

## Happiness among Older Men in Jamaica: Is it a Health Issue?

P. A. Bourne, C. Morris and D. Eldemire-Shearer

Department of Community Health and Psychiatry, Faculty of Medical Sciences, The University of the West Indies, Mona, Kingston, Jamaica

**Abstract:** This study seeks to expand the literature by investigating the effect of health status on happiness, happiness on health status, life satisfaction on happiness as well as some demographic variables in order to test the existing knowledge on elderly men (ages 60 years and older) in Jamaica. A stratified random sample of 2,000 elderly men in Jamaica was used to carry out this study. The data were collected with a 137-item self-administered questionnaire and entered, retrieved and stored in SPSS for Windows 16.0 (SPSS Inc; Chicago IL, USA). Happiness was found not correlated with health status of elderly men in Jamaica nor was health status associated with happiness; and that there was no difference based on area of residence. Happiness and health status cannot be used to proxy each other for the elderly cohort as they are independent events.

**Key words:** Elderly men, happiness, health status, Jamaica, life satisfaction and older men

### INTRODUCTION

Happiness is well established in scientific publications as a good predictor of subjective wellbeing and/or overall life satisfaction (Graham, 2008; Selim, 2008; Borghesi, and Vercelli, 2007; Mahon *et al.*, 2005; Layard, 2006; Seligman and Csikszentmihalyi, 2000; Diener *et al.*, 2002; Diener, 1984, 2000; Easterlin, 2001; Veenhoven, 1993). A group of scholars found that the statistical association between happiness and subjective wellbeing was a strong one - correlation coefficient  $r = 0.85$  in the 18 OECD countries - (Kahneman, and Riis, 2005), which emphasizes the importance that people place on happiness in assessing their subjective wellbeing. Happiness which is an area in positive psychology (Seligman and Csikszentmihalyi, 2000; Huppert, 2006; Brannon, and Feist, 2007) goes beyond the mere positive state of an individual to physical health and social life, and economic state to life in general (Borghesi, and Vercelli, 2007; Lima and Nova, 2006; Stutzer, and Frey, 2003; Easterlin, 2003; Frey and Stutzer, 2002a, b; Brickman *et al.*, 1978).

Happiness is as a result of a number of positive psychological factors such as marriage, a job, success in life, adaptation to life events, and negative affective conditions such as the loss of life or property, failed examinations, and dissolution of union deteriorate both health and further deepen the negative impact on life and by extension happiness (Borghesi and Vercelli, 2007; Easterlin, 2003; Kahneman, and Riis, 2005). In seeking to unearth 'why some people are happier', Lyubomirsky (2001) approached it from the perspective of positive psychology. She noted that, to comprehend disparity in self-reported happiness between individuals, "one must

understand the cognitive and motivational process that serve to maintain, and even enhance happiness and transient mood" (Lyubomirsky, 2001). Lyubomirsky identified 'comfortable income', 'robust health', 'supportive marriage', and 'lack of tragedy' or 'trauma' in the lives of people as factors that distinguish happy from unhappy people (Borghesi and Vercelli, 2007; Kahneman, and Riis, 2005; Frey, and Stutzer, 2002a, b; Easterlin, 2003). Those findings only concurred with an earlier work by Diener *et al.* (1999). Diener *et al.* (1985) were able to add value to the discourse when they showed that income affects subjective wellbeing. Frey and Stutzer (2002a) provided more information on the aforementioned discourse, when he opined that absolute income does not seem to have a strong influence on happiness or health (or subjective wellbeing). Researchers found that the wealthy (those earning in excess of US 10-million, annually) had a marginally greater self-reported wellbeing (personal happiness) than that of those who were lower wealthy (earned less than 10 million US annually) (Diener *et al.*, 1985).

