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ORIGINAL ARTICLE

Gender Differences in the Self-Assessed Health of Young Adults in an English-Speaking Caribbean Nation

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ABSTRACT

Background: Gender differences in self-assessed health in young adults (i.e. ages 15 – 44 years) are under-studied in the English-speaking Caribbean. **Aims:** The aims of the current research were to (1) provide the demographical characteristics of young adults; (2) examine the self-assessed health of young adults; (3) identify social determinants that explained the good health status for young adults; (4) determine the magnitude of each social determinant, and (5) determine gender differences in self-assessed health. **Materials and methods:** The current study extracted a sub-sample of 3,024 respondents from a larger nationally cross-sectional survey of 6,782 Jamaicans. Statistical analyses were performed using the Statistical Packages for the Social Sciences v 16.0. Descriptive statistics were used to provide demographic information on the samples. Chi-square was used to examine the association between non-metric variables and an Analysis of Variance was used to test the relationships between metric and non-dichotomous categorical variables. Logistic regression examined the relationship between the dependent variable and some predisposed independent variables. **Results:** One percent of the sample reported injury and 8% reported illness. Self-reported diagnosed illnesses were influenza (12.7%); diarrhoea (2.9%); respiratory disease (14.1%); diabetes mellitus (7.8%); hypertension (7.8%); arthritis (2.9%) and unspecified conditions (41.2%). The mean length of illness was 26.0 days (SD = 98.9. Nine social determinants and biological conditions explained 19.2% of the variability of self-assessed health. The biological conditions accounted for 78.1% of the explanatory model. **Conclusion:** Injury accounts for a miniscule percentage of illness and so using it to formulate intervention policies would lack depth to effectively address the health of this cohort.

Key Words: Health, self-assessed health, health care-seeking, gender difference, young adults, English-speaking Caribbean, Jamaica

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Introduction

Gender differences in self-assessed health in young adults (i.e. ages 15 – 44 years) are under-studied in the English-speaking Caribbean. Previous studies that have examined young adults have focused on reproductive health; survivability; teenage pregnancy; substance use and abuse; HIV/AIDS; injuries and the impact of injuries on health [1], [2], [4], [5], [6] [7]. While studies on injuries have shown that young males of 15 to 44 years are mostly affected by violent-injuries [6], [7] in Jamaica, statistics [8] have revealed that many of the deaths which occurred in this age group, could be accounted for injuries. Injuries are among the

reasons for ill-health and by extension, do not constitute a significant percentage of illness. Injuries account for most morbidities and/or mortalities in the world [7], but this is not typical to Jamaica and undertaking studies on injuries are germane but lack extensive coverage on health. Statistics on Jamaica showed that of the leading causes of mortalities in 2002 [8],[9],[10], were homicides and injuries, which were the 5th and 10th causes of deaths respectively [10]. In 2004, statistics from the World Health Organization (WHO) showed that injuries were the 4th leading cause of morality in Jamaica [11] and in 2006, statistics from the Jamaican Ministry of Health [9] indicated that injuries were not among the 5 leading cases of hospitalisation in Jamaica.

Therefore, in Jamaica, policies would not have been formulated using general health status research, but more so from data on injuries, reproductive health, survivability and mortalities. Policy intervention on those issuesare pertinent and cannot be neglected from the general pursuit of health. Using general health status and health conditions would provide invaluable insights from the individual's perspective on those issues; which would add value to addressing health concerns, for particular outcomes such as pregnancies, mortality, injuries or crime, violence and victimization by young adults. A study by Hambleton et al. [12] identified that illness constituted a significant percentage of the explanatory power of the self-assessed health of older Barbadians (ages 60+ years) and while this provides some understanding on the role of illness on the general health status which may be caused by injuries, the research identified other factors (i.e. social determinants) that played roles in health status determination.

Injuries therefore, do account for a percentage of ill-health, indicating that a study of their typologies is imperative, but this cannot abate or replace a study on the general health of young adults. An extensive revelation of health literature in the English-speaking Caribbean nations found a lack of studies on the general health status of young adults. Empirical literature showed that any study on health must coalesce biological and social determinants [13],[14],[15],[16],[17],[18],[19],[20],[21],[22],[23],[24],[25], which is also lacking for young adults. Recently, a study by Bourne [26] provided invaluable insights into the typology of health conditions and the demographic shifts in these between 2002 and 2007. [Table/Fig 1], [Table/Fig 2] and [Table/Fig 3] highlight hospital utilisation for gunshot wounds and suicides and the victim prolife of individuals in Jamaica in 2005. The data highlights the crime and hospital utilisation profile, which indicates that health care utilisation and victims of crimes are substantially between 14 and 45 years. The age group of 15 – 45 years does not only represent most of the victims of crime, mortality and hospital utilization in Jamaica, but it also denotes the group which constitutes arrest for major crimes [Table/Fig 4]. Some of the issues are social and do affect mortality, but of importance are the persons of this group who are alive and fear being a victim of violence, as well as those who reside in those communities in which such incidences are perpetuated each day. In addition, their general health is also of concern, as well as those members of this age group who are not likely victims owing to other social conditions such as social hierarchy, area of residence or those who do not reside in inner-city communities. It is within this context that the current study chose to examine the self-reported health of this group in order to provide insights into the health of young adults and the social determinants that explain their health status.

