Original Research

Journal of Behavioral Health
www.scopemed.org
DOI: 10.5455/jbh.20140430071717

GESDAV

A comparative analysis of psychosocial determinants of self-rated well-being for elderly citizens and young adults: Factor differentials

Paul Andrew Bourne[1], Charlene Sharpe-Pryce[2], Angela Hudson-Davis[3], Ikhalfani Solan[4]

[1]Director, Socio-Medical Research Institute, Kingston, Jamaica, West Indies, [2]Chair, Department of History, Northern Caribbean University, Mandeville, Jamaica, West Indies, [3]Public Health, Capella University, Capella Tower, South Sixth Street, Minneapolis, [4]Department of Mathematics and Computer Science, South Carolina State University, USA

Address for correspondence:
Paul Andrew Bourne, Director, Socio-Medical Research Institute, 66 Long Wall Drive, Stony Hill, Kingston 9, Kingston, Jamaica, West Indies.
E-mail: paulbourne1@yahoo.com

Received: October 12, 2012
Accepted: April 30, 2014
Published: June 04, 2014

ABSTRACT

Introduction: The literature on social determinants of health has never been disaggregated by age cohort differentials, young adults, and aged people. **Objective:** The aims of this research are to build separate age cohort self-rated well-being models, examine the contribution of each factor to the different age cohort models and determine the factor differentials between the two age cohort models. **Method:** The current study uses secondary stratified probability cross-sectional national data collected by two reputable statistical organizations in Jamaica between June and October 2002. The population for this study is 9,525 Jamaicans: 6,516 young adults and 3,009 elderly. Multiple regressions are used to determine factors for each age cohort model, after which stepwise multiple regression is used to examine the contribution of each factor to the respective parsimonious models. **Findings:** In general, at least 80% of the variability in self-rated well-being in each model can be explained by particular predisposed psychosocial factors. Money is the single largest determinant of well-being in this study, contributing 49% to the aged model and 45% to the young adult model. In the aged model, loneliness played a significant role, contributing 7%; but it plays a minor role in the young adult model. This was also the case for household crowding, negative and positive affective psychological conditions. In both the young adult and the elderly well-being models, people who dwell in rural areas have the least self-rated well-being. **Conclusion:** The findings provide pertinent information for policy direction as well as the interpretation of social determinants of health.

KEY WORDS: Elderly, health, quality of life, self-rated wellbeing, social determinants, young adults

INTRODUCTION

In a comprehensive literature search studies on self-rated well-being, quality of life and health have mostly singled out particular cohorts such as young adults or youth [1-4], population [5-11], elderly [12-26], children [27], and nations [28]; but none emerges that has compared factors that determine self-rated well-being for young adults and elderly in the English-speaking Caribbean, especially Jamaica. Why is this important? The answer to the aforementioned question is a multifaceted one as both groups are in the vulnerable cohorts and secondly, current quality of life of young adults: That is happiness [10,11,29], life satisfaction [1,5] or an individual's perception of his/her status in life within the context of his/her cultural expectation, value system, standards and concerns in life [25], will determine future enjoyment or satisfaction in life and influence many things in the wider society.

Crime in Jamaica is a young adult phenomenon (ages 15-34 years old). The extent of the vulnerability of the young populace is embedded in the alarming rates of attempted suicide; increasing crimes committed by and against them as well as the high rates of school-based violence [30]. Those issues are a result of lowered psychological well-being of many young

people; then there are the socio-economic challenges caused by the strains of socio-economic deprivation and marginalization as well as the separation of their parents. The socio-economic realities are so adverse that the level of desperation can be proxy by the crime statistics (committed and arrested), suicide and the high-degree of deviance in schools as well as on the nation's streets. Other realities of young adults in Jamaica are that unemployment is highest for this group, suggesting the low rate of economic opportunities available to them. With less economic opportunities, many young adults experience socio-economic and psychological strains that explain their involvement into acts of social deviance [31].

The social dilemmas that the nation face lie herein as these are expressed in the crime statistics. Statistics reveal that single female headed households have lower access to economic resources compared to dual parent households as well as male headed family units. This provides an explanation of the economic hardship experienced by young people in single headed households [32,33], and explain the pull factors into criminality for young adults, especially males. Agnew's strain theory explains the pull factors into criminality among young people [32,34-36] that include unemployment, negative psychological conditions, socio-economic deprivation, and well-being issues.

This paper will not delve into a discourse on the aged men, elderly and their social responsibility in protecting the young adults; instead, we will examine the socio-economic realities of elderly people in an effort to provide a basis for a comparative analysis of their health status and that of young people. The Planning Institute of Jamaica (PIOJ) and the Statistical Institute of Jamaica (STATIN)[33] reveal that hospitalization for aged Jamaicans outstripped any other age cohort, and this is concurred by reports from the Ministry of Health (MoH). Hospitalization in this case does not suggest preventative care, but curative care and offers some explanation for the yearly increased hospitalization expenditure. The PIOJ [33] postulates that "Chronic diseases are a major threat to the health of a population and a drain on the resources of the health sector". Data from the MoH's Healthy Lifestyle Survey 2000 indicate that hypertension and diabetes accounted for 31.0% of curative visits to hospitals, and we should note here that hypertension and diabetes are substantially an elderly phenomenon. Furthermore, the PIOJ [33] publishes that the elderly accounts for 60% of admissions to hospital for chronic dysfunctions and the majority of young people are brought into for injuries resulting from gun shots, knife wounds, and other instruments.

Theoretical Framework

Robert Agnew's general strain theory

Agnew's general strain theory (GST) is developed around redefining strain concept, operationalizing strain, which arises because of negative emotions and how this influences deviant acts and including conditional factors (such as religion) to describe personal differences in adaptations to strain. He conceptualized strain as "negative or aversive relations with others" [34]. Agnew continues that "strain as the actual or anticipated failure to achieve positively valued goals, strain as the actual or anticipated removal of positively valued stimuli, and strain as the actual or anticipated presentation of negative stimuli" [35]. Jang and Johnson contend that "GST posits that strain generates negative emotions that provide motivation for deviance as a coping strategy because such emotional forces create pressure for corrective action" [36].