People's cognitive responses to ordinary and extraordinary situational events in life are associated with subjective wellbeing (Chida, and Steptoe, 2008; Steptoe *et al.*, 2008; Pressman and Cohen, 2005; Lyubomirsky, 2001; Sheldon and Lyubomirsky, 2006). It is found that happier people are more optimistic and as such conceptualize life's experiences in a positive manner. Studies revealed that positive moods and emotions are associated with wellbeing (Fowler and Christakis, 2008; Leung *et al.*, 2005) as the individual is able to think, feel and act in ways that foster resource building and involvement with particular goal materialization (Lyubomirsky *et al.*, 2005). This situation is later

internalized, causing the individual to be self-confident from which follows a series of positive attitudes that guide further actions (Sheldon and Lyubomirsky, 2006). Positive mood is not limited to active responses by individual, but a study showed that 'counting one's blessings', 'committing acts of kindness', recognizing and using signature strengths, 'remembering oneself at one's best', and 'working on personal goals' all positively influence wellbeing (Sheldon and Lyubomirsky, 2006; Abbe *et al.*, 2003). Recently conducted meta-analysis longitudinal studies revealed that happiness and other positive moods are not only positively correlated with health status; but that they are negatively associated with mortality Chida and Steptoe (2008), suggesting the value of happiness to life. Happiness is not a mood that does not change with time or situation; hence, happy people can experience negative moods (Diener and Seligman, 2002), and happiness is a good proxy for assessing subjective wellbeing.

Human emotions are the coalesced of not only positive conditions but also negative factors (Watson *et al.*, 1999). Hence, depression, anxiety, neuroticism and pessimism are seen as a measure of the negative psychological conditions that affect subjective wellbeing (Evans *et al.*, 2005; Harris and Lightsey, 2005; Kashdan, 2004). From Evans and colleague, Harris & Lightsey and Kashdon's monographs, negative psychological conditions affect subjective wellbeing in a negative manner (i.e. guilt, fear, anger, disgust); and positive factors influence self-reported wellbeing in a direct way—this was concurred in a study conducted by Fromson (2006), and by other scholars (McCullough *et al.*, 2001; Watson *et al.*, 1988a, 1988b). Acton and Zodda (2005) aptly summarized the negative affect of subjective wellbeing in the sentence that says "expressed emotion is detrimental to the patient's recovery; it has a high correlation with relapse to many psychiatric disorders."

Previously mentioned studies using happiness to examine wellbeing were on population and not on elderly cohorts (ages 60 years and older). McConville *et al.* (2005) in 'Positive and negative mood in the elderly: the Zenith study' established that different moods of people affect both their physical as well as their mental wellbeing. They argued, "Poor quality moods were associated with deficits in diverse areas of cognitive function, health, and social relationship" (McConville *et al.*, 2005). The Zenith study was to examine the quality of positive and negative attitudes on health status. The population was 387 individuals from three European countries (France, Italy and Ireland). Another study on the elderly population found that biological changes of humans do affect their psychological state, and that psychological and psychosocial changes influence biological functioning (or physical health) (Kart, 1990)

Well-being for some scholars, therefore, is a state of happiness (ie positive feeling status and life satisfaction)

(Diener, 1984; Easterlin, 2003; Diener *et al.*, 1999). Simply put, well-being is subjectively what is 'good' for each person (Crisp, 2005). It is sometimes connected with good health. Crisp offered an explanation for this, when he said, "When discussing the notion of what makes life good for the individual living that life, it is preferable to use the term 'well-being' instead of 'happiness' (Crisp, 2005). O'Donnell and Tait (2003) believed that health is a primary indicator of well-being; and so provide an understanding of the correlation between health, subjective wellbeing, happiness, and life's satisfaction (O'Donnell and Tait, 2003; Ringen, 1995). From the scientific literature, self-rated health status is highly reliable to proxy for health, which 'successfully crosses cultural lines' (Ringen, 1995). O'Donnell and Tait concluded from their study that self-reported health status can be used to indicate wellbeing as all respondents who had chronic diseases reported very poor health.

From the literature, happiness and health status, happiness and wellbeing, and happiness and life satisfaction are associated. Using the scientific findings on the aforementioned issue, an extensive review of the literature found no study that has ever examined happiness and health status of elderly men in Jamaica, which is the rationale for the current study. Given that happiness covers life satisfaction and health, an examination of happiness and health status of elderly men in Jamaica will provide invaluable information as to the state of this group.