The aims of the current research are to [1] provide the demographic characteristics of young adults; [2] examine the self-assessed health of young adults; [3] identify the social determinants that explain the good health status for young adults; [4] determine the magnitude of each social determinant, and [5] determine the gender differences in self-assessed health.

(Table/Fig 1) Treatment for Gunshot wounds at the Accident and Emergency Depts. Of Public Hospitals by Gender and Age cohort (in %): 1999-2002

	Male	Female	Male	Female	Male	Female	Male	Female
< 5 years	0.8	1.3	0.2	3.1	0.2	0.0	0.0	0.0
5-9 years	0.3	3.0	0.7	1.9	0.3	1.1	0.3	0.6
10-19 years	17.9	24.5	16.2	18.5	10.2	17.0	13.9	17.0
20-29 years	39.0	32.5	40.5	30.2	35.8	19.4	36.6	35.2
30-44 years	30.6	23.6	31.1	11.1	32.3	26.9	29.3	32.1
45-64 years	6.6	12.2	6.7	28.4	10.7	22.3	8.9	11.3
65+ years	3.5	3.0	2.3	11.1	6.7	12.7	8.8	3.6
Not unknown	1.4	0.0	2.2	1.2	3.8	0.7	2.3	0.6
Total %	100	100	100	100	100	100	100	100

Calculated by Paul A. Bourne from Annual Report, 2002 published by the Policy, Planning and Development Division, Ministry of Health, Jamaica

(Table/Fig 2) Visitation to the Accident and Emergency Depts. Of Public Hospitals for attempted suicide by Gender and Age cohort (in %): 2000-2002

Age cohort	Year					
	2000		2001		2002	
	Male	Female	Male	Female	Male	Female
5-9 years	0.0	3.4	2.0	0.0	2.0	3.5
10-19 years	19.0	39.3	13.0	49.4	13.0	38.3
20-29 years	24.1	36.0	20.0	34.8	20.0	36.5
30-44 years	34.5	13.5	13.0	6.7	13.0	17.4
45-64 years	12.1	2.2	4.0	3.4	4.0	0.9
65+ years	6.9	3.4	4.0	2.2	4.0	0.0
Not unknown	3.4	2.2	0.0	3.4	1.7	2.6
Total %	100	100	100	100	100	100

Calculated by Paul A. Bourne from Annual Report, 2002 published by the Policy, Planning and Development Division, Ministry of Health, Jamaica

(Table/Fig 3)   Victims of Major Crimes by Age Cohorts, 2005

Age Group	Murder Male	Murder Female	Murder Total	Shooting Male	Shooting Female	Shooting Total	Robbery Male	Robbery Female	Robbery Total	Breaking Male	Breaking Female	Breaking Total	Rape Female	Rape Total	Carnal Abuse Female
0-4	2	4	6	3	1	4	0	0	0	0	0	0	3		3
5-9	3	5	8	0	5	5	1	0	1	0	0	0	27		15
10-14	10	8	18	4	11	15	16	11	27	0	6	6	212		223
15-19	122	18	140	107	13	120	59	49	108	8	17	25	223		103
20-24	268	23	291	212	30	242	162	115	277	52	75	127	122		0
25-29	252	33	285	192	22	214	233	130	363	81	106	187	48		0
30-34	223	22	245	161	16	177	198	112	310	114	115	229	28		0
35-39	177	17	194	138	15	153	199	102	301	140	104	244	23		0
40-44	139	12	151	107	15	122	171	77	248	116	107	223	17		0
45-49	72	16	88	68	5	73	146	44	190	98	75	173	12		0
50-54	46	9	55	46	8	54	98	32	130	75	47	122	7		0
55 & Over	81	16	97	50	6	56	152	66	218	171	100	271	16		2
Unknown	91	5	96	408	3	411	28	9	37	32	14	46	8		0
Total	1486	188	1674	1496	150	1646	1463	747	2210	887	766	1653	746	746	346
Total Reported			1674			1646			2210			1653		746	346

