple regressions were utilize to establish socioeconomic and other factors which are associated with the particular dependent variable. The prevalence of illness was 12.1% (chronic illness 33%; hypertension, 17.0%; diabetes mellitus, 9.1%). Almost 62% of those with chronic illness visited a health care practitioner in the last 4-weeks; and 72% were 60+ years. The mean age of male who had chronic illness was 66.2 years (SD = 14.2) compared to 31.0 years (27.9) for those with acute conditions. More males in the upper income strata had chronic illness (47.8%) compared to those in the lower socioeconomic strata (34.5%). Two variables emerged as significantly associated with chronic illness (age – OR = 1.03, 95% CI = 1.01 – 1.05; married respondents – OR = 3.32, 95% CI = 1.58 – 6.99). The findings provide valuable information that are critical to the understanding of male's health and how these can be used to guide policy formulation and future research on men's health.

INTRODUCTION

Previous studies that have investigated general self-rated health status, health care utilization, health insurance status, and chronic illness have omitted the income function [1-5] as models in explaining health. All the studies reviewed on health, health seeking, health insurance status, health care utilization and chronic diseases have used income as an independent variable [7-13]. No health research emerged which has examined men's health by coalescing in a single study chronic illness, self-rated health status, health care utilization, health insurance coverage and income function as a model which seek to unearth male's health status and provide an understanding of their health behaviour.

Globally, life expectancy of females is greater than that for males [14], and the same is the case in the Caribbean and Latin America. Inspite of the aforementioned reality, males are more likely to report better self-rated health status and less health conditions than females. Another reality in health disparity between the sexes is male's lower health care utilization, and this extends beyond the Caribbean and Latin America [5, 15-17]. Male's reluctance to seek help for health matters are embedded in the culture that illness is weakness [18]. This position is not only a Caribbean phenomenon as Doyal [15] opined that males are socialized not to overtly exhibit pain and

emotions such as fear about illness. Illness therefore is a feminized phenomenon in many societies, and this prevents males from seeking a medical practitioner. The issue of males' unwillingness to seek medical care and utilize health services appears to be a practice in Western nations [17, 19-21]. This unwillingness is influenced by hegemonic masculinity which is the socially supported and dominant masculinity that inform normative male behavior and unequal gender practices seen in the subordination of women. This dominant masculinity which is associated with power, authority, heterosexism and physical toughness and legitimizes patriarchy not only subordinates femininities but also other masculinities in the society's gendered hierarchy [22]. It is not that these men are not unconcerned about their health, but that help seeking and health care utilization can be interpreted as a linkage to their hegemonic masculine trait, and an indication that they are weak, and in Jamaica they are viewed as'sicky sicky' (feeble men). A recent study by Wade [23] found that men's masculinity ideology among African Americans influence their health behaviour, which is reinforcing the Western culturalization of men. In addition, men compared to women are more likely to engage in risky behaviors such as the use of alcohol and tobacco among other such behaviors [24].

There are other factors apart from masculinity that influences men health. Many men have challenges in accessing health care and engaging the health system which they perceive as an ordeal [25]. Working class fathers tend to engage in private and introverted ways of feelings, thinking and behavior in dealing with their sense of vulnerability linked to their health concerns. Some of these concerns are fatherhood, their class status, racism and their gender [26]. Some men perceive their interaction with the health system as abuse because they were ignored, frustrated and developed a crisis of confidence in the system all of which caused them to be mentally pinioned [27]. Gender sensitive health policies are therefore required that puts men's health and their construction of masculinity into the mainstream [28].

The dominance of masculinity is such in that in interpreting manhood the only times men are excused are based on the severity of their condition, threats to their economic survivability and/or pressure from their family. A study conducted in Pakistan on street children showed that males were will to seek help and utilize health services if it threatens financial resources or severity. This finding goes to the crux of the matter, males' unwillingness to use preventative care strategies compared to females [29]. Males' sedentary and unhealthy lifestyle [30] is well established as being associated with high risk of morbidity and mortality [31], yet the burden of chronic illness in western societies, and in particular low-to-middle income countries, have not changed those practices.

The Caribbean and Latin American nations are among low-to-middle income countries, which means that material deprivation affect the health of many peoples. This is also the case in the United States where relative deprivation based on income inequality is a significant predictor of low health status [32]. The WHO [31] found that 80% of chronic illnesses were in low and middle income countries, suggesting that illness interfaces with poverty and other socio-economic challenges [33]. Poverty does not only impact on illness, it causes pre-mature deaths, lower quality of life, lower life and unhealthy life expectancy, low development and other social ills such as crime, high pregnancy rates, and social degradation of the community. According to WHO [31], 60% of global mortality is caused by chronic illness, and Van [2] found that most of those with chronic illness in the Netherlands were in the lower socioeconomic strata. This material deprivation is not only associated with chronic illness, low development, lower health and life expectancy, more crime and violence, but it is also related to lower health insurance coverage. The link between income/poverty and health status holds even in countries with universal access to health care [34]. However, the relationship between material deprivation and health is not universal. In Finland between1993-2005, no association was found between income inequality and various health indicators. Poverty arising from income inequality and its relationship to health status is insignificant in rich countries with very small populations [35].

Smith and Kington [6] argued that money buy health, yet income was used as an independent variable in a health model. It can be extrapolated from Smith and Kington's work that health is transferrable and so it can be bought by the affluent more so than those in the lower income strata. Clearly there is a direct relationship between income and health [6,7], but this is owing to the choices and commodities such as education, nutrition, help seeking, sanitation and leisure that the individual can purchase which have the impact on health than the money. However, in the current global economic recession men have less financial resources to devote to health care. In this situation it is worse for minority men who have fewer opportunities for health care, housing education and jobs because of discrimination. The decline in opportunities affects the health status of these men. In the current global economic crisis men's health is in need of urgent attention [36]. Despite this reality, there is a gap in health literature for males on general health, help seeking, illness, health insurance status and income as

dependent variables, as normally income is treated as an independent variable.