An extensive review of the literature revealed that there has never been a study done in the Caribbean, in particularly Jamaica on happiness of this vital cohort, so this is a critical rationale for the study as it will provide insight in this cohort along with an understanding of how they perceive things and life, which can guide public policy. Another rationale is happiness, a predictor of health status, which would allow for the collection of data on whether or not they are good predictors of each other. The current study examined whether (1) happiness is a function of health status; (2) happiness is a function of health status and some demographic variables; (3) health status is a function of happiness; (4) health status is a function of happiness and some demographic variables in order to provide information on this cohort. Using probit analysis, this study sought to model the aforementioned issues from data on elderly men (ages 55 years and older) in Jamaica.

## MATERIALS AND METHODS

**Participants and questionnaire:** The study used primary cross-sectional survey data on men 55 years and older from the parish of St. Catherine in 2007; it is also generalizable to the island. The survey was submitted and approved by the University of the West Indies Medical Faculty's Ethics Committee. Stratified multistage

Table 1: Proportion of survey (sample) vs. proportion of population

Age Group (Yrs)	Survey		2001 Census (St. Catherine)		2001 Census (Jamaica)	
	n	%	n	%	N	%
55-59	469	23.45	6577	26.7	38645	23.9
60-64	413	20.6	5179	21.1	31828	19.7
65-69	374	18.7	4391	17.8	28901	17.9
70-74	345	17.2	3594	14.6	24856	15.4
75-79	189	9.45	2402	9.78	17711	11.0
80+	210	10.5	2399	9.77	19552	12.1

probability sampling technique was used to draw the sample (2,000 respondents). A 132-item questionnaire was used to collect the data. The instrument was sub-divided into general demographic profile of the sample; past and current health status; health-seeking behaviour; retirement status; social and functional status. The overall response rate for the survey was 99% (n=1,983). Data was stored, retrieved and analyzed, using SPSS for Windows (16.0).

The Statistical Institute of Jamaica (STATIN) maintains a list of enumeration districts (ED) or census tracts. The parish of St. Catherine is divided into a number of constituencies made up of a number of enumeration districts (ED). The one hundred and sixty-two (162) enumeration districts in the parish of St. Catherine provided the sampling frame. The enumeration districts were listed and numbered sequentially and selection of clusters was arrived at by the use of a sampling interval. Forty (40) enumeration districts (clusters) were subsequently selected with the probability of selection being proportional to population size (Table 1).

The enumeration districts in the parish of St. Catherine provided the sampling frame and the sample size was determined with the help of the Statistical Institute of Jamaica (STATIN). The enumeration districts were listed and single-stage cluster sampling was used to select the sample. The enumeration districts were numbered sequentially and calculating a sampling interval arrived at selection of clusters. From a randomly selected starting point, forty (40) enumeration districts (clusters) were subsequently selected with the probability of selection being proportional to population size. The sample of 2000 was selected based on a proportion of the Census Data (Table 1).

The parish of St. Catherine had approximately 233,052 males, (preliminary census data 2001) of which 33,674 males were 55+ years. STATIN (2008) maintains maps with enumeration districts or census tracts, which included the selected EDs and access routes and had references to the selected site of a starting point household within each ED. The starting point was determined by randomly selecting a household with a man 55 years and over from the list of persons in the ED. With this information the interviewers travelled in a north-easterly or closest to north-easterly direction beginning with the first selected household, and conducted interviews in each household that had a male 55 years and older. Only one male per household was selected; and in households with

more than one individual fitting the characteristic of the sample, a coin was tossed to determine the person who will be interviewed. (North-East was randomly selected by STATIN (2008) as the direction of travel from the starting point).

Where the selected household was found to be subsequently devoid of an older man (due to out-migration or death), an adjacent household was canvassed. Where households had a man 55+ years as a resident and he was not at home a call-back form was left indicating a proposed time that the interviewer would return which would not be longer than two days after the initial visit.

The sample population does not only speak to the parish of St. Catherine, it is generalizable to the island of Jamaica. The sampling frame was men fifty-five years and older in the parish of St. Catherine. The parish of St. Catherine was chosen as previous data suggested that it has the mix of demographic characteristics (urban, rural and age-composition), which typify Jamaica surveys (STATIN, 2004; Wilks, 2007; Jackson *et al.*, 2003)

For the current study descriptive status was employed to provide background information on the sample; and chi-square was used to examine non-metric variables. Level of significance was  $pvalue < 0.05$  and the only exclusion criteria was if more than 20% of the cases of the variable were missing.