Agnew's GST purports that negative emotions influence delinquency and crime [37]. This means that emotions like anger and aggression positively affect deviance and crime. Agnew believes that internal (self-esteem and self-efficacy) and external (interpersonal relations among people) directedness of negative emotions do influence deviant coping as well as crime [34]. If strain increases negative emotions, then we can extrapolate from Agnew's forwards that the most critical emotional reaction to strain is negative emotions, which offers an insight into how strain decreases well-being, explain the cyclical result of negative emotions on health and its effect on social deviance as well as crime. Those who suffer frequently from minor health problems and lack resources to afford proper medical care are expected to experience elevated levels of health-related strain, negative emotional affect, and report engaging in more delinquent acts" [38].

Health function

The framework that fosters this interpretation of data and allows for the structuring of hypotheses of this study is a model developed by Bourne [23] which is a modification of works done by Grossman [9], Smith and Kington [26] and Hambleton *et al*. [22]. Studies on health prior to Michael Grossman's work are primarily exploratory as well as basic in how researchers analyzed data. Grossman, on the other hand, using data collected for the world's population establishes a model that was multifactorial, which with the number of factors were found to simultaneous determinant the health status of people [9]. This is embodied in equation (Eq. 1):

$$H_t = f\ (H_{t-1}, G_o, B_t, MC_t, ED) \quad (1)$$

In which the H_t – current health in the time period t, stock of health (H_{t-1}) in previous period, B_t – smoking and excessive drinking, and good personal health behaviors (including exercise - G_o), MC_t, – use of medical care, education of each family member (ED), and all sources of household income (including current income). Grossman's model was further expanded upon by Smith and Kington to include socio-economic variables [9,26](Eq. 2).

$$H_t = H^*\ (H_{t-1}, P_{mc}, P_o, ED, E_t, R_t, A_t, G_o) \quad (2)$$

Equation 2 expresses current health status H_t as a function of stock of health (H_{t-1}), price of medical care P_{mc}, the price of other inputs P_o, education of each family member (ED), all sources of household income (E_t), family background or genetic

endowments (G_o), retirement related income (R_t), asset income (A_t). Notwithstanding the potency of Grossman's work and the addition done by Smith and Kington, Ian Hambleton *et al.* believe that a model that was applicable to world population does not necessarily fit the experiences of elderly and so the contribution of modernization was again evident, and this was accomplished in 2005 in a Pan American Health Organization study on elderly Barbadians (ages 65 years and older) [9,26].

In a nationally representative survey of 1,508 elderly Barbadians, Hambleton *et al*., [22] found that 38.2% of the variation in well-being of aged Barbadians can be explained by historical socio-economic indicators, current socio-economic indicators, current lifestyle risk factors and disease. Lifestyle behaviors (including exercise, conditions relating to smoking, or non-smoking) account for 7.1% of the variability in well-being; historical conditions (such as, socio-economic experiences early in life), 5.2%; current diseases, 33.5%; and current socio-economic conditions (e.g. education of the family members, household room density, all sources of income-including pensions and retirements, social networks) accounted for 4.1%. Although Hambleton *et al.* did not write a mathematical equation to establish their study [22], careful examination of the research findings reveal that it can be expressed general as:

$$H_t = f(S, H, L, D) \quad (3)$$

H_t is the function of current socio-economic conditions, historical background of the person, current lifestyle variables and current diseases experienced by the individual.

We observe that the dependent variable in Hambleton *et al.* work is similar as they measure health status as self-rated health status, suggesting that although there are multifactorial components, the dependent variable was uni-dimensional, subjective health status. This delimitation is rectified by Bourne [24], when he measures well-being from a dual level approach by using material resources and health conditions of the elderly. He expresses this as follows (Eq. 4):

$$Wi = f(\ln Pmc, ED, Ai, En, G, MS, AR, P, N, \ln O, H, T, V) \quad (4)$$

Where Eq. 1 is W*i* is well-being of the Jamaican elderly i, is a function of logged cost of medical (health) care (Pmc), the educational level of the individual, age (Ai, where i is the individual), the environment (En), gender of the respondents (G), marital status (MS), area of residents (AR), positive affective conditions (P), negative affective conditions (N), logged household crowding (i.e. average occupancy per room) (O), home tenure (H), property ownership (T), crime and victimization (V).

Like all models on examination, Bourne's work [23], the researcher realizes that some pertinent and germane variables are omitted by the model, and so we hereby will further modify that model, to derive:

$$Wi = f(ED, Ai, En, G, MS, AR, P, N, \ln O, H, T, V, \ln C, SS, HSB, L, R) \quad (5)$$

Where lnC denotes logged household consumption expenditure per person; SS represents social support; HSB identifies health seeking behavior; loneliness (proxy by living alone), (L); and R indicates retirement income. Equation 4 is applicable to the elderly, and using the principle of not allow a variable that is being used to have a non-response rate of more than 15%, the well-being model for the young adult was modified to reflect the specification of particular variables. Given that the income variable, Y, had more than 40% of missing cases for the elderly it was omitted from Eq. 5; however, this was not the case for young adult, however for young adults the non-response rate for social support (SS), was high (30%), we modified Eq. 5 to reflect the socio-economic and psychological realities of this age cohort, which excluded retirement income, R, marital status, MS, as 97% of the age cohort were single and 3% distributed over the other categories. Hence, Eq. 6 will be the function what will be tested for young adults:

$$Wi = f(ED, Ai, En, G, AR, P, N, \ln O, H, T, V, MS, \ln Y, \ln C, L, HSB) \quad (6)$$

METHOD AND MEASURE

The current study uses a cross-sectional survey administered by the PIOJ and the STATIN between June and October 2002. The survey is a national stratified random of Jamaicans. Data are collected using a self-administered questionnaire, and this is collected from heads of households on all members within a household unit. The instrument is a modified version of the World Bank's living standard survey. The Jamaica Survey of Living Conditions Survey (JSLC) began in 1988, and its emphasis is to collected data that will assess government policies. The JSLC on a yearly basis add different modules to the instrument in order to evaluate certain issues, which are significant to government policy [32].