Source: Statistics department, Jamaica Constabulary Force

(Table/Fig 4) Age Group of Persons Arrested for Major Crimes for 2005

Age Group	Murder			Shooting			Robbery									Total
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Male		Total
12-15	6	1	7	4	0	4	10	0	10	54	0	54	12	11		98
16-20	157	6	163	167	1	168	183	0	183	122	3	125	66	43		748
21-25	235	8	243	239	1	240	214	1	215	129	3	132	68	52		950
26-30	160	2	162	137	0	137	120	1	121	105	3	108	73	27		628
31-35	85	1	86	74	0	74	71	1	72	93	2	95	48	26		401
36-40	54	3	57	40	1	41	36	1	37	69	0	69	23	19		246
41-45	15	0	15	12	0	12	13	0	13	44	1	45	18	12		115
46-50	7	1	8	2	0	2	1	0	1	18	0	18	12	5		46
51-55	5	1	6	0	0	0	2	0	2	2	0	2	3	2		15
56-60	1	0	1	1	0	1	6	0	6	1	1	2	1	1		12
61 & Over	0	0	0	2	0	2	2	0	2	3	1	4	2	0		10
Unknown	40	0	40	86	0	86	23	0	23	11	0	11	10	0		170
Total	765	23	788	764	3	767	681	4	685	651	14	665	336	198		3439

Source: Statistics department, Jamaica Constabulary Force

Materials and Methods

The Jamaica Survey of Living Conditions (JSLC) was commissioned by the Planning Institute of Jamaica (PIOJ) and the Statistical Institute of Jamaica (STATIN) in 1988 [27].

These two organizations are responsible for planning, data collection and policy guidelines for Jamaica and have been conducting the JSLC annually since 1989 [28]. The JSLC is an administered questionnaire where respondents are asked to recall detailed information on particular activities. The questionnaire was modelled from the World Bank's Living Standards Measurement Study (LSMS) household survey [28]. There are some modifications to the LSMS, as JSLC is more focused on policy impacts. The questionnaire covers demographic variables, health, immunization of children aged 0–59 months, education, daily expenses, non-food consumption expenditure, housing conditions, inventory of durable goods and social assistance. Interviewers are trained to collect the data from the household members. The survey is conducted between April and July annually. The current study extracted a sub-sample of 3,024 respondents (i.e. ages15 - 44 years) from a larger nationally cross-sectional survey of 6,782 Jamaicans. This study used the dataset of the JSLC for 2007 [29] [Table/Fig 5].

(Table/Fig 5) Particular variables by sex of respondents

Variable	Sex		P
	Male (%) n = 1,439	Female (%) n = 1,585	
Injury			0.037
Yes	1.4	0.6	
No	98.6	99.6	
Illness			
Yes	5.3	10.5	< 0.0001
No	94.7	89.5	
Self-assessed health status			< 0.0001
Very good	44.8	39.8	
Good	47.5	47.4	
Moderate	6.3	10.4	
Poor	1.1	2.2	
Very poor	0.4	0.2	
Health care-seeking behaviour			< 0.0001
Yes	3.5	6.8	
No	96.5	93.2	
Household head			< 0.0001
Yes	34.1	73.0	
No	65.9	27.0	
Union status			0.103
Married	12.1	15.1	
Common-law	19.7	21.0	
Visiting	28.1	26.2	
Single	30.8	28.9	
Not stated	9.3	8.7	
Self-reported diagnosed health condition			0.289
Acute: Influenza	12.9	12.7	
Diarrhoea	6.5	1.4	
Respiratory	16.1	13.4	
Chronic: Diabetes	6.5	8.5	
Hypertension	11.3	21.1	
Arthritis	1.6	3.5	
Other (unspecified)	45.2	39.4	
Area of residence			0.756
Urban	32.2	31.9	
Peri-urban	21.4	22.5	
Rural	46.4	45.6	
No. of visits to health care facilities Mean (SD)	1.2 (0.5)	1.5 (1.3)	0.144
Age Mean (SD)	28.4 yrs (8.8)	28.5 yrs (8.9)	0.746
Medical expenditure Mean (SD) in US $	16.67 (42.01)	16.42 (26.82)	0.971

†US$ 1.00 = Ja. $ 80.47

Measures

An explanation of some of the variables in the model is provided here. Self-reported is a dummy variable, where 1 (good health) = not reporting an ailment or dysfunction or illness in the last 4 weeks, which was the survey period; 0 (poor health) if there were no self-reported ailments, injuries or illnesses. While self-reported ill-health is not an ideal indicator of actual health conditions because people may underreport, it is still an accurate proxy of ill-health and mortality. 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. Positive affective psychological condition is the number of responses with regards to being hopeful and optimistic about the future and 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. Health status is a binary measure (1=good to excellent health; 0= otherwise) which is determined from "Generally, how do you feel about your health"? Answers for this question are in a Likert scale matter, ranging from excellent to poor. Health care-seeking behaviour is derived from the question: Have you visited a health care practitioner, pharmacist or healer in the past four 4 weeks, with an option of yes or no. For the purpose of the regression, the responses were coded as 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.