The current study seeks to evaluate the general health status of males and association between chronic illness and particular socioeconomic factors, and model socioeconomic and other determinants of (1) chronic diseases; (2) self-rated health status; (3) health care utilization; (4) health insurance coverage status and (3) income.

METHODS AND MATERIALS

Sample

Since 1989, the Planning Institute of Jamaica (PIOJ) and the Statistical Institute of Jamaica (STATIN) have been collecting data on Jamaicans' Living Standard (Jamaica Survey of Living Conditions, JSLC) [27]. The JSLC is a modification of the World Bank's Living Standard Household Survey [28]. This system allows for the collection of data in order to monitor and evaluate government's policies.

The sampling used by the JSLC is stratified probability sampling technique to draw a representative sample of Jamaicans. Data were collected from 6,783 respondents (49% of males). The planned sample was 2,701 households, and the refusal rate was 26.2%. The households constituted 620 from urban areas, 439 from semi-urban zones and 935 from rural dwellings. The data was weighted to reflect the population of Jamaica. Only the males were extracted from the 2007 JSLC in order to carry out the current study. A document which provides detailed information on the survey methods was published in JSLC [29]. Next, is the statistical analysis.

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 study; Cross Tabulations was used to examine association (or lack of) between non-metric variables; and t-test and Analysis of Variance (ANOVA) were utilized to examine equality of means between or among dichotomous or non-dichotomous variables respectively. Stepwise logistic and multiple regressions were utilize to establish socioeconomic and other factors which are associated with the particular dependent variables. A p value < 0.05 was used to establish statistical significance. Categorical variables were coded using the 'dummy coding' scheme.

The predictive power of the model was tested using the 'omnibus test of model' and Hosmer and Lemeshow's technique [30] was used to examine the model's goodness of fit. The correlation matrix was examined in order to ascertain whether autocorrelation (or multi-collinearity) existed between variables. Cohen and Holliday [31] stated that correlation can be low/weak (0–0.39); moderate (0.4–0.69), or strong (0.7–1). This was used in the present study to exclude (or allow) a variable. Where collinearity existed ($r > 0.7$), variables were entered independently into the model to determine those that should be retained during the final model construction [32]. The final decision on whether to retain was based on the variables' contribution to the predictive power of the model and its goodness of fit. Variables with missing observations were coded to separate category, and were not included in the analysis of data. The measurement of the variables is dealt with below.

Measurement

A detailed description of the variables used in this study (crowding; social hierarchy; health care utilization; self-reported illness; self-rated health status, and chronic illnesses) can be found in the Annex.

RESULTS

Sociodemographic characteristic

The sample was 3,303 males: children, 32.7%; young adults, 25.6%; other age adults, 30.8%; young-old, 7.4%; old-old, 2.9%; and oldest-old, 0.9%. Almost 50% dwelled in rural areas; 39.7% were classified in the lower socioeconomic strata (20.3% in the poorest 20%); 41.1% in the upper income group (20.9% in the wealthiest 20%); 87.9% had at most primary level education; 1.6% had tertiary education; 62.3% sought medical care in the last 4-weeks; 12.1% reported an illness; 1.3% had an injury in the last 4-weeks; 33.1% reported being diagnosed with a chronic illness; 37.1% had acute conditions; and 29.8% stated other health conditions (unspecified illnesses). Seven percent of the sample had arthritis, 9.1% indicated diabetes mellitus; 7.0% arthritic conditions; 20.2% reported cold and 13.7% stated asthma. Eight-five and four-tenth percent of the sample indicated at least good health status (very good, 39.0%) and 4.3% mentioned that their health status was at most poor (very poor, 0.8%).

There was a significant statistical association between self-reported illness and social hierarchy ($\chi^2 = 6.42$, $P = 0.049$). Those in the upper income strata reported the most illness (13.5%) compared to the middle class (12.5%) and those in the lower income strata (10.4%).

Demographic characteristics, self-rated health status, and self-reported illness by area of residence are presented in Table 1.

Table 2 presents information on self-reported illness,

typology of illness, age and health care utilization by self-rated health status.

Socioeconomic characteristic by self-reported diagnosed chronic and acute conditions were captured in Table 3. Table 3 shows whether the various characteristics were associated with self-reported diagnosed chronic and acute conditions.

Using logistic regression, Table 4 presents only those variables which are statistical significant factors of self-reported chronic illness of males. Two variables emerged as significantly associated with chronic illness (age – OR = 1.03, 95% CI = 1.01 – 1.05; married respondents – OR = 3.32, 95% CI = 1.58 – 6.99).

Eight variables emerged as significant related with moderate-to-very good health status, and they accounted for 36% of the variability in moderate-to-very good health status (Table 5)

Four variables are statistical associated with health care utilization, and they accounted for 70% of the variance in health care utilization (Table 6)

Seven variables emerged as being statistical significant factors of health insurance status (R^2 = 16.0%) (Table 8).

Income can be explained by 7 factors, which account for 94.2% of the variability in income. Eight-eight percent of males income can be accounted for by non-food expenditure and food expenditure accounted for 5.7% of income (Table 8).

Table 9 presents information on self-reported illness, health care utilization, self-reported diagnosed illness, health insurance status and length of illness by age cohort, and whether they are related or otherwise.