This study has a population of 9,525 Jamaicans from an initial sample of 25,018 respondents. This research examines two separate social determinants model for (1) young adults and (2) elderly. The current study used a sampled population of 6,516 young adults (ages 15-30 years) and 3,009 elderly respondents. Data were stored and retrieved using Statistical Packages for the Social Sciences (SPSS) for Windows 21.0 program. Descriptive statistics were used to provide information on socio-demographic characteristics of the sampled population, and the entry method in multiple regressions were used to test the general hypotheses after which two separate models were established that explains subjective well-being for the two levels - young adults and elderly Jamaicans. We used multiple regression analysis to determine predictors of well-being of each level – young adults and elderly – because this can assess many variables simultaneously. The stepwise technique in multiple regressions was used to determine the contribution of each factor to the explanatory power of each level (i.e. model) as we were concerned about explanatory factors and not mere variables, which cannot significantly contribute to the overall models.

Measure

Crime Index = Σ kiTj, where Ki in the equation represents the frequency with which an individual witnessed or experience a crime, where i denotes 0, 1 and 2, in which 0 indicates not witnessing or experiencing a crime, 1 means witnessing 1-2, and 2 symbolizes seeing 3 or more crimes. Ti denotes the degree of the different typologies of crime witnessed or experienced by an individual (where j=1…4, which 1 = valuables stolen, 2 = attacked with or without a weapon, 3 = threatened with a gun, and 4 = sexually assaulted or raped). The summation of the frequency of crime by the degree of the incident ranges from 0 to a maximum of 51.

Well-being index = ½ [Σ material resources] − ½ [Σ health conditions], where higher values denote more well-being. The index ranges from a low of –1 to a high of 14. Scores from 0-3 denotes very low, 4-6 indicates low, 7-10 is moderate, and 11-14 means high well-being.

Elderly (i.e. aged, or seniors, older adults): This terminology refers to the chronological age beginning at 60 years and beyond. Elderly cohort: This is a non-dichotomous variable, with three categories. These are as follows: (1) Young elderly (60-74 years); (2) old elderly (75-84 years), and (3) oldest elderly (85+ years).

Negative affective psychological conditions: The summation of the number of responses from a person on having loss a breadwinner and/or family member, loss of property, made redundancy, failure to meet household and other obligations. The negative affective psychological conditions index ranges from 0 to 15.

Positive affective psychological conditions: The summation of the number of responses with regards to being hopeful, optimistic about the future and life generally. The positive affective psychological conditions index ranges from 0 to 8.

Household crowding: (Proxy by the average occupancy of persons per room). Total number of individuals living in a household (household size-all members) divided by the number of the room occupied by that household (excluding the kitchen and bathroom(s)).

Loneliness (or lonely elderly): This is a dummy variable proxy by living alone.

SS: This variable is conceptually defined as not having living child/(ren) and/or grandchild/(ren).

Findings

In this paper, we will examine the two models established in the theoretical framework, which are the two distinct levels of analyses that will allow us to ascertain factors that determine well-being of each level and make us able to examine the importance of particular factors to each level from which a critique will emerge on the similarities and dissimilarities of each level of analysis.

Level 1 An examination of factors that determine self-rated well-being of elderly

The model that will be tested is as follows:

$$Wi = f\ (ED, Ai, En, G, MS, AR, P, N, lnO, H, T, V, lnC, SS, HSB, L, R) \quad (5.1)$$

Using the principle of parsimony, the final model will constitute only those variables that are statistically significant (i.e., $P < 0.05$). Thus, we found that 13 of the 17 predisposed variables were found to be factors of well-being of aged Jamaicans. The 13 factors accounted for 65% of the variability in well-being (i.e., adjusted R^2) [Table 1]. The final model is as follows; −75.4% of the data was used to establish this model (n = 2,270):

$$Wi = f\ (ED, Ai, MS, AR, P, N, H, T, V, lnC, SS, L, R) \quad (5.2)$$

Table 1: Well-being of elderly Jamaicans by some socio-demographic, psychological, and environmental variables, *N*=2,270

	Coefficients	Beta	*P*	Lower	Upper
Constant	−14.797		<0.0001	−16.552	−13.042
Lnhousehold consumption per person	1.802	0.578	<0.0001	1.706	1.898
Retirement income	0.659	0.129	<0.0001	0.525	0.794
Divorced, separated, widowed	0.276	0.056	0.001	0.119	0.433
Married	0.226	0.050	0.003	0.075	0.377
Referent group is never married					
Area of residence – other towns	0.799	0.143	<0.0001	0.654	0.944
Area of residence – cities	1.060	0.127	<0.0001	0.844	1.277
Reference group - rural areas					
Secondary level education	0.012	0.002	0.850	−0.108	0.131
Tertiary level education	0.877	0.072	<0.0001	0.563	1.191
Referent group is primary and below education					
Dummy gender (1=males)	0.044	0.010	0.459	−0.073	0.161
Lnhousehold crowding	−0.010	−0.003	0.865	−0.120	0.101
Physical environment	0.030	0.005	0.705	−0.126	0.186
Negative affective	−0.056	−0.079	<0.0001	−0.076	−0.037
Positive affective	0.069	0.075	<0.0001	0.045	0.092
Landownership	0.291	0.054	<0.0001	0.154	0.427
Crime index	0.014	0.037	0.003	0.005	0.023
Age of individual	−0.014	−0.051	<0.0001	−0.021	−0.007
Health seeking behavior	−0.531	−0.084	<0.0001	−0.687	−0.376
House tenure – rented	2.004	0.019	0.181	−0.936	4.944
House tenure – owned	0.618	0.013	0.358	−0.699	1.935
Referent group is squatted					
Social support	0.114	0.025	0.047	0.001	0.226
Loneliness	−1.340	−0.229	<0.0001	−1.521	−1.159

R=0.809; R^2=0.655; Adjusted R^2=0.651; ANOVA [21, 2248]=202.96, P=0.001

For the current study, in descending order, the five most significant factors are household consumption per person, loneliness, retirement income, area of residence, and positive affective psychological conditions. To understanding the influence of each of the five factors of Eq. 5.2, we will disaggregate the explanatory power of the overall model, 65%. Household consumption per person accounted for 48.8% of the explanatory power of the model followed by loneliness (i.e. 7%), retirement income (2.5%), living in cities (1.8%), living in other towns (1.5%), and positive affective psychological conditions (1%) [Table 2]. Of importance to note in this study is the fact that marital status was the least impacting on well-being of aged Jamaica. Continuing, the role of SS and crime played a minimal role in determining well-being of the elderly population.