Statistical Analysis

Statistical analyses were performed by using the Statistical Packages for the Social Sciences v 16.0 (SPSS Inc; Chicago, IL, USA) for Windows. Descriptive statistics such as mean, standard deviation (SD), frequency and percentage were used to analyze the socio-demographic characteristics of the sample. Chi-square was used to examine the association between non-metric variables and an Analysis of Variance (ANOVA) was used to test the relationships between metric and non-dichotomous categorical variables. Logistic regression examined the relationship between the dependent variable and some predisposed independent (explanatory) variables, because the dependent variable was a binary one (self-

reported health status: 1- if reported good health status and 0- if reported poor health status). The final model was based on those variables that were statistically significant ($p < 0.05$), and all other variables were removed from the final model ($p > 0.05$). Categorical variables were coded by using the 'dummy coding' scheme or a reference category.

The predictive power of the model was tested by using the 'omnibus test of model' and Hosmer and Lemeshow's [30] 3 technique 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 the variables. Cohen and Holliday [31] stated that the 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. Finally, the forward stepwise technique in logistic regression was used to determine the magnitude (or contribution) of each statistically significant variable in comparison with the others and the odds ratio (OR) for interpreting each of the significant variables.

Model

To study the relationship between selfassessed health status, social determinants, biological conditions and welfare. Logistic regression was used to estimate the following regression model. The equation [1] described below, denotes the 20 social, $\mathbf{SDH_{ij}}$, 3 welfare variables, $\mathbf{W_{ij}}$, and biological condition, $\mathbf{B_i}$, of self-assessed health status ($\mathbf{H_i}$) and some standard error [Table/Fig 6] [1]:

(Table/Fig 6)

$$\mathbf{H_i} = f\left(\sum_{j=1}^{20} \beta_j\, \mathbf{SDH_{ji}}, \sum_{j=1}^{3} W_j\, \overline{B_{i,}\mu_i}\right) \quad [1]$$

[Table/Fig 7] presents the results from the

econometric exercise which is captured in the Equation [2]. The equation [2] therefore, presents only those variables which are significantly correlated with the self-assessed health status of young adults [Table/Fig 8] [2]:

(Table/Fig 7)Logistic regression:Explanatory variables of good health status, n = 2, 832

Explanatory variable	Std. Error	Odds ratio	95.0% C.I.	P	R²
Social determinants:					
Age	0.01	0.97	0.96-0.99	< 0.0001	0.004
Crowding	0.03	0.95	0.90-1.00	0.043	0.003
Tertiary	0.28	1.47	1.27-1.81	0.007	0.003
†Primary		1.00			
Male	0.14	1.45	1.11-1.91	0.007	0.006
MiddleClass	0.18	1.45	1.02-2.07	0.041	0.003
†Poor classes		1.00			
Married	0.21	1.63	1.09-2.43	0.018	0.004
†Single		1.00			
Other town	0.18	1.61	1.12-2.30	0.009	0.005
†Rural		1.00			
Medical expenditure	0.00	0.99	0.99-1.00	0.017	0.006
Health care- seeking	0.29	0.35	0.20-0.62	< 0.0001	0.009
Biological condition:					
Self-reported illness	0.24	0.17	0.11-0.28	< 0.0001	0.153

Hosmer and Lemeshow goodness of fit $\chi^2 = 4.4$ (8), $P = 0.82$
-2LL = 1615.7
Nagelkerke $R^2 = 0.196$
†Reference group

(Table/Fig 8)

$$\mathbf{H_i} = f\left(\sum_{j=1}^{9} \beta_j\, \mathbf{SDH_{ji}}, \overline{B_{i,}\mu_i}\right) \quad [2]$$

where:
$\mathbf{H}_i$ **is the level of self-assessed health status of person *i*.**
$\mathbf{SDH}_{ij}$ **denotes the 9 statistically significant social determinants of person *i*.**

Results

The sample was 3,024 respondents: 47.6% males and 52.4% males. The mean age of the sample was 28.5 years (SD = 8.8 years). Thirty percent of the sample was single; 20.4% was common-law; 13% was married; and 27.1% was in visiting unions. Thirty-six and three-tenth percent of the sample was poor, with 17.1% in the poorest,20%, as compared to 44.1% in the wealthy social hierarchies, of which 23.2% was in the wealthiest 20%. Forty-five and nine tenth percent of the sample dwelt in rural areas, 22%