#### Measure:

**Happiness:** Happiness is measured based on people's self-report on their happiness (Frey and Stutzer, 2002a, b; Easterlin, 2001; Borghesi and Vercelli, 2007). This operationalization is based on a basic indicator proposed by Diener (2000), including a more emotional component referring to happiness ('Taking all things together, how happy would you say you are?'). It is a Likert scale question, which ranges from high to low happiness. It was coded into a binary variable, whether or not the individual had moderate-to-high or low happiness: 1=moderate to high happiness, 0 = otherwise.

**Life satisfaction:** Diener (2000) had proposed that happiness includes emotional components and a more cognitive component referring to life satisfaction ('All things considered, how satisfied are you with your life as a whole nowadays?'), for this paper the researcher separated happiness (emotional) from cognitive (life

satisfaction). Life satisfaction is a binary variable, where 1= good-to-excellent self-reported overall satisfaction in life, 0=otherwise.

**Health Status:** Health Status is measured using people's self-rate of their overall health status (Kahneman, and Riis, 2005), which ranges from excellent to poor health status. The variable used in this study for health status is a binary one, whether or not the person had good-to-excellent or poor health status. It was then coded as a dummy variable, 1=good-to-excellent health status, 0=otherwise.

**Age group:** Age group is categorized into three sub-groups. These are (1) ages 55 to 64 years; (2) ages 65 to 74 years; and (3) age 75 years and older (i.e. 75+ years).

**Listing of covariates:**

*Residence* is a binary variable, 1=lives in urban area, 0=lives in rural area.

*Employment status* is a binary variable, where 1=employed, 0=otherwise.

*Health retirement plan* is a binary variable, where 1=having a health retirement coverage, 0=otherwise.

*Occupation* is a binary variable, where 1=current or past occupation which was in the category of professional, 0=otherwise.

*Marital status* is a non-binary variable, where 1=married, 0=otherwise; 1= separated, divorced or widowed, 0=otherwise and single is the reference group.

*Childhood health status* is a binary variable, 1=self-reported poor health status, 0=otherwise. *Household head* is a binary variable, 1=self-reported head of household, 0=otherwise.

*Social networking* is operationalized based on yes or no to being a member of a social club; civic organization; or community organization. This was dichotomized to be 1 if yes and 0 if otherwise. This variable excludes being a member of a church.

*ADL.* This is a functional status of 12 events. These include eating; bathing; dressing; using toilet; shopping; preparing meals; feeding oneself; continence; taking or using transportation; managing medication; money management; and laundry.

**Model**

*Theoretical background*

According to micro econometric happiness function, subjective wellbeing (ie happiness) is a function of different variables (including some demographic ones) (Stutzer, and Frey, 2003) [Model (1)].

$$W_{it} = a + bX_{it} + e_{it} \quad (1)$$

Where  $W_{it}$  represents subjective well-being,  $X_{it}$  denotes  $x_1, x_2, x_3,$  and so on, in which  $x_1$  to  $x_n$  are variables– ‘sociodemographic’, ‘environmental’, and ‘social’, ‘institutional’ and ‘economic conditions’

In this study, the literature (ie micro econometric happiness function) will be expanded to include health status in childhood, current health status, life satisfaction, and area of residence by testing this theory using elderly men in Jamaica [Model (1)]. In addition to the aforementioned micro econometric happiness function, the study will also seek to examine health status. Variables such as happiness, life satisfaction and some demographic variables will be investigated simultaneously [Model (2)].

**Estimation Model:** The interests of this study are to examine whether health status as well as the role of life satisfaction, and self-reported childhood health status on happiness of elderly men in Jamaica can predict happiness. Continuing, it is also to investigate whether health status can be predicted by happiness; what are the demographic factors that can predict either happiness or health status of elderly men in Jamaica as well as determine, if there is a difference between rural and urban areas. The multivariate model used in the current study is an expansion of the literature (Stutzer and Frey's work on happiness) which is displayed in Eq. (2) and (3).