Table 2: Disaggregation the explanatory power of factors in elderly well-being model

Factors of wellbeing model	*R*	R^2	Adjusted R^2	R^2 change
Household consumption	0.699	0.488	0.488	0.488
Loneliness	0.748	0.559	0.558	0.070
Retirement income	0.764	0.584	0.584	0.025
Area of residence – other towns	0.774	0.599	0.598	0.015
Area of residence – cities	0.785	0.617	0.616	0.018
Positive affective conditions	0.792	0.627	0.626	0.010
Health seeking behavior	0.797	0.635	0.634	0.008
Tertiary level education	0.800	0.641	0.639	0.005
Negative affective conditions	0.803	0.645	0.644	0.004
Property ownership	0.805	0.648	0.647	0.003
Age	0.806	0.650	0.649	0.002
Crime	0.807	0.651	0.650	0.001
Social support	0.808	0.652	0.650	0.001
Divorced, separated widowed	0.808	0.653	0.651	0.001
Married	0.809	0.654	0.652	0.002

Level 2 Examining factors that determine self-rated well-being of young adults

$$Wi = f\ (\text{ED, Ai, En, G, AR, P, N, lnO, H, T, V, lnY, lnC, L, HSB}) \quad (6.1)$$

Of the sampled population for this study, 69.8% of the data are used to test the hypothesis (n = 4,549). Of the 15 predisposed variables that were tested in the hypothesis (Eq. 6.1), 10 of them were found to be statistically significant ones ($P < 0.05$). These factors account for 65% (i.e. adjusted R^2) of the variability in subjective well-being of young adults [Table 3]. What is the contribution of particular factors to the explanatory power of the model (i.e. well-being of young adult Jamaicans)? Using the R^2 change [Table 4], 45.4% of the explanatory power is accounted for by household consumption per person, 8.6% by household income per person, 5.7% by household crowding, and 1.3% by negative affective psychological conditions.

The data revealed that there was no statistical difference in the self-rated well-being of males and females, as well as age and crime. Moreover, we found that loneliness, positive affective psychological conditions, tertiary level education, physical environment, and heath seeking behavior of young adults play a secondary role to five aforementioned variables [Table 4]. Thus, the final model for level 2 is as follows (Eq. 6.2):

$$Wi = f\ (\text{ED, En, AR, P, N, lnO, H, T, V, lnY, L, HSB}) \quad (6.2)$$

Limitation of Study and the Model

Well-being is a multifactorial construct, and so any measure of this variable must include non-economic indicators as

Table 3: Subjective well-being of young adults by some explanatory variables, *N* =4,549

	Unstandardized coefficients		Standardized coefficients	*t*	*P*	95% confidence interval	
	B	Std. error	Beta			Lower	Upper
Constant	–15.878	0.379		–41.863	<0.0001	–16.622	–15.135
Negative affective	–0.059	0.006	–0.102	–10.504	<0.0001	–0.070	–0.048
Composite crime index	–0.001	0.002	–0.005	–0.511	0.609	–0.005	0.003
Logged the average occupancy per room	–0.917	0.037	–0.294	–24.828	<0.0001	–0.989	–0.845
Loneliness*	–0.567	0.090	–0.069	–6.321	<0.0001	–0.743	–0.391
Dummy gender (1=male)	–0.011	0.035	–0.003	–0.321	0.748	–0.081	0.058
Total positive affective	0.029	0.008	0.034	3.625	<0.0001	0.013	0.045
Lnhousehold consumption per person	0.499	0.047	0.182	10.546	<0.0001	0.406	0.592
Lnhousehold income per person	1.284	0.043	0.442	30.110	<0.0001	1.200	1.368
Health seeking behavior[#]	–0.843	0.096	–0.078	–8.796	<0.0001	–1.031	–0.655
Area residence – other towns	0.520	0.042	0.118	12.488	<0.0001	0.438	0.602
Area residence – cities	0.717	0.055	0.126	13.021	<0.0001	0.609	0.825
Reference group – rural areas							
Home tenure – household rented dwelling	0.116	0.057	0.023	2.016	0.044	0.003	0.228
Home tenure – household owned dwelling	0.107	0.047	0.027	2.286	0.022	0.015	0.200
Secondary education	0.208	0.112	0.029	1.867	0.062	–0.010	0.427
Tertiary education	0.577	0.137	0.066	4.202	<0.0001	0.308	0.846
Age of individual	0.006	0.004	0.014	1.511	0.131	–0.002	0.015
Physical environment[$]	–0.215	0.037	–0.053	–5.779	<0.0001	–0.289	–0.142

R=0.804; R^2=0.647; Adjusted R^2=0.645; ANOVA [17, 4,531]=487.51, P=0.001. *This is a dummy variable, where 1=living alone, 0=otherwise. [#]This is a dummy variable, where 1=seeking health care by visits both private and public health facility, 0=otherwise. [$]This is a dummy variable, where 1=being affected by landslide, dust, etc., 0=otherwise

Table 4: Disaggregation the explanatory power of factors in young adults well-being model

Factors of well-being model	R	R^2	Adjusted R^2	R^2 change
Lnhousehold consumption per person	0.674	0.454	0.454	0.454
Lnhousehold income per person	0.735	0.540	0.540	0.086
Lnhousehold crowding	0.772	0.596	0.596	0.057
Dummy negative affective	0.781	0.610	0.609	0.013
Area residence – cities	0.786	0.618	0.617	0.008
Area residence – other towns	0.794	0.630	0.630	0.013
Health seeking behavior	0.798	0.636	0.636	0.006
Loneliness	0.800	0.640	0.639	0.004
Physical environment	0.802	0.643	0.642	0.003
Tertiary education	0.803	0.645	0.644	0.002
Dummy positive affective	0.803	0.646	0.645	0.001

well as economic indicators; because a coalesce of these two components capture many areas of life than a single one. This study measures well-being using material resources and health conditions, suggesting a leniency toward economic resources and health conditions and exclude circumstances, aspiration, comparisons with others, a baseline dispositional outlook on life. Another limitation to the study is the use of secondary cross-sectional survey data as it did not allow us to examine fundamental variables that affect well-being based on the literature. With respect to model, it illustrates that well-being is continuous over one's lifetime as people are moving from one state of life to another depending on circumstances, comparison with others, the wider society's climate and their aspiration. Hence, we are proposing a variable time, t, parameter in the mode-αt. Despite the limitations of the study and the model, an advantage that it has is its external validity-the ability to generalize base on the study's research design-as well as its high reliability, because the same instrument was used to collected data from young adults and the elderly.