in peri-urban areas and 32.1% in urban areas. Of the sample population, with respect to the questions on injury and illness, 97.1% and 97% responded respectively. Of those respondents, 1% claimed injury and 8% mentioned illness. When the respondents were asked whether the illness was diagnosed and the typologies of the conditions, 100% stated that their health condition was diagnosed by a medical practitioner. The self-reported diagnosed health conditions were influenza (12.7%); diarrhoea (2.9%); respiratory disease (14.1%); diabetes mellitus (7.8%); hypertension (7.8%); arthritis (2.9%) and unspecified conditions (41.2%). The mean length of illness was 26.0 days (SD = 98.9), with 1 visit made to a health care practitioner in the last 4-weeks. When the respondents were asked if they had visited a health care practitioner (including healer, pharmacist, nurse, and wife) in the last 4-weeks, 64.2% said yes. The health care institutions were public hospitals (34.8%); private hospitals (7.0%); public health care centres (14%); and private health care centres (51.6%). Twenty percent of the sample had health insurance coverage; 89.6% claimed at least good health (including 42.2% very good self-assessed health) as compared to 1.9% who stated poor health (including 0.3% very poor health).

A cross-tabulation of health care-seeking behaviour and illness shows no significant statistical association. Ninety-seven percent of those who sought medical care were ill as compared to 94% of those who sought medical care in the last 4-weeks.

A cross-tabulation between illness and age group revealed a significant statistical association – χ^2 = 39.4, P < 0.0001. [Table/Fig 9] provides the information on the age group and the percentage of young adults who indicated that they had an illness in the last 4-weeks.
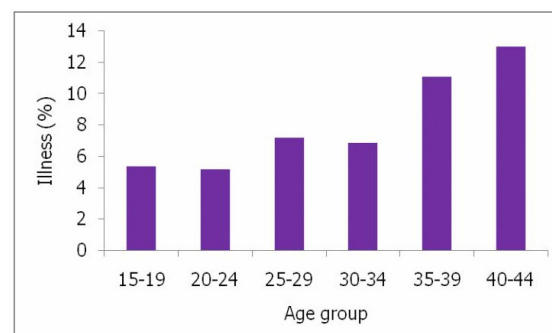

(Table/Fig 9) Illness (%) by age group

No significant statistical association was found between the health care-seeking population and their age group (P = 0.608): age 15 – 19 years, 60%; age 20 – 24 years, 53.1%; age 25 – 29, 60.0%; age 30 – 34 years, 67.7%; age 35 – 39 years, 68.0% and age 40 – 44 years, 69.%.

No significant statistical relationship was found between health care-seeking behaviour and social hierarchy (P = 0.339): poorest 20%, 51.1%; poor, 69.2%; middle class, 67.4%; wealthy, 65.5%, and wealthiest 20%, 67.7%.

There was a statistical difference between the age of the respondents who reported to be having particular health conditions – F-test = 4.5, P < 0.001. The mean ages of the people having particular health conditions were influenza,-29.3 years (SD = 9.2); diarrhoea- 32.2 years (SD = 8.7); respiratory illnesses- 30.3 years (SD = 9.6); diabetes mellitus- 37.3 years (SD = 5.9); hypertension- 36.8 years (SD = 7.1) and others- 29.9 years (SD = 9.3).

[Table/Fig 10](A) highlights the (%es) of young adults who reported injury and illness, who dwelt in a particular area of residence which was controlled for the sex of the respondents. Table/Figure 10 (A) showed that over 50% of those with illness and injury dwelt in rural areas. However, there was no significant statistical relationship when illness and injury by the area of residence was controlled by the sex of the respondents (illness – male χ^2 = 2.6, P < 0.271 and female χ^2 = 2.3, P < 0.323; injury –

male χ^2 = 2.5, P < 0.292 and female χ^2 = 0.93, P < 0.628).
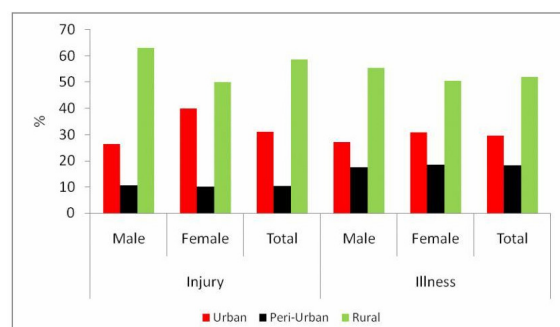
(Table/Fig 10) (A). Area of residence of those with Injury (%) and Illness (%) controlled for by sex

[Table/Fig 10] (B) shows the sex composition of those people who utilised health care facilities in Jamaica. Most young adult males utilised private hospitals (36.4%) as compared to females who visited public health care centres (72.7%). The least percentage of females visited private hospitals (63.6%) as compared to public health care centres for males (27.3%).
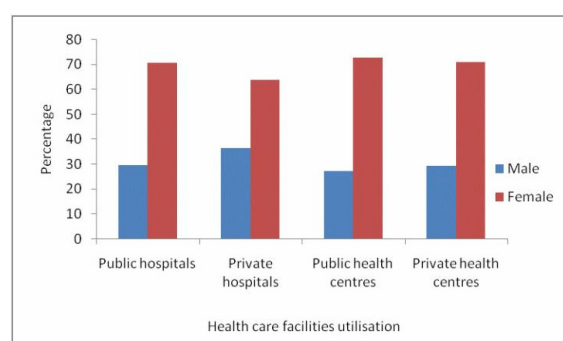
(Table/Fig 10) (B). Sex composition of those who attend health care facilities