$$Hit = \beta_0 + \beta_1HS_{it} + \beta_2HS_{i(t-1)} + \beta_3LS_{it} + \beta_{ij}D_{ij} + \epsilon_i \quad (2)$$

$$HS_{it} = \beta_0 + \beta_1H_{ij} + \beta_2HS_{i(t-1)} + \beta_3LS_{it} + \beta_{ij}D_{ij} + \epsilon_i \quad (3)$$

Where  $H_{it}$  denotes happiness of person  $i$  in time period  $t$  (current period);  $HS_{it}$  means health status of person  $i$  in current time period  $t$ ;  $HS_{i(t-1)}$  denotes the childhood health status of period  $i$  previous period  $(t-1)$ ;  $LS_{it}$  is life satisfaction of person  $i$  in current time period  $(t)$ ;  $D_{it} = d_1, d_2, d_3, d_4, \dots, d_n$ , which include sociodemographic and socioeconomic variables of individual  $i$  in current time period  $(t)$ .  $\beta_0$  indicates happiness at the beginning of the period;  $\beta_1$  to  $\beta_{ij}$  denotes the parameter for each variable from variable 1 to  $j$ .

The models Eq. (2) and (3) allow for each factor that is associated with happiness Eq. (2) or health status Eq. (3) to be examined separately. Those approaches have been widely and successfully applied in a plethora of studies on the correlates of happiness (Easterlin, 2001; Veenhoven, 1993; Stutzer and Frey, 2003; Frey and Stutzer, 2002; Frey and Stutzer, 2002; Blanchflower and Oswald, 2004; Argyle, 1999) and/or health status (Bourne, 2008a, b; Grossman, 1972; Smith and Kington, 1997; Hambleton *et al.*, 2005; Bourne and McGrowder, 2009) This is the rationale for the usage of micro-econometric happiness function (Lima and Nova, 2006), Bourne and McGrowder's (2009) health status function as they allow for the analysis of current study.

Because the dependent variable for the current study, happiness or health status, is a binary one, probit analysis was used to estimate the impact of life satisfaction, current health status, childhood health status, including

other socio-demographic variables (such as employment status, education, marital status, age of elderly, social support, and church attendance) on happiness or current health status of elderly men in Jamaica. Furthermore, the current study will mainly report the results of those variables that are statistically significant ( $p < 0.05$ ).

Furthermore, the variables used in this study are based on (1) literature review, which shows that these are likely to correlate with the particular dependent variable, and (2) the correlation matrix was examined in order to ascertain if autocorrelation (or multicollinearity) existed between independent variables. Based on Cohen and Holliday (1982), correlation can be low (weak) - from 0 to 0.39; moderate - 0.4-0.69, and strong - 0.7-1.0. This was used to exclude (or allow) a variable in the model. Any of the independent variables, which had moderate to high correlation, was excluded from the model. The correlation between life satisfaction and happiness was 0.633; happiness and social networking (correlation coefficient = 0.12,  $p = 0.003$ ); happiness and marital status (correlation coefficient = 0.107,  $p = 0.026$ ); marital status and income category (correlation coefficient = 0.193,  $p < 0.001$ ); social networking and marital status ( $r = 0.205$ ,  $p < 0.001$ ); social networking and age group (correlation coefficient = 0.188,  $p < 0.001$ ); social networking and occupation (correlation coefficient = 0.320,  $p < 0.001$ ); social networking educational category (correlation coefficient = 0.420,  $p < 0.001$ ); ADL and age cohort (correlation coefficient = -0.813,  $p = 0.032$ ); income and occupation (correlation coefficient = 0.7775,  $p < 0.001$ ); and, income and education (correlation coefficient = 0.356,  $p < 0.001$ ); employment and education category (correlation coefficient = 0.283,  $p < 0.001$ ). However, there was no correlation between happiness and present occupation ( $p = 0.761$ ); happiness and income ( $p = 0.233$ ); happiness and employment status ( $p = 0.516$ ); as well as life satisfaction and employment status ( $p = 0.261$ ). Hence, life satisfaction and happiness; occupation and income category will not be simultaneously used as explanatory variables.