DISCUSSION

Self-rated well-being of young adults is primarily driven by the same factor as that of elderly's well-being, household consumption (or income). This finding has concurred with the literature as it reveals that income or consumption is a critical determinant of well-being [8,9,28,39-41]. Embedded in this finding is the importance of money (or consumption) in quality of health, well-being or health status determinations. Money (or consumption), therefore, matters in present as well as future well-being of people; however, there are some dissimilarities of social determinants between the two model, young adults, and elderly people.

The literature has shown that there is a direct association between education and health, subjective well-being and/or self-rated well-being [9,19,28], and some scholars have refined the education variable by examining the quality of education and the typology of education's role on well-being. Marmot [8] posits that it is not general education that affects health or well-being, but that it is quality of education and the type of education. He argues that college students have a higher health or well-being compared to other indicators and that the type of college they attend also has an added influence on well-being. In this study, we did not examine the type of college or the quality of education received by different persons of the particular college; but, we concurred with Marmot's work as the only college (tertiary) education affect the self-rated well-being of both elderly and young adults. This is a similarity between the two age cohorts in regard to educational attainment as college education in reference to primary and below education contributes marginally more to well-being of the elderly (adjusted $R^2 = 0.5\%$) compared to young adults (adjusted $R^2 = 0.2\%$). Another similarity exists between the cohorts as there is no statistical difference between the well-being of those with secondary level education with reference to primary and below education ($P > 0.05$).

There was some fundamental dissimilarity between the factors that determine well-being in each level as loneliness accounted for 7% of elderly's well-being compared to 0.4% for young adults, suggesting that loneliness is aged phenomenon. One of the reasons for this disparity is embedded in the fact that young adults have a wider social network and so loneliness will not play such a dominant role in their existence compared to elderly people. Another rationale for the importance of loneliness in the quality of life of elderly is due to happenings of time on the life of this age cohort. The longer someone lives he/she is likely to lose partner(s), associates, and close relatives. Because of the biological conditions associated with ageing as well as the restrictions with ageing, social networking and loss of loved ones severely influence their quality of life or well-being unlike young people who have not transcend through those challenges and experiences.

Martin [42] forwarded the position that in developing countries, "family support" plays a significant role "to represent the best form of care for the elderly…" a point concurred on by Anthony [43] and Stecklov [44]. Anthony commented that the aged is sometimes felt alone because of death of the other partner, which may result in depression or "even low self-esteem" [43]. It is important, then, to comprehend how social isolation impacts the well-being of the elderly. Steckklov, on the other hand, in his thesis notes that "evaluating the economic returns to childbearing in Cote d'lvoire" sought to prove (or disprove) the claim that children are economic assets to their parents and affirms with other studies that this is so. He finds that on an average, the additional child increases the elderly parent's material possessions with time [44].

Eldemire [14] in a study titled "The elderly and family: The Jamaican Experience" sampled 1,329 seniors (60 years and over) using stratified sample of which 659 were males and 666 females found that 65.5% of the elderly supported themselves, with males reporting a higher self-supported (82.6%) compared to 47.7% for females. This is supported by a study carried out by Franzini and others [45] in Texas where the sampled group was natives of Mexico. They find that SS is directly related to self-reported health, which is concurred by Okabayashi *et al.*'s [46] study. An important finding was that children provided significant financial support to mentally incompetent parents. Approximately 71% of children were willing to accept

responsibility for their parents, with seniors who were older than 75 years being likely to need support. "… the family continues to be the mainstay of care for the elderly" [14].

DaVanzo and Chan [47], using data from the Second Malaysian Family Life Survey - which includes 1,357 respondents of age 50 years and older living in private households, noted that some benefits of co-residence range from emotional support, companionship, physical, and financial assistance [48], which have increasing influence on the quality-of-life of the widowed person. Paradoxically the findings of that research are that among unmarried seniors, there was no statistical association between health and co-residence [46].

Studies carried out by Uchino *et al*. [49] found that a relationship exists between SS and beneficial effects on cardiovascular, endocrine, and immune systems. Another study revealed that perceived SS was associated with lowered blood pressure [49]. Lindren *et al*.'s Research showed that working women's who had a particular perceived SS were able to go through [50]. The Gerontology Association of London argued that the family provides a significant role in the life of the aged [51]. This either is through normal domestication or is undertaken through care during the illness phase of life. According to the International Gerontology Association, the shouldering of the socio-economic responsibility of age may be long or short term, and this may reach a state of "emotional sensitization," that lead to the overwhelming feeling by the elderly that they are robbed of the essence of life. The behavior of the aged may be such that young adults and other family members consider the task of care a tedious, difficult and an overburdened one. This reality arises in an event of the aged becoming mentally incapacitated or the severity of the physical illness unbearable. As senility may become challenging for the family despite the spirit, particularly when the difference in years between the young and the aged is many years apart in a small household [51].

An important observation in the current work is the importance of household crowding on the well-being of the young. We found that crowding in a household inversely affects the well-being of young adults, suggesting the influence of poverty on the quality-of-life of young adults. This is further supported by the dominant nature of household income on young adults' well-being. The three primary factors that determine the self-rated well-being of young adults are all economic variables - consumption, income and fertility from which comes household crowding (or lack of). Marmot [8] opined that poverty means deprivation from social participation, opportunities, ignorance of issues, poor conditions, and overcrowding that directly influence the well-being of people, suggesting a challenge faced by young poor adults and unemployed/unprivileged young people.

Negative affective psychological condition is more critical to the self-rated well-being of young adults than for elderly people. On the other hand, positive affective psychological conditions are important to the elderly, but not young adults, suggesting that the socio-economic realities including the physical and social milieu are internalized by the young that is the make for social deviance and not the least is self-esteem, actualization, and social opportunities. The elderly, on the other hand, have accumulated particular things in their younger years that allow them to a certain degree of self-esteem and actualization; which frames a different outlook and expectation of the world. The young people are looking for opportunities and self-actualization, which are building around socio-economic conditions, and so the value place on those things are the driving force behind the emphasis that they place on negative affective psychological conditions.