Multivariate Analysis

Tables 6 represents the results from the econometric exercise: Of the 24 variables that were tested in an initial model, 9 were social determinants and 1 was a biological variable. The biological variable (i.e. self-reported illness) accounted for 78.1% of the explanatory power of the model (i.e. 15.3%), thus indicating that social determinants accounted for 21.9% of the self-assessed health status of young adults.

Limitations of study

Health is a function of social, psychological, economical, biological and ecological factors. Based on the multi-dimensional nature of health determinants, the present study used secondary survey data and variables such as psychological, ecological and some social issues; issues such as childhood health history, culture, beliefs and value systems were omitted from the model. These omissions reduced the explanatory power of the current study, but provided a platform on which future studies could be launched.

Discussion

In the present study, the prevalence of injury in Jamaica for young adults was 1% as compared to 8% for illness. A cross-tabulation between self-reported injury and self-reported illness showed a significant statistical relationship. The association was a very weak one and the correlation coefficient was 0.12 (or 12%). Forty-one of every 100 young adults who reported having an injury, stated that they had an illness in the last four-weeks, indicating that less than one- half percent of those with an injury had an illness. Concurrently, 2 times more young adult-females sought medical care more than males. On the other hand, males were 2.3 times likely to record injury, while females were 2 times more likely to have an illness in the last 4-weeks. Furthermore, the odds ratio of recording better good self-assessed health status for males was 1.5 times more than that of females. Ignoring the gender differences in self-assessed health status, medical care-seeking behaviour and injuries, the odds ratio of recording good health in married young adults was 1.6 times more than their single counterparts and this was similar for peri-urban respondents with reference to rural young adults. On the other hand, a young adult who sought medical care was 65% less likely to record good health; young adults with tertiary level education were 47% more likely to record good health and those who spent more on medical care (i.e.

medical care-expenditure) were 1% less likely to have good self-assessed health status.

Empirically, research has established that any investigation of health must coalesce social, psychological, economical and biological variables. [12],[13],[14],[15],[16],[17],[18], [19],[20],[21],[22],[23][24],[25],[32],[33], [34], [35],[36],[37]. Hambleton et al. [12] went further when he disaggregated the contribution of biological and non-medical conditions of self-assessed health status. They found that 87.7% of the explanatory power of good health status of elderly Barbadians could be accounted for by their current illness. The present study found that current illness accounted for 78.1%, which suggested that illness accounted for less of the young adults' health status than for elderly people. One of the challenges in effectively comparing the aforementioned issues (which is embedded in the data), is that the perception of people across different nations are not the same and this, as well as the age component, could account for some aspects of the disparity. The present study has not only highlighted the role that social determinants play in health status, but also that they play a greater role in the health of younger adults than older people. Statistics seemingly shows that a large percentage of young adults are victims of injuries, but the current findings indicate that these represent only a small part of the ill-health of young adults. The small percentage of injuries which are experienced by young adults denote that using injuries as a guide in health policy intervention would be addressing an even smaller percentage of health status than illnesses. The aforementioned results show that illness contributes more to health status than social determinants, along with injuries. It is clear that despite the cultural and biological differences rooted in both figures, current illness is a strong determinant of self-assessed health status in each region and if health must combine social, biological, psychological and ecological determinants, public health interventions that are using any one determinant in particular injuries would not be addressing the health concerns of young adults. This empirical evidence concretizes the rationale for social determinants

in the discussion and research on health status as well as ill-health.

The findings of the present study showed that the social determinants of young adults constituted more explanation than for the elderly. Therefore, the usage of injuries and/or illness to measure and guide public intervention denotes that1 in 5 of the health status of young adults would have been unaddressed in this effort and as much as 9 out of 10 of injury statistics are used in public policy interventions. Current social determinants of health for elderly Barbadians accounted for 4.1% of health and historical determinants, suggesting the increased role of biological determinants in the health process with ageing. Historical determinants which included education, occupation, children, economic situation, childhood nutrition, childhood health and diseases theoretically, is not a part of social determinants. Disaggregating social determinants to ascertain a value for historical determinants to compare with Hambleton et al.'s finding in this study, found that education was the only factor of those identified in the Barbadian health status, and that education accounted for only 0.3% of the explanatory model in this study. Therefore, within the limitations of the current study, meaningful comparisons using disaggregated social determinants would be close to impossible, as the components are not necessarily the same.