Table 1. Sociodemographic characteristic and health variables by area of residence

Characteristic	Area of residence			P
	Urban	Semi-urban	Rural	
	n (%)	n (%)	n (%)	
Marital status				**0.059**
Married	165 (25.7)	106 (22.3)	251 (24.3)	
Never married	449 (69.8)	340 (71.6)	739 (71.6)	
Divorced	16 (2.5)	7 (1.5)	11 (1.1)	
Separated	1 (0.2)	7 (1.5)	8 (0.8)	
Widowed	12 (1.9)	15 (3.2)	23 (2.2)	
Social class				**< 0.0001**
Lower	201 (21.3)	217 (30.7)	893 (54.0)	
Middle	177 (18.8)	151 (21.4)	308 (18.6)	
Upper	565 (59.9)	338 (47.9)	453 (27.4)	
Age cohort				**0.002**
Children	277 (29.4)	218 (30.9)	584 (35.3)	
Young adults	288 (30.5)	181 (25.6)	375 (22.7)	
Other age adults	285 (30.2)	229 (32.4)	503 (30.4)	
Young-old	65 (6.9)	48 (6.8)	130 (7.9)	
Old-old	20 (2.1)	25 (3.5)	52 (3.1)	
Oldest-old	8 (0.8)	5 (0.7)	10 (0.6)	
Household head				**0.926**
No	639 (67.6)	472 (66.9)	1113 (67.3)	
Yes	304 (32.2)	234 (33.1)	541 (32.7)	
Self-reported illness				**0.116**
Yes	9 (1.0)	10 (1.5)	22 (1.4)	
No	909 (99.0)	679 (98.5)	1581 (98.6)	
Self-reported diagnosed illness				**0.321**
Acute conditions				
Cold	12 (14.3)	23 (31.5)	34 (18.4)	
Diarrhoea	2 (2.4)	2 (2.7)	7 (3.8)	
Asthma	13 (15.5)		29 (15.7)	
Chronic conditions				
Diabetes mellitus	9 (10.7)	9 (12.3)	13 (7.0)	
Hypertension	14 (16.7)	12 (16.4)	32 (17.3)	
Arthritis	7 (8.3)	3 (4.1)	14 (7.6)	
Other conditions	27 (32.1)	19 (26.0)	56 (30.3)	
Length of illness in days mean (SD)	**10.7 (17.4)**	**10.2 (14.4)**	**20.7 (75.8)**	**0.237**
Crowding index mean (SD)	**4.4 (2.6)**	**4.4 (2.4)**	**4.7 (2.6)**	**< 0.0001**

Table 2. Health variables by self-rated health status

Characteristic	Self-rated health status				
Self-reported illness[1]	**Very good**	**Good**	**Fair**	**Poor**	**Very poor**
	%	**%**	**%**	**%**	**%**
Yes	4.0	8.7	37.9	60.0	66.7
No	96.0	91.3	62.1	40.0	33.3
Total	**1243**	**1480**	**330**	**110**	**24**
Typology of illness[2]					
Acute	77.2	76.1	79.2	63.6	62.5
Chronic	22.2	23.9	20.8	36.4	37.5
Total	**54**	**134**	**130**	**66**	**16**
Age cohort[3]					
Children	36.3	34.1	19.6	17.1	12.5
Young adults	30.6	25.2	14.4	9.9	4.2
Other age adults	30.2	32.2	30.8	16.2	37.5
Young-old	2.2	6.5	24.8	27.0	16.7
Old-old	0.6	1.7	9.1	24.3	20.8
Oldest-old	0.0	0.3	3.3	5.4	8.3
Total	**1247**	**1482**	**331**	**111**	**24**
Health care utilization[4]					
No	97.8	94.9	74.3	55.0	41.7
Yes	2.2	5.1	25.7	45.0	58.3
Total	**1247**	**1482**	**331**	**111**	**24**

[1] χ^2 (df = 4) = 602.35, P < 0.0001, contingency coefficient = 0.44
[2] χ^2 (df = 4) = 7.37, P = 0.118
[3] χ^2 (df = 20) = 697.76, P < 0.0001, contingency coefficient = 0.47
[4] χ^2 (df = 4) = 510.17, P < 0.0001, contingency coefficient = 0.40

DISCUSSION

The purpose of the current study is to evaluate men's health status in terms of its relationship to chronic illnesses and their socioeconomic determinants by creating an explanatory model using these variables. The present research revealed that the prevalence of self-reported illness was 121 to every 1000 males; chronic diseases, 331 to every 1000 males; hypertension, 170 to every 1000 males; diabetes mellitus, 91 to every 1000 males; acute conditions, 371 to every 1000 males and other health conditions, 298 to every 1000 males. Almost 48% of those with chronic illness were in the upper income strata; 35% in the lower socioeconomic strata; 72% were elderly (60+ years); 42% utilize public health care institutions. The dependency ratio was 77.2%, 62.3% sought medical care and 19.3% had health insurance coverage (12.3% private coverage). Two variables emerged as significantly associated with chronic illness (age and married respondents). Marital status accounted for 74.2% of the explanatory power of chronic illness (R^2 = 16.1%). Married males were 3.3 times (odds ratio) more likely to report an illness than never married males and those older males were 1.03 times more likely to report a chronic disease. One possible explanation for this finding is that men get married older because in Jamaica ,marriage is an ideal and common law unions are the norm where some men stay in common law unions for many years before they get married [60]. Another possible explanation is that hegemonic masculinity influences these men to neglect their health at the expense of taking care of their family.

Eight variables emerged as significant related with moderate-to-very good health status, and they accounted for 36% of the variability in moderate-to-very good health status. Of the explanatory power of self-rated health status (R^2 = 36.0%), 58.3% of this was accounted for by illness and 22.2% by age of respondents. There were negative statistical relationship between (1) age and self-rated health status and (2) self-reported illness and self-rated health status. Four variables are statistical associated with health care utilization, and they accounted for 70% of the variance in health care utilization. Most of the variability in health care utilization was accounted for by illness (67%). Seven variables were found to account for 16.0% of the variability in health insurance status, and that non-food expenditure explained most of the variance. Income can be explained by 7 factors, which account for 94.2% of the variability in income. Eight-eight percent of males' income can be accounted for by non-food expenditure, and food expenditure accounted for 5.7% of income.