An individual's psychological state is a multifactorial construct that influence crime as well as well-being. Agnew's GST provides an explanation for the association between psychological factors and crime [34,35]. He contends that unfulfilled goals, expectations and socio-economic position in life provide a basis for strain and legitimatized people's engagement into criminal activity. The current study finds that psychological conditions are correlated with well-being. We went further to demonstrate that negative affective psychological conditions inversely relate to well-being and positive affective psychological conditions directly influence well-being. The contribution of each psychological condition on well-being differs based on the age differentials (young adults or elderly).

We found that crime determines the self-rated well-being of Jamaica elderly, but that its effect when coalesce with other factors is very small. The latter finding disagrees with the theoretical work of GST and Robert Agnew theorizes that crime influences well-being [34,35]. On the other hand, the young adults who are ones with the highest rates of arrest and crime perpetrated against, their self-rated well-being is not affect by crime and violence. This suggests that the perceived impact of crime on well-being of the vulnerable age cohorts is substantially lower than people think it is. Moreover, it should be noted here that crime's impact on well-being may not be direct, but that it indirectly affects the ability of people to work, which affect consumption, opportunities and these will impede self-actualization of people.

We can conclude that HSB (or demand for health care) of two age cohorts impacts on their self-rated well-being, which concurs with the literature [9,24,28,29]. There are two crucible matters relating to the health demand of the studied population. Firstly, we found that HSB is secondary to factors such as consumption, retirement income, income, crowding, and area of residence for both groups. Secondly, health demand for elderly is marginally higher, 0.8% of the explained variance, than that of young adults, 0.6% of the explained variance.

Young adults and elderly share many similarities and dissimilarities in respect to self-rated well-being. One of the similarities between the two aforementioned age cohorts is the primary importance of household-income and consumption; in addition to the area in which they live and health demand. Notwithstanding the fact that both models explain 65% of the variance in self-rated well-being, particular affective psychological condition plays a different role. In general, we observed that positive affective psychological condition is an important factor for the elderly, but not for young adult.

Diener has extensively studied psychological conditions [10,11] and these did not include age differentials of the matter. This research broadens the literature by showing that the affective psychological conditions differently affect the young compared to elderly people. The negative affective psychological condition plays a crucible role in determining well-being of young adults, but this is not the case for the elderly. The opposite holds true for the positive affective psychological conditions, highlighting the importance of age differentials in examining issues.

The negative psychological conditions measure the psychological state of the individual who has experienced the loss a primary breadwinner or close family member, separation, divorce, bullying, stress, death of a love one and can account for the crimes committed by people. Robert Agnew's GST explains the correlation between negative affective conditions such as anger, stress, depression, moral outrage, break up, and aggression on crime. The GST offers insights into how the psychological state of the individual can result in crimes [52]. Males having a lower degree of self-control, they are more likely to respond to strain by committing crimes than females [53]. This allows us to understand how young adult males internalize strain and why crimes are higher among this age cohort. While the breadth of the impact of crime on young people is explained by GST, it does little to shed light on the no statistical correlation between crime and well-being among this cohort. However, GST offers an explanation for the association between affective psychological conditions and crime and loneliness being a negative psychological condition can be added to the well-being discourse.

The elderly, on the other hand, would have lost love ones, separation from friends, made redundant, and other social isolation would have increased loneliness, making it more important to well-being than it does for young people. Bog feels that social isolation increases with ageing [54] and this study links loneliness to lowered well-being. The present findings concur with the literature on loneliness and well-being among elderly peoples as well as the direction of the two phenomena [55-60]. Loneliness is a negative affective condition as such unhappiness. Those who are unhappy are likely to enjoy a lower quality of life than someone is who facing positive affective conditions such as happiness [58-60]. Anthony declares that "many elderly persons who live alone are affected by loneliness as a result of the loss of a spouse, family members or close friend" [43], which can be equally applied to young people and explain the negative correlation of loneliness and well-being in this study of young adults as well as elderly people. The issue of loneliness goes beyond explaining lowered well-being among people to self-harm. Rhodes *et al*. [56] argues that the state of loneliness can be a resultant factor for future physiological harm to oneself, which broadens the loneliness discourse from psychological state and well-being to criminal activities.

When Marmot [8] writes that money can buy health status, it appears overly enthusiastic, and a normative position; but, there are some truths to that proposition. The literature on health status while it did not forward a similar argument like Marmot does show directly association between income and health and goes further to indicate that income plays a crucial role to health development [1,8,9,24-26,28]. On careful examination of Marmot's proposition, there are some validity and truths to the pronouncement. Money (or income) affords nutritional intake, social environment, and medical care that are paramount to health maintenance and development. Money goes beyond health to happiness and well. Easterlin [40] finds a direct statistical correlation of income and happiness, which provides an explanation of how money (or the lack of it) changes psychological well-being and general health status.

In this study, income (money) was the most significant determinant in well-being for both the age differentials. In fact, income accounts for 48.8% of well-being among the elderly compared to 45.4% for young adults. It can be extrapolated from the present findings that money to more important to the well-being of aged people than young adults, indicating that money is critical to well-being as well as health. It is within this reality that we can make sense of the World Health Organization's (WHO) findings that four of every five people with chronic illnesses were in developing countries [61], which supports the lack of money and poorer health and more money and better health status. With income (or money) contributing highly well-being, it goes to show that lack of money can easily create strain for people and provides a justification for their engagement into criminality as is explained by GST as well as explain changes in health among the poor, vulnerable (including elderly), and unemployed peoples.

This study establishes that there are variations in the psychosocial determinants of health. The WHO is the first to begin a discourse on the social determinants of health. The discourse identifies social factors of health. Bourne begins another discourse on the variations in the social determinants of health, when he uses national data for Jamaica and found differences in health determinants [62]. He finds that the social determinants of health are somewhat different for the genders as well as for the area of residence, indicating that factors of health cannot be overlooked in policy formulations even for a singular geographical space. The discourse on the variations in social determinants continues when Bourne and Eldemire-Shearer [63] find that even among a single gender, there are variations in social determinants of health. Their works reveal that when data for men is disaggregated by social class (poor and wealth people); differences in social factors of health are identified between the two cohorts.