In spite of the limitations of the current work, the study can effectively compare self-assessed health status, as both studies collected this data from their population. The current study which used the data of 2007 and Hambleton et al's work which used data from December 1999 to June 2000, showed that the health of young adults was between 1.5 to 1.9 times more than that of the elderly Barbadians. Although there are time differences which cannot be discounted for in this study, there is emerging information about the reduction of health status with ageing. Ageing is a nature event. Imagine purchasing a new car, taking this car home and locking it away in the car porch under cover for 20 years; and on removing the covers, although the item

was not used, it would have aged. Using the car, however, increases the deterioration or depreciation on the human structure and therefore it accounts for illnesses, health care utilisation and lowered health status The issue of the car symbolizes the natural ageing and progressive depleted state of things and this is similar in the case for humans. The current study revealed that as young people age, the odds ratio (OR = 0.97) of indicating good health falls by 3% and using the aforementioned statistics would mean that the odds ratio of good health for elderly people should fall. A study by Bourne, McGrowder and Crawford [38] showed that the illnesses affecting elderly Jamaicans was more chronic than acute as compared to the converse in this study. With the changes in the typology of illnesses from acute to chronic conditions, the elderly's health status must be lower than that of young adults. Hence, although homicides accounted for more deaths of young adults that elderly people, the health status of the former is still greater and this is due largely to the lower risk of biological conditions. Again, the biology of an individual accounts for a greater percentage of self-assessed health than external factors such as injuries from accidents. Injuries from accidents affect 1 in every 100 young adults, making it's effect on health status smaller than self-reported illnesses which accounts for 8 in every 100 young adults.With biological conditions accounting for more of the self-assessed health of older people, this supports lower health status than young adults and greater health care participation for the former, as they seek to address the ageing of the organism and the increased depreciation owing to old age.

Gompertz's law in Gavriolov and Gavrilova [39] shows that there is a fundamental quantitative theory of ageing and mortality of certain species (the examples here are as follows – humans, human lice, mice, fruit flies, and flour beetles). Gompertz's law went further to establish that human mortality increases twofold with every 8 years of an adult life, which means that ageing increases in geometric progression. This phenomenon means that human mortality increases with the age of the human adult, but that this becomes less progressive in advanced ageing. Thus, biological ageing is a process where the human cells degenerate with years (i.e. the cells die with increase in age), which is explored in evolutionary biology [40],[41],[42],[43]. But, studies have shown that using evolutionary theory for "late-life mortality plateaus", fail because of the arguable unrealistic sets of assumptions that the theory uses to establish itself [44],[45],[46].

Ageing therefore, denotes gradual deterioration in living organisms as well other non-living items, which accounts for a demand in medical care. Medical seeking-behaviour could indicate either preventative or curative care. The present study revealed that the odds ratio of the good health of young adults in Jamaica declined by 65% for those who sought medical care. Medical care for young adults therefore, is a good measure of curative than preventative care. This also speaks of the cultural impact on health, through people's conceptual perceptions of health; that health is illness and so, care is sought for ill-health as against preventative care. The current work revealed that 94 out of every 100 young adults who sought medical care were ill; reinforcing the cultural perception of illness and the reason why young adults sought health-care, is curative than preventative for this group.

Illness in the current work is substantially a female phenomenon. Young adult females were 2 times more likely to report an illness and this justified their greater probability to utilize medical care seeking in order to address ill-health. These findings have a high degree of validity, as statistics from the Ministry of Health (Jamaica) showed that females attended health care institutions twice as much as men for curative care since 2000-2007 [9]. Since 1988, statistics obtained from Jamaicans in national cross-sectional surveys revealed that females were approximately more likely to report an illness and utilize medical care than males. This reinforced the cultural biasness of illness and health care facilities. Health care facilities were primarily governed by females for females and this added to the cultural handicap of males attending public health care institutions on

experiencing ill-health. The feminization of health care facilities and the large percentage of people, in particular, females who visited public health care institutions was another rationale for the use of private health care facilities by males. Males on the other hand, would attend medical care facilities when ill-health would interface with their economic livelihood and the severity was such that this was the only avenue. This is not typical to Jamaica, as a qualitative study in Pakistan on street children, found that boys would attend formal health care if it affected their economic livelihood and is their health conditions were severe [47]. Another study conducted in Anyigba, North-Central, Nigeria, found that [48] found that 85 out of every 100 respondents waited for less than a week after the onset of illness to seek medical care and that 57 out of every 100 indicated that they would recover without treatment.