Table 3. Socioeconomic characteristic by self-reported diagnosed conditions

Characteristic	Self-reported conditions		P
	Acute	Chronic	
	n (%)	n (%)	
Age cohort			< 0.0001
Children	103 (45.0)	0 (0.0)	
Young adults	23 (10.0)	3 (2.7)	
Other aged adults	54 (23.6)	29 (25.7)	
Young-old	30 (13.1)	43 (38.1)	
Old-old	14 (6.1)	32 (28.3)	
Oldest-old	5 (2.2)	6 (5.3)	
Social class			0.834
Lower	82 (35.8)	39 (34.5)	
Middle	45 (19.7)	20 (17.7)	
Upper	102 (44.5)	54 (47.8)	
Education			0.016
Primary and below	213 (93.0)	113 (100.0)	
Secondary	14 (6.1)	0 (0.0)	
Tertiary	2 (0.9)	0 (0.0)	
Area of residence			0.826
Urban	54 (23.6)	30 (26.5)	
Semi-urban	49 (21.4)	24 (21.2)	
Rural	126 (55.0)	59 (52.2)	
Health care utilization			0.290
No	95 (41.9)	43 (38.1)	
Yes	132 (58.6)	70 (61.9)	
Health care utilization			0.256
Public hospitals	46 (33.1)	17 (23.0)	
Private hospitals	7 (5.0)	6 (8.1)	
Public health centres	17 (12.2)	14 (18.9)	
Private health centres	69 (49.6)	37 (50.0)	
Self-rated health status			< 0.0001
Very good	34 (15.0)	4 (3.5)	
Good	89 (39.2)	17 (15.0)	
Fair	61 (26.9)	57 (50.4)	
Poor	33 (14.5)	30 (26.5)	
Very poor	10 (4.4)	5 (4.4)	
Crowding index mean (SD)	4.2 (2.8)	3.1 (2.2)	< 0.0001
Age mean (SD)	31.0 (27.9)	66.2 (14.2)	< 0.0001
Length of illness in days mean (SD)	13.3 (50.8)	27.1 (85.8)	0.085
[1]**Income** mean (SD)	7647.87(3403.88)	6557.39(7218.76)	0.168

[1]Income is quoted in UDD: USD 1.00 = Jamaican $ 80.47

Table 4. Logistic regression: Explanatory variable of self-reported chronic diseases of males

Explanatory variable	B	Std. error	Odds ratio	95.0% C.I.		R^2
Age	0.028	0.011	1.03*	1.01	1.05	0.056
Married	1.200	0.380	3.32	1.58	6.99	0.161
†Never married			1.00			

Model $\chi^2 = 25.35$, $P < 0.0001$

Hosmer and Lemeshow goodness of fit $\chi^2 = 1.7$, $P = 0.99$

-2LL = 172.7

Nagelkerke $R^2 = 0.22$

*P < 0.05, **P < 0.01, ***P < 0.001

Table 5. Logistic regression: Explanatory variable of moderate-to-very good health status of males

Explanatory variables	B	Std. Error	Odds ratio	95.0% C.I.	R^2
Age	-0.048	0.005	0.95***	0.94 - 0.96	0.08
Crowding index	-0.221	0.048	0.80***	0.73 - 0.88	0.02
Illness	-2.341	0.227	0.10***	0.06 - 0.15	0.21
Health care utilization	-1.270	0.347	0.28***	0.14 - 0.56	0.01
Health insurance	0.651	0.300	1.92*	1.07 - 3.45	0.01
Household head	0.822	0.269	2.28**	1.34 - 3.86	0.01
Total food expenditure	0.000	0.000	1.00**	1.00 - 1.00	0.01
Severity of illness	-0.006	0.002	0.99**	0.99 - 1.00	0.01

Model $\chi^2 = 322.7$, $P < 0.0001$

Hosmer and Lemeshow goodness of fit $\chi^2 = 4.9$, $P = 0.77$

-2LL = 711.1

Nagelkerke $R^2 = 0.36$

*P < 0.05, **P < 0.01, ***P < 0.001

Table 6. Logistic regression: Explanatory variable of health care utilization of males

Explanatory variables	B	Std. Error	Odds ratio	95.0% C.I.	R^2
Illness	5.541	0.296	254.97***	142.81 - 455.21	0.67
Severity of illness	-0.012	0.006	0.99*	0.98 - 1.00	0.01
Moderate-to-very good self-rated health	-1.268	0.311	0.28***	0.15 - 0.52	0.01
Health insurance	0.899	0.258	2.46***	1.48 - 4.07	0.01

Model $\chi^2 = 1021.5$, $P < 0.0001$

-2LL = 614.2

Nagelkerke $R^2 = 0.70$

*P < 0.05, **P < 0.01, ***P < 0.001

Table 7. Logistic regression: Explanatory variables of health insurance status of males (n=2925)

Explanatory variables	B	Std. Error	Odds ratio	95.0% C.I.	R^2
Electricity expenditure	0.000	0.000	1.00***	1.00 - 1.00	0.011
Crowding index	-0.106	0.029	0.90***	0.85 - 0.95	0.035
Health care utilization	0.718	0.309	2.05*	1.12 - 3.76	0.003
Upper class	0.319	0.150	1.38*	1.03 - 1.85	0.002
†Lower class			1.00		
Household head	0.341	0.116	1.41**	1.12 - 1.76	0.011
Non-food expenditure	0.000	0.000	1.00***	1.00 - 1.00	0.103
Urban area	0.281	0.108	1.32*	1.07 - 1.64	0.005
†Rural area			1.00		