Variation in the social determinants of health emerges again when Bourne [64] varies the definitions of health from self-reported illness to self-rated health status. The variations in social determinants of health did not cease there as again evidence emerges that highlights the differences in factors of health across municipalities for aged men (60+ years old) [65]. The differences in the social determinants of health are not consistent across the various constructs and income (or consumption) is the only factor that emerges as the leading social determinant of health. Another factor which is consistent across all the cohorts (or constructs) is area of residence as people who reside in rural zones had the least health or

well-being, and it is no different in this study. Irrespective of how health is measured - self-reported illness, self-rated health status, or self-reported well-being - consumption (or income) is a primary factor, which offers insight into the value of money in determining the outcome of peoples' health.

The current findings and those of the literature are in keeping with Marmot's work [8] that money (or income) is a crucial determinant in health or well-being of people. However, some modifications are needed to the income-health paradigm as a study conducted by Bourne *et al*. [66] on rural aged people did not find income to be a determinant of self-rated health status. Such a finding aids in a better understanding of income-health paradigm as income has no effect on health (or well-being) among aged people who dwell in particular geographical zones, rural communities.

CONCLUSION

Successful ageing means ageing well [61,67-70] and so this study provides answers to those factors that determine self-rated well-being of elderly as well as young adults. Consumption is a critical factor that improves (or otherwise) people's well-being. Irrespective of the age differentials of people (young adults or elderly), consumption contributes almost the same degree of importance to well-being. The findings provide pertinent information that there are factor differentials of determinants for the young adults and the elderly, which can guide policy direction and the interpretation of social determinants in the future.

REFERENCES

1. Hutchinson G, Simeon DT, Bain BC, Wyatt GE, Tucker MB, LeFranc E. Social and health determinants of well-being and life satisfaction in Jamaica. Int J Soc Psychiatry 2004;50:43-5.
2. Lipps G, Lowe GA, Morris A, Clarke N, Halliday S. Depression among fourth form students in three Caribbean countries. West Indian Med J 2007;56 Suppl 3:18.
3. Bourne PA, South-Bourne N. Self-assessed health of young-to-middle-aged adults in an English-speaking Caribbean nation. Patient Relat Outcome Meas 2010;1:127-40.
4. Anglin-Brown B, Weller P, Mullings J. Student wellness at Mona: Moving from research to intervention. West Indian Med J 2007;56 Suppl 3:17.
5. Powell LA, Bourne P, Waller L. Probing Jamaica's Political Culture: Main Trends in the July-August 2006 Leadership and Governance Survey. Vol. 1. Kingston, Mona-Jamaica: Centre of Leadership and Governance, Department of Government, the University of the West Indies; 2007.
6. Engström K, Mattsson F, Järleborg A, Hallqvist J. Contextual social capital as a risk factor for poor self-rated health: A multilevel analysis. Soc Sci Med 2008;66:2268-80.
7. Kashdan TB. The assessment of subjective well-being (issues raised by the Oxford Happiness Questionnaire. Pers Individ Dif 2004;36:1225-32.
8. 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 Aff 2002;21:31-46.
9. Grossman M. The Demand for Health – A Theoretical and Empirical Investigation. New York: National Bureau of Economic Research; 1972.
10. Diener E. Subjective well-being. Psychol Bull 1984;95:542-75.
11. Diener E. Subjective well-being. The science of happiness and a proposal for a national index. Am Psychol 2000;55:34-43.
12. Bourne PA. Medical sociology: Modelling well-being for elderly people in Jamaica. West Indian Med J 2008;57:596-604.
13. Bourne PA, Charles CA, Francis CG, Warren S. Self-reported health and health care utilization of older people. Health Med J 2010;4 4 Suppl 1:992-1008.
14. Eldemire D. The elderly and the family: The Jamaican experience. Bull East Caribb Aff 1994;19:31-46.
15. Bourne PA. Good health status of older and oldest elderly in Jamaica: Are there differences between rural and urban areas? Open Geriatr Med J 2009;2:18-27.
16. Eldemire D. The Jamaican elderly: A socioeconomic perspective and policy implications. Soc Econ Stud 1997;46:175-93.
17. Ross CE, Mirowsky J. Refining the association between education and health: The effects of quantity, credential, and selectivity. Demography 1999;36:445-60.
18. Freedman VA, Martin LG. The role of education in explaining and forecasting trends in functional limitations among older Americans. Demography 1999;36:461-73.
19. Costa DL. Understanding the twentieth-century decline in chronic conditions among older men. Demography 2000;37:53-72.
20. Himes CL. Obesity, disease, and functional limitation in later life. Demography 2000;37:73-82.
21. Ali A, Christian D, Chung E. Funny turns in an elderly man. West Indian Med J 2007;56:376-9.
22. 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 Panam Salud Publica 2005;17:342-52.
23. Bourne PA. Health determinants: Using secondary data to model predictors of well-being of Jamaicans. West Indian Med J 2008;57:476-81.
24. Bourne P. Using the biopsychosocial model to evaluate the wellbeing of the Jamaican elderly. West Indian Med J 2007;56 Suppl 3:39-40.
25. Grewal I, Nazroo J, Bajekal M, Blane D, Lewis J. Influences on quality of life: A qualitative investigation of ethnic differences among older people in England. J Ethn Migr Stud 2004;30:737-61.
26. Smith JP, Kington R. Demographic and economic correlates of health in old age. Demography 1997;34:159-70.
27. Taffa N, Chepngeno G. Determinants of health care seeking for childhood illnesses in Nairobi slums. Trop Med Int Health 2005;10:240-5.
28. Lima ML, Novo R. So far so good? Subjective and social well-being in Portugal and Europe. Portuguese J Soc Sci 2006;5:5-33.
29. Lyubomirsky S. Why are some people happier than others? The role of cognitive and motivational processes in well-being. Am Psychol 2001;56:239-49.
30. Soyibo K, Lee MG. Domestic and school violence among high school students in Jamaica. West Indian Med J 2000;49:232-6.
31. Barn R, Tan JP. Foster youth and crime: Employing general strain theory to promote understanding. J Crim Justice 2012;40:212-20.
32. Foster H. The strains of maternal imprisonment: Importation and deprivation stressors for women and children. J Crim Justice 2012;40:221-9.
33. Planning Institute of Jamaica, (PIOJ). Economic and Social Survey Jamaica, 2004. Kingston: PIOJ; 2005.
34. Agnew R. Foundation for a general strain theory of crime and delinquency. Criminology 1992;30:47-87.
35. Agnew R. An overview of general strain theory. In: Paternoster R, Bachman R, editors. Explaining Criminals and Crime. Los Angeles: Roxbury Publishing Company; 2001. pp. 161-74.
36. Jang SJ, Johnson BR. Strain, negative emotions, and deviant coping among African Americans: A test of general strain theory. J Quant Criminol 2003;19:79-105.
37. Rebellon CJ, Manasse ME, Van Gundy KT, Cohn ES. Perceived injustice and delinquency: A test of general strain theory. J Crim Justice 2012;40:230-7.
38. Stogner J, Gibson CL. Healthy, wealthy, and wise: Incorporating health issues as a source of strain in Agnew's general strain theory. J Crim Justice 2010;38:1150-9.
39. Sumner A. Economic and Well-Being and Non-Economic Well: A Review of the Meaning and Measurement of Poverty. Research Paper No. 2004/30. United Nations University and World Institute for Development Economics Research; 2004.
40. Easterlin RA. Income and happiness: Towards a unified theory. Econ J 2001;111:465-84.