A Caribbean anthropologist [49] stated that the macho socialisation of the Caribbean male accounts for his unwillingness to seek medical care. Caribbean males, including Jamaicans, are socialised to be strong, do not show weakness and are involved in particular tasks to exhibit their masculinity. As a result, illness is considered to be a signal of weakness, therefore accounting for the reasons why men are skeptical to visit medical institutions and often wait till the disease becomes severe.. It is sometimes so difficult for traditional medical practioners to offer cure for such cases. This then offers an explanation for females living longing than males. Although the current findings showed that the odds of recording good health is 1.5 times greater for young adult males, this owes to the reality that often males do not see themselves as ill, they visit medical practitioners less and justify the higher mortality among them than females. The social determinants therefore offer explanation for the biological issues as well challenge to implement health interventions to improve the health of young adults, in particular males are great as definition of illness and severity of symptoms reduce the quality of life of people and this finding concurs with a previous study by Williams et al. [50]. Unlike this study,

Williams et al. [50] found that medical care-seeking behaviour did not differ significantly between the sexes. In agreement with this study, Dunlop et al [51] found that African American men had few physician contacts than non-Hispanic white women. The irresponsiveness of young adult males in seeking health care is comparable to their female counterparts in Jamaica and this extends to even older African American men.

With the advancement in literacy and numeracy in the world since the 19th century, specifically among Jamaicans since 1960 (i.e. educational levels), empirical findings showed that education was among the social determinants that influenced the health status [12-26]. Education affects health directly and indirectly. A study on twins in USA found that more years in schooling (i.e. education) was associated with healthier patterns of behaviour. [52], which is an example of the direct impact of education on health. Fujiwara's and Kawachi's [52] work on increased schooling was associated with the reducing of the smoking habit and other such unhealthy practices. The current study concurs with the literature as the odds ratio of the good health status of young adults with tertiary level education are 1.5 times more than those with primary or a low education status. The indirect way that education affects health can be measured by using social hierarchy. The present findings revealed that the middle class who are the educated ones were 1.5 times more likely to report good health status and that wealth or income was not correlated with good health status, or for that matter, the self-assessed health status of wealthy social hierarchies did not differ from those in the poor social hierarchies.

Empirical evidence existed that among the social determinants of health, is marital status. Some research showed that married people are healthier than non-married people [12],[13],[14],[15],[16],[17],[18],[19],[20],[21],[22],[23],[24],[25],[53],[54],[55],[56],[57],[58]. Koo, Rie and Park's [54] findings revealed that being married was a 'good' cause for an increase in psychological and subjective wellbeing in old age. Smith and Waitzman [55] offered the

explanation that wives could dissuade their husbands from particularly risky behaviours such as the use of alcohol and drugs and could ensure that they maintain a strict medical regimen coupled with proper eating habits [53], [56]. In an effort to contextualize the psychosocial and biomedical health status of a particular marital status, one demography cited that the death of a spouse meant a closure to daily communication and shared activities, which sometimes translate into depression that affect the wellbeing, more of the elderly who would have had investment must in a partner [57]. They pointed to a paradox within this discourse as "…this is not observed among men". To provide a holistic base to the argument, the researcher would quote a sentence from the findings of Delbés and Gaymu [57] study that reads "The widowed have a less positive attitude towards life than married people, which is not an unexpected result" [57]. The present study concurs with the literature that the health status of married young adults is greater than those who are single, but that this was only explained by females. Those findings highlight the value of marriage to females which commences at an early age and seemingly that the benefits of marriage are not for males. This is clearly not the case as studied by Bourne [58], who by using data on Jamaicans, found that the odds ratio of reported good health was 1.6 times more for married males than their female counterparts.

Conclusion and policy recommendations

To sum up, the statistics for 2007 revealed that one in every two Jamaicans was 15-44 years old. This speaks about the importance of a research on this age group. With the demographic reality of young adults in the country, using injury to examine health is grossly inadequate, narrow and fails to understand the matter of health. Health is more that illness as it incorporates social, economic, psychological, ecological and biological determinants. While the biological determinants of the self-assessed health of young adultspredominate health determinants, injury accounts for a miniscule percentage of

illness and so, using injury to formulate intervention policies would be lacking in depth, to effectively address the health of this cohort. Although the health of young adult Jamaicans is very good, there are many health disparities between the sexes, which are justifying inequities in the health outcomes between males and females.

The present study highlights some of the health disparities between the sexes and affords research findings that can be used to refashion health policies and research focus in the future. Health policies must utilize the wide spectrum of health determinants in order to address the multi-dimensional nature of health. The use of injuries to measure and guide policies and programmes because seemingly there are many young adults who are affected, is a misnomer and does not capture the gamut of illness or even the health of this group of people.

The identified health disparities are among the reasons for health inequities in health outcome and should justify a call for a research and policy direction, that includeavoidabilities such as technical, financial and moral, as these would provide additional explanations for health disparities, choices, inequity and/or inequalities in the health outcomes among young adults.

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