Model $\chi^2 = 314.3$, $P < 0.0001$

-2LL = 2573.8

Hosmer and Lemeshow goodness of fit $\chi^2 = 4.9$, $P = 0.77$

Nagelkerke $R^2 = 0.16$

*P < 0.05, **P < 0.01, ***P < 0.001

†Reference group

Table 8. Multiple regression: Income by explanatory variable

Explanatory variables	Unstandardized Coefficients		Standardized Coefficients	95% CI		
	B	Std. Error	Beta			R^2
Constant	12152.55	8784.71		-5075.12	29380.23	
Annual non-food expenditure	1.29***	0.01	0.74	1.27	1.31	0.8800
Annual food Expenditure	1.05***	0.02	0.34	1.008	1.10	0.0570
Crowding index	-12733.30***	1376.16	-0.06	-15432.08	-10034.53	0.0030
Health insurance	49322.44***	7691.10	0.04	34239.45	64405.43	0.0010
Married	26538.74***	6957.34	0.02	12894.73	40182.75	0.0003
†Never married						
Average medical expenditure	-17.54*	7.10	-0.01	-31.46	-3.62	0.0003
Middle class	-16250.42*	7262.17	-0.01	-30492.25	-2008.59	0.0004
†Lower class						

Adjusted R^2 = 0.942

F = 4866.1, P < 0.0001

*P < 0.05, **P < 0.01, ***P < 0.001

†Reference group

Table 9. Health variables by age cohort

Characteristic	Age cohort						*P*
	Children	Young adults	Other adults	Young-old	Old-old	Oldest-old	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Self-reported illness							< 0.0001
Yes	127 (12.1)	30 (3.7)	95 (9.6)	76 (31.8)	48 (51.1)	12 (52.2)	
Health care utilization							< 0.0001
Yes	77 (7.1)	25 (3.0)	59 (5.8)	50 (20.6)	34 (35.1)	8 (34.8)	
Self-reported diagnosed illness							< 0.0001
Cold	46 (44.7)	1 (3.8)	10 (12.0)	5 (6.8)	7 (15.2)	0 (0.0)	
Diarrhoea	4 (3.9)	2 (7.7)	4 (4.8)	1 (1.4)	0 (0.0)	0 (0.0)	
Asthma	28 (27.2)	4 (15.4)	8 (9.6)	5 (6.8)	2 (4.3)	0 (0.0)	
Diabetes	0 (0.0)	1 (3.8)	10 (12.0)	16 (21.9)	4 (8.7)	0 (0.0)	
Hypertension	0 (0.0)	2 (7.7)	16 (19.3)	16 (21.9)	19 (41.3)	5 (45.5)	
Arthritis	0 (0.0)	0 (0.0)	3 (3.6)	11 (15.1)	9 (19.6)	1 (9.1)	
Other conditions	25 (24.3)	16 (61.5)	32 (38.6)	19 (26.0)	5 (10.9)	5 (45.5)	
Health insurance status							< 0.0001
Yes	169 (16.3)	144 (18.0)	213 (21.8)	50 (20.9)	24 (25.3)	12 (52.2)	
Length of illness in days mean (SD)	13 (65)	7 (6)	27 (85)	13 (21)	16 (20)	12 (10)	0.446

The finding that there is a significant relationship between self reported illness and social hierarchy, where chronic illness declines with lower socio-economic status is a surprising one that contradicts the literature. One possible explanation for this finding is that despite the influence of hegemonic masculinity rich males seek more medical care than other males with less resource and as such are more likely to report more illnesses. It is also possible that rich males who operate within the norms and values of their upper class group are less likely to use traditional herbal remedies and go to traditional faith healers compared to middle and lower class men. Another possible explanation is that rich men are already at the apex of the hegemonic gendered hierarchy and so going to the doctor is not a threat to their power, status and prestige in the society.

The literature has established that generally males seek less medical care than females [5, 15-17], and Ali and de Muynck [5] found that it is severity of illness and the interference of illness with income that explains males demand for help seeking behaviour. The present research concurs with the Ali and de Muynck‘s work

and adds more information to this low help seeking of males. As this studies shows that males' perception of health is still fundamentally embedded in illness which even more for elderly people. A study by Hambleton et al. [43], examining data for elderly Barbadians, found that self-reported health conditions accounted for most of the variability in health status (ie. current diseases accounted for 33.5% out of R^2 = 38.3%). More interestingly, from this study, the length of illness does influence males' self-rated health status and health care utilization, but a fundamental explanation for Ali and de Muynck's work on increased health care demand if illness interferes with income is owing to the role income plays in accommodating non-food expenditure.

In Western nations prosperity is adjudged based on material possession, and this is even more so for males as they seek to establish power, strength, prestige and accomplishment through their material possession. This prosperity occurs through bequest, shared family wealthy, current prosperity and if not continuous employment should influence prosperity over time. The foregoing is one explanation of why most of the income of males goes to non-food consumption such as house, car, clothing, yacht, and other tangible commodities as onlookers will use these to evaluate power, success and by extension an indication of masculinity in Western societies. It is also possible that some of these men have unreported multiple unions with children that absorb some of their income that goes to non-food consumption. With so much of masculinity in Western nations linked to power, strength, material possession, social strata, sexual prowess and the number of children it is not surprising that such a miniscule amount of males' income is spent on medical care and the proportion used for non-food expenditure.