41. Stutzer A, Frey BS. Reported subjective well-being: A challenge for economic theory and economic policy. Schmoller Jahrb 2004;124:191-231.
42. Martin ML. Changing intergenerational family relations in East Asia. Ann Am Acad Pol Soc Sci 1990;510:102.
43. Anthony BJ. Nutritional assessment of the elderly. *Cajanus* 1999;32:201-16.
44. Stecklov G. Evaluating the economic returns to childbearing in Cote d'Ivoire. Popul Stud 1999;53:1-17.
45. Franzini L, Fernandez-Esquer ME. Socioeconomic, cultural, and personal influences on health outcomes in low income Mexican-origin individuals in Texas. Soc Sci Med 2004;59:1629-46.
46. Okabayashi H, Liang J, Krause N, Akiyama H, Sugisawa H. Mental health among older adults in Japan: Do sources of social support and negative interaction make a difference? Soc Sci Med 2004;59:2259-70.
47. DaVanzo J, Chan A. Living arrangements of older Malaysians: Who coresides with their adult children? Demography 1994;31:95-113.
48. PAHO, WHO. Health of the Elderly Aging and Health: A Shift in the Paradigm. USA: PAHO and WHO; 1997.
49. Uchino BN, Cacioppo JT, Kiecolt-Glaser JK. The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. Psychol Bull 1996;119:488-531.
50. Linden W, Chambers L, Maurice J, Lenz JW. Sex differences in social support, self-deception, hostility, and ambulatory cardiovascular activity. Health Psychol 1993;12:376-80.
51. International Association of Gerontology. Old Age in the Modern World. London: E & S. Livingstone; 1955.
52. Vaughn MG, DeLisi M, Beaver KM, Perron BE, Abdon A. Toward a criminal justice epidemiology: Behavioral and physical health of probationers and parolees in the United States. J Crim Justice 2012;40:165-73.
53. O'Grady W. Crime in Canadian Context: Debates and Controversies. Don Mills, Ontario: Oxford University Press; 2007. p. 108-9.
54. Bogue DJ. Essays in human ecology. The Ecological Impact of Population Aging. Vol. 4. Chicago: Social Development Center; 1999.
55. Fees BS, Martin P, Poon LW. A model of loneliness in older adults. J Gerontol B Psychol Sci Soc Sci 1999;54:P231-9.
56. Rhodes AE, Bethell J, Bondy SJ. Suicidality, depression, and mental health service use in Canada. Can J Psychiatry 2006;51:35-41.
57. Easterlin RA. Building a better theory of wellbeing. Prepared for Presentation at the Conference Paradoxes of Happiness in Economics, University of Milano-Bicocca, March 21-23, 2003. Available from: http://www-rcf.usc.edu/~easterl/papers/BetterTheory.pdf. [Last accessed on 2013 Dec 01].
58. Diener E, Horwitz J, Emmon RA. Happiness of the very wealthy. Soc Indic Res 1985;16:263-74.
59. McConville C, Simpson EE, Rae G, Polito A, Andriollo-Sanchez Z, Meunier N, *et al*. Positive and negative mood in the elderly: The Zenith study. Eur J Clin Nutr 2005;59:22.
60. Moore EG, Rosenberg MW, McGuinness D. Growing Old in Canada: Demographic and Geographic Perspectives. Ontario: Nelson; 1997.
61. World Health Organization. Preventing Chronic Diseases a Vital Investment. Geneva: WHO; 2005.
62. Bourne PA. Social determinants of health in Jamaica: Are there differences between the sexes and area of residence? Health Med J 2009;3:359-73.
63. Bourne PA, Eldemire-Shearer D. Difference in social determinants of health between men in the poor and the wealthy social strata in a Caribbean nation. N Am J Med Sci 2010;2:267-75.
64. Bourne PA. Variations in social determinants of self-rated health and self-reported illness. J Clin Diagn Res 2011;4:3045-55.
65. Bourne PA. A comparative analysis of the health status of men aged 60-72 years and men aged 73+ years in Jamaica: Are there differences across municipalities? Afr J Prim Health Care Fam Med 2010;2:8.
66. Bourne PA, Solan I, Sharpe-Pryce C, Campbell-Smith J, Francis C. The rural aged and their health: A poverty – Health viewpoint. Epidemiology 2013;4:140.
67. Kahn RL. On "Successful aging and well-being: Self-rated compared with Rowe and Kahn". Gerontologist 2002;42:725-6.
68. Smith J, Borchett M, Maier H, Jopp D. Health and well-being in the young old and oldest old. J Soc Issues 2002;58:715-32.
69. Strawbridge WJ, Wallhagen MI, Cohen RD. Successful aging and well-being: Self-rated compared with Rowe and Kahn. Gerontologist 2002;42:727-33.
70. von Faber M, Bootsma-van der Wiel A, van Exel E, Gussekloo J, Lagaay AM, van Dongen E, *et al.* Successful aging in the oldest old: Who can be characterized as successfully aged? Arch Intern Med 2001;161:2694-700.

Source of Support: Nil, Conflict of Interest: None declared.