## RESULTS

**Socio-demographic characteristics of sample:** The sample was 2,000 men ages 55 years and older (42.6% were 55 to 64 years; 35.6% were 65 to 74 years; 21.9% were 75 years and older). Fifty one percent of the sample lived in rural areas; 59.1% had social network; 55.4% reported good health status and 25.6% indicated poor health status; 53.9% were retired, 25.6% were actively employed and 20.6% unemployed; 58.8% did not own their homes, and 34.3% were single and 44.7% were married elderly men. Majority of the sample had primary or elementary level education (83.1%); 85.9% reported that they do not regularly exercise; 82.5% reported good health in childhood; and 88.12% were heads of their

Table 2: Socio-demographic characteristics of sample: Descriptive Statistics

Variable	Frequency	Percent
<b>Marital Status</b>		
Single	686	34.3
Married	894	44.7
Separated	112	5.6
Common law	136	6.8
Widowed	172	8.6
<b>Head of Household</b>		
Self	1763	88.1
Partner	122	6.1
Children	63	3.2
Sibling/Parent	52	2.6
<b>Age group</b>		
55- 64 years	851	42.6
65 - 74 years	712	35.6
75 years and older	437	21.9
<b>House Ownership</b>		
Yes	824	41.2
No	1176	58.8
<b>Employment Status</b>		
Employed	511	25.6
Unemployed	412	20.6
Retired	1077	53.9
<b>Education</b>		
No Formal Education	200	10.0
Primary and basic	1661	83.0
Secondary	102	5.1
Tertiary	37	1.9
<b>Self-rated Health Status</b>		
Excellent	357	19.0
Good	1038	55.4
Fair	480	25.6
<b>Social Networking</b>		
Yes	817	59.1
No	1183	40.9
<b>Regular Exercise</b>		
Yes	282	14.1
No	1718	85.9
<b>Childhood Health status</b>		
Good	1650	82.5
Poor	350	17.5
<b>Area of residence</b>		
Urban	981	49.0
Rura	11019	51.0

households (Table 2). One half of the sample indicated that they spent Ja. \$100 (US \$1.45) monthly for medical expenditure; 34% of the respondents bought their prescribed medication; 17.1% reported that they have been hospitalized since their sixth birthday and 65.8% reported that they took no medication. Of those who mentioned that they were ill during childhood (17.5%,  $n = 350$ ), 34.9% said that the illness was measles or chicken pox, 26.3% mentioned asthma, 10.0% pneumonic fever, 8.9% polio, 6.6% accidents, 4.6% jaundice, 1.7% hernia, and 5.1% indicated gastroenteritis. 24% of elderly men indicated that they were rarely happy, 40.5% said sometimes, 31.0% mentioned often and only 4.5% reported always. Furthermore, 17.7% of the sample reported that they were seriously ill as children.

Of the sample ( $n = 2,000$ ), 24.0% indicated that they were rarely happy; 40.5% indicated sometimes; 31.0%

mentioned most times and 4.5% reported always. Hence, approximately 65% of the sample was happy at least sometimes. With respect to life satisfaction, 32.9% of the sample indicated that they were rarely satisfied with their life; 33.7% revealed sometimes; 29.9% mentioned most times and 3.5% reported always.

Of the sample, 62.7% revealed that they were able to carry out particular daily activities compared to 37.4% who reported that they were unable to perform daily activities.

**Multivariate Analysis:** The results from the probit regression analyses of happiness are presented in Table 3. The results for the current health status are presented in Table 4. Therefore, the current study will mainly report the results of those variables that are statistically significant ( $p < 0.05$ ).

Current happiness of elderly men in Jamaica was found to be statistically influence by life satisfaction (95% CI: 0.417, 1.215;  $p < 0.001$ ) and aged men 75 years and beyond (95% CI: -1.193, -0.054;  $p = 0.032$ ) with reference to those 55 to 64 years of age. For life satisfaction, Current and childhood health status as well as education, age of elderly men, social support, church attendance, occupation (both current and past), and marital status were found not to influence current happiness ( $p > 0.05$ ). Continuing, current happiness of elderly men was the same whether they live in urban or rural areas ( $p = 0.813$ ) (Table 2). Based on Table 3, the model is a good fit for the data (log likelihood=153.039; chi-square = 106.479,  $P = 0.985$ ).