Within the male hegemonic masculinity culture in Western societies, males are seeking to exhibit power, strength and supremacy over others, and this means that overtly displaying illness is a sign of weakness, reduced power and strength compared to stronger males. Males' low helping seeking behaviour and health care utilization is embedded in the aforementioned culture, which demands the physically tough man who is strong and powerful, to which many males subscribe and work towards in their societies. It is this same culture which expects males to hide general fear, fear of illness, pain or emotion [15], and this complicates their demand for preventative helping behaviour. The current work revealed that two-thirds of those who self-rated their health status as very poor indicated an illness, and that only 58.3% of those with very poor self-rated health status sought medical care. Clearly the dominance of the males' masculinity ideology is not limited to African Americans [22] as this affects their health even outside of African Americans [17, 19-21]. In seeking to hide weakness which is embedded in males' masculinity ideology, this may explain why some males utilise private health care facilities as this is more discrete and in keeping with privacy than public health care institutions. It is also possible that some of these men who were raised by a single mother were never socialized to go to the doctor because of the mother's low level of education and income. Another possible reason why these men under report illnesses and use the health care system less is that they are using the popular traditional herbal remedies and faith healers.

Chronic illnesses account for more deaths than acute conditions, and the literature showed that this is greater among people in the lower socioeconomic class than the upper income strata [2]. The present work disagrees with this finding as there were 14 upper class males with chronic illness to every 10 lower class males. Not only did those in the upper income strata reported more chronic illness than those in the lower income group, but they also had more illness which concurs with a study done in Guatemala by Barillas et al's work [46]. Although people are cognizant of the possible outcomes of chronic illness, this study showed that there was no significant association between typology of illness and health care seeking behaviour. Again the male hegemonic masculinity culture is so dominant that they will forego help seeking behaviour if it does not present a hindrance to their income opportunity. Owing to the linkage between sexual function and masculinity, males will be more willing to address this problem than other illnesses. A study conducted by Newell et al. [47] found that more men than women sought medical care for sexually transmitted diseases, and that the help seeking behaviour was at least 70%. Embedded in aforementioned research is the low preventative help seeking behaviour of males, and this is supported by the present findings. This work showed that 2.2% of those with very good self-rated health status, 5.1% of those with good self-rated health and 25.7% of those with fair self-rated health status sought medical care. Illness is therefore a cursor to help seeking behaviour, and not wellness. A related point is that these men may also see health as an absence of illness and they do not sufficiently appreciate the larger construct of wellness and its relationship to their health status. Therefore men's health in Jamaica is in need of urgent attention and a national health literacy program [36].

Males' low demand for health care services and reluctance in demanding health care is common across many Western societies, and this holds some explanation of their self-monitoring of health. Males' lower life expectancy than females in many Western nations is therefore a fault of their own doing because

they become outcomes of their choices [48-50]. Recently a study by Wilks et al [51], using a national sample of Jamaicans (ages 15 – 74 years), found that 80.1% of males consumed alcohol; marijuana, 22.9%; cigarette smokers, 22.1%; 76.1% of males in the lower socioeconomic strata consumed alcohol, 79.4% of those in the middle and 84.3% among those males in the upper class. It is well established in health literature that those in the lower income strata on average have a lower health status than those in the upper income group [42,43], but clearly from the unhealthy lifestyle practices of males in Jamaica and their unwillingness to seek medical care, the equality in health status between upper and lower class men is somewhat surprising based on the information. Although there is strong statistical association between illness and health status of males, self-rated health status expands beyond illness.

Like Smith et al [17], we ask the question if health care practitioners are cognizant of the complexities of men's issues and whether they are prepared and equipped to address those issues. Smith et al. [17] postulated that in the Western world, the health of females is greater than that of males, but this is not really the case in Jamaica. Since 1989, statistics showed that males have always reported less illness [39], but at the same time they have greater mortality [54] and lower life expectancy [55]. Clearly there are paradoxes in the health data of males in Jamaica, and a study by Bourne [46] argued that care should be taken in interpreting health data collected from males. According to Bourne [56], males "... are clearly under-reporting illnesses and over-stating their health care-seeking behaviour", which denotes that researchers need to examine and re-evaluate how we collect data on men's health. Within the context that illness is weakness, given that most of data collectors in Jamaica are females, males are clearly understating their health conditions as they do not want to appear weakness, feminine and less masculine compared with fewer diseases. The foregoing finding warrants using male data collectors in future research dealing with men's health. Inspite of the challenges with health data of males, Bourne [56] and Wilks et al [57] found a high validity in health data in Jamaica; and that there was a strong association between subjective index (self-reported illness) and life expectancy ($r = -0.731$) [58].

The issue of public health intervention campaign for males is complex matter, and rest squarely on the culture, masculinity, and economic resources. Public health practitioners and policy formulators therefore need to find a way to have males used more of their income on help seeking such as health insurance because those with more insurance are more likely to demand health care services. Young males are less likely to have health insurance than older adults and they are the least likely to seek help as they belief that they are invincible, strong, and during this period they seek to establish their hegemonic masculine identity, suggesting that strength, dominance, power and lowest weakness must be exhibited in order to establish arrival into manhood. The present research revealed that 12.1% of children had an illness (cold, diarrhoea, asthma and other conditions), yet only 7.1% of them were taken or sought medical care. This begins the socialization of males into a culture of male hegemonic masculinity and this remains other the life course despite education, income, social standing and/or the typology of illness. Although there is no health care user fees for children (up to 18 years), there are children who are not taken for medical checkup during an illness. The data revealed that of those who did not seek medical care, 28.4% of males in Jamaica indicated that they could not afford it. Inafffordability of health care cost is clearly not a major deterrent of males' low demand for medical care, which goes back to the issue of the role of culture in determining men's health. According to Shaikh and Hatcher [59], cultural beliefs influences practices, choices, and this goes for self-care, home remedy, traditional healers in rural communities and visits to health care centres. Males are product of the society, and difficulty of being accepted if one practices counter culture is such that adherence is highly likely for most persons. With the culture dictating people's practices, choices, and beliefs, males reluctance in demand is health care is more than a choice of theirs but more so fashioned by hegemonic cultural norms.

CONCLUSION

Those in the upper income group reported more illness than those in the lower socioeconomic class. And most of the variability in health care utilization is accounted for by illness and income is mostly spent on non-food consumption with less that 1 percent of variability in income is explained by medical expenditure. The findings provide valuable information that are critical to the understanding of male's health and how these can be used to guide policy formulation and future research on men's health.

CONFLICT OF INTEREST

The authors have no conflict of interest to report.

DISCLAIMER

The researchers 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 researchers.

Annex: Operational definitions of particular variables

Variable	Operational definition	Coding
Self-rated health status	This is taken from the question "In general, would you say your health is excellent, good, moderate, poor or very poor?"	1= moderate-to-very good health status, 0 = otherwise
Age group	Age group is classified into 6 categories.	Children, 0 to 14y years; young adults, 15 to 30 years; other adults, 31 to 59 years; young-old, 60 to 74 years; old-old, 75 – 84 years and oldest-old, 85+ years
Crowding	Number of people who live in a room	Total number of people in household divided by total number of room excluding kitchen, bathroom and verandah
Social hierarchy	Income quintiles were used to measure social class, and these range from quintile 1 (poorest 20%) to 5 (wealthiest 20%)	Low = poorest 20% to poor; middle = middle quintile and upper = wealthy to wealthiest 20%
Chronic illnesses	These can be broadly defined as conditions which prolonged, do not resolved spontaneously, and are infrequently curable. This is taken from the question 'What are the illnesses that you have been diagnosed with – Cold, diarrhoea, asthma, diabetes mellitus, hypertension, arthritis, other (unspecified)	1= diabetes mellitus, hypertension and arthritis, 0 = otherwise
Health care-seeking behaviour	Visits to pharmacies, medical practitioners, nurses,	1=Visits to health care professionals, 0=otherwise
Self-reported illness	Have you had any illness or injury during the past four weeks? For example, have you had cold, diarrhoea, asthma, diabetes, hypertension, arthritis or other?	1= yes, 0 = no

REFERENCES

1. Barreto SM, De Figueiredo RC. Chronic diseases, self-perceived health status and health risk behaviors: gender differences. Rev Saudo Publica 2009;43(Supl. 2):1-9
2. Van Agt HME, Stronks K, Mackenbach JP. Chronic illness and poverty in the Netherlands. Eur J of Public Health 2000; 10:197-200.
3. Barnekow-Bergkvist M, Hedberg G, Janlert U, Jansson E. Health status and health behaviour in men and women at the age of 34 years. European J of Public Health 1998; 8:179-182.
4. Corman H, Noonan K, Carroll A, Reichman NE. Low-Income fathers' access to health insurance. J of Health Care for the Poor and Underserved 2009; 20:152-164.
5. Ali M, De Muynck A. Illness incidence and health seeking behaviour among street children in Rawlpindi and Islamabad, Pakistan – a qualitative study. Child: Care, Health and Development 2005; 31:525-532.
6. Smith JP, Kington R. Demographic and Economic Correlates of Health in Old Age. Demography 1997; 34:159-70.
7. Grossman M. The demand for health - a theoretical and empirical investigation. New York: National Bureau of Economic Research, 1972.
8. WHO. The Social Determinants of Health; 2008. Available at http://www.who.int/social_determinants/en/ (accessed April 28, 2009).
9. Kelly M, Morgan A, Bonnefog J, Beth J, Bergmer V. The Social Determinants of Health: developing Evidence Base for Political Action, WHO Final Report to the Commission; 2007.
10. Wilkinson RG, Marmot M. Social Determinants of Health. The Solid Facts, 2nd ed. Copenhagen: World Health Organization; 2003.

11. Solar O, Irwin A. A Conceptual Framework for Analysis and Action on the Social Determinants of Health. Discussion paper for the Commission on Social Determinants of Health DRAFT April 2007. Available from http://www.who.int/social_determinants/resources/csdh_framework_action_05_07.pdf (Accessed April 29, 2009).

12. Graham H. Social Determinants and their Unequal Distribution Clarifying Policy Understanding The Milbank Quarterly 2004; 82 (1), 101-124.

13. Pettigrew M, Whitehead M, McIntyre SJ, Graham H, Egan M. Evidence for Public Health Policy on Inequalities: 1: The Reality According To Policymakers. Journal of Epidemiology and Community Health 2004; 5, 811 – 816.

14. World Health Organization, WHO. World health statistics, 2009. Geneva: WHO; 2009.

15. Doyal L. Gender equity in health: Debates and dilemmas. Soci Sci and Medicine 2000; 51:931-939.

16. Akande TM, Owayemi J. Health-seeking behaviour in Anyigba, North-Central, Nigeria. Research J of Med Sci 2009; 3:47-51.

17. Smith JA, Braunack-Mayer A, Wittert G. What do we know about men's help-seeking and health service use: The Medical J of Australia 2006; 184:81-83.

18. Chevannes B. Learning to be a man: Culture, socialization and gender identity in five Caribbean communities. Kingston, Jamaica: The Univer. of the West Indies Press; 2001.

19. White A, Banks I. Help seeking in men and the problems of late diagnosis. In: Kirby R, Carson C, Kirby M, Farah R, eds. Men's health; 2004

20. Galdas P, Cheater F, Marshall P. Men and health-seeking behaviour: Literature review. J of Advanced Nursing 2005; 49:616-623.

21. O'Brien R, Hunt K, Hart G. It's caveman stuff, but that is to a certain extent how guys still operate: Men's accounts of masculinity and help seeking. Social Science & Medicine 2005; 61:503-516.

22. Connell RW. Masculinities. St. Leonards, new South Wales: Allen & Unwin;1995

23. Wade JC. Traditional masculinity and African American men's health-related attitudes and behavior. American J of Men's Health 2009; 3:165-172.

24. Meryn S. Global man & health. Journal of Men's Health 2009; 6: 2-3.

25. White A, Witty K. Men's underuse of health services-alternative approaches. Journal of Men's Health 2009; 6:95-97.

26. Williams R. Masculinities and vulnerability: The solitary discourses and practices of African-Caribbean and white working-class fathers. Men and Masculinities 20009; 11:441-461.

27. Swahnberg K, Wijma B, Hearn J, Thapar-Bjorkert S, Bertero C. Mentally pinioned: Men's perceptions of being abused in health care. International Journal of Men's Health 2009; 8:60-71.

28. Varanka JJ. Mainstreaming men into gender sensitive health policies. Journal of Men's Health 2008; 5:189-191.

29. Deeks A, Lombard C, Michelmore J, Teede H. The effects of gender and age on health related behaviors. BMC Public Health 2009; 9:213.

30. Vasianovich A, van Teijlingen ER, Reid G, Scott NW. Key health promotion factors among males members of staff at a higher educational institution: A cross-sectional postal survey 2008; 8:58.

31. World Health Organization. Preventing Chronic Diseases a vital investment. Geneva: WHO; 2005.

32. Subramanyam M, Kawachi I, Berkman L, Subramanian SV. Relative deprivation in income and self rated health in the United States. Social Science and Medicine 2009; 69:327-334.

33. 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.

34. Rose S, Hatzenbuehler S. Embodying social class: The link between poverty, income inequality and health. International Social Work 2009; 52: 459-471.

35. Bockerman P, Johansson E, Helakorpi S, Uutela A. Economic inequality and population health: Looking beyond aggregate. Sociology of Health & Illness 2009; 31:422-440.

36. Meryn S. Men's health during the economic crisis. Journal of Men's Health 2008; 5:260-261.

37. Statistical Institute Of Jamaica, Jamaica Survey of Living Conditions. [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]; 2002.

38. World Bank, Development Research Group, Poverty and human resources. Jamaica Survey of Living Conditions (LSLC) 1988-2000: Basic

Information. Washington DC; 2002. Retrieved on August 14, 2009, from, http://www.siteresources.worldbank.org/INTLSMS/Resources/.../binfo2000.pdf

39. PIOJ, STATIN. Jamaica Survey of Living Conditions, 2007. Kingston, Jamaica: PIOJ & STATIN; 2008.
40. Homer D, Lemeshow S. Applied Logistic Regression, 2nd edn. John Wiley & Sons Inc., New York, 2000.
41. Cohen L, Holliday M. Statistics for Social Sciences. London, England: Harper and Row, 1982.
42. Polit DF. Data analysis and statistics for nursing research. Stamford: Appleton & Lange Publisher; 1996.
43. Hambleton IR, Clarke K, Broome HL, Fraser HS, Brathwaite F, Hennis AJ. Historical and current predictors of self-reported health status among elderly persons in Barbados. Rev Pan Salud Public 2005; 17: 342-352.
44. Gavrilov LA, Gavrilova NS. The biology of life Span: A Quantitative Approach. New York: Harwood Academic Publisher; 1991.
45. Bourne PA, Charles CAD, McGrowder DA. Ill-males in an English-speaking Society. Journal of Men's Health 2011;8(1):27-42
46. Barillas E, Valladares R, GSD Consultores Asociados. Health sector inequalities and poverty in Guatemala. In: Pan American Health Organization. Investment in health: Social and economic returns. Washington DC: Scientific and Technical Publication, No. 582; 2001:pp. 175-188.
47. Newell J, Senkoro K, Mosha F, Brosskurth H, Nicoll A, Barongo L, Borgdorff M, Klokke A, Changalucha J, Killewo J, Velema J, Muller AS, Rugemalila J, Mabey D, Hayes R. A population-based study of syphilis and sexually transmitted disease syndromes in north-western Tanzania. 2. Risk factors and health seeking behaviour. Genitourin Med 1993; 69:421-426.
48. Davis C. Men behaving badly. Nursing Standard 2007; 21:18-20.
49. Lee C, Owens G. The psychology of men's health. Buckingham: Open University Press; 2002
50. Courtney W. Engendering health: A social constructionist examination of men's health beliefs and behaviours. Psychology of Men and Masculinity 2000; 1:4-15.
51. Wilks R, Younger N, Tulloch-Reid M, McFarlane S, Francis D. Jamaica health and lifestyle survey 2007-8: Technical Report. Kingston: Tropical Medicine Research Institute (TMRI), The University of the West Indies, Mona.
52. Fox J, ed: Health inequalities in European Countries. Aldershot: Gower Publishing Company Limited; 1989.
53. Illsley R, Svensson PG, eds: Health inequities in Europe. Soc Sci Med 1990; 31(special issue):223-420.
54. Statistical Institute of Jamaica (STATIN). Demographic statistics, 2007. Kingston: STATIN; 2008.
55. Pan American Health Organization (PAHO), World Health Organization (WHO), United Nations Population Fund (UNFPA), United Nations Development Fund for Women (UNIFEM). Gender, health, and development in the Americas: Basic indicators, 2005. Washington DC: PAHO, WHO, UNFPA, UNIFEM;2005
56. Bourne PA. Paradoxes in self-evaluated health data in a developing country. North Am J Med Sci 2010; 2: 398-406.
57. Wilks R, Younger N, Mullings J, Zohoori N, Figueroa P, Tulloch-Reid M, Ferguson T, Walters C, Bennett F, Forrester T, Ward E, Ashley D. Factors affecting efficiency and item non-response in health surveys in developing countries: The Jamaica national healthy lifestyle survey. BMC Medical Research Methodology 2007;7:13
58. Bourne PA. The validity of using self-reported illness to measure objective health. North Am J Med Sci 2009; 1: 232-238.
59. Shaikh BT, Hatcher J. Health seeking behaviour and health service utilization in Pakistan: challenging the policy makers. Journal of Public Health 2004; 27:49-54.
60. Panton V.G. The church and common law unions. Kingston: Head Start Books 1992.