Current health of the sample was found be significantly statistically influenced by age of the elderly (ages 65 to 74 years – 95%CI: -1.513, -0.622; ages 75+ - 95% CI: -2.130, -1.022;  $p < 0.001$ ), social support (95% CI: 0.016, 1.315,  $p = 0.045$ ) and area of residence (95% CI: -0.959, -0.085,  $p = 0.019$ ) (Table 4). Continuing, urban elderly men had a lower current health status than their rural counterparts. Variables such as life satisfaction, employment status, education, head of household, occupational type (both past and current), health status in childhood, church attendance and happiness were not found to statistically influence current health status of elderly men in Jamaica. Based on Table 4, the model is a good fit for the data (log likelihood=149.068; chi-square = 102.798,  $P = 0.971$ ).

## DISCUSSION

The study revealed 24 elderly men in every 100 were rarely happy, 41 in every 100 were happy sometimes, 31 in every 100 indicated most times and 5 in every 100 reported always; and that 55 out of every 100 were in good health, 26 in every 100 said fair and 19 out of every 100 said excellent health status. The survey evidence presented here suggested that there was no statistical

Table 3: Results of Probit analysis of happiness and some Sociodemographic variables

Variable	Estimate	Std. Error	95% Confidence Interval	
			Lower	Upper
Life Satisfaction	0.816	0.203	0.417	1.215***
Employed 0.793	0.926	-1.023	2.609	
Primary schooling	0.065	0.291	-0.505	0.636
Secondary and beyond	0.191	0.429	-0.649	1.031
†No formal education				
Health Retirement plan	0.099	0.354	-0.595	0.793
Household Head	-0.009	0.308	-0.613	0.594
Married	-0.046	0.212	-0.462	0.370
Separated, Divorced or Widowed	-0.137	0.315	-0.754	0.481
†Never married				
Professional	0.007	0.288	-0.558	0.571
Current good Health Status	-0.189	0.224	-0.628	0.251
Childhood health status	-0.093	0.240	-0.563	0.377
Area of residence (1=Urban)	-0.052	0.218	-0.478	0.375
Elderly 1 (ages 65 to 74 years)	-0.238	0.225	-0.680	0.203
Elderly 2 (ages 75 years and older)	-0.624	0.291	-1.193	-0.054*
†Elderly (ages 55 to 64 years)				
Social Support	0.034	0.316	-0.586	0.654
Church attendance	-0.151	0.239	-0.619	0.317
Intercept	-1.459	1.042	-2.501	-0.417

N=1,026, Log likelihood = 153.013, Pearson Good of Fit test: Chi-square = 106.479,  $P = 0.971$ , †Reference group, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Table 4: Results of the Probit analysis of health status by some Sociodemographic variables

Variable	Estimate	Std. Error	95% Confidence Interval	
			Lower	Upper
Life Satisfaction	0.381	0.251	-0.109	0.872
Employed 0.385	0.609	-0.809	1.579	
Primary schooling	-0.421	0.272	-0.956	0.113
Secondary and beyond	0.886	0.489	-0.074	1.845
†No formal education				
Health Retirement plan	-0.456	0.388	-1.217	0.306
Household Head	0.058	0.330	-0.590	0.705
Married	0.033	0.217	-0.392	0.459
Separated, Divorced or Widowed	-0.073	0.321	-0.703	0.557
†Never married				
Professional	0.081	0.316	-0.539	0.701
Childhood Health Status	-0.414	0.246	-0.897	0.068
Area of residence (1=Urban)	-0.522	0.223	-0.959	-0.085*
Elderly 1 (ages 65 to 74 years)	-1.067	0.228	-1.513	-0.622***
Elderly 2 (ages 75 years and older)	-1.576	0.283	-2.130	-1.022***
†Elderly (ages 55 to 64 years)				
Social Support	0.666	0.331	0.016	1.315*
Church attendance	-0.052	0.243	-0.528	0.424
Intercept	0.785	0.722	0.063	1.507

N=1,026, Log likelihood = 149.068, Pearson Good of Fit test: Chi-square = 102.798,  $P = 0.985$ , †Reference group, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

correlation between happiness and health status of elderly men in Jamaica, and it goes further to show that happiness cannot be a predictor of health status as well as health status cannot be a predictor of happiness. Happiness was found not to correlate with health status of elderly men in Jamaica nor was health status associated with happiness; and that there was no difference based on area of residence. This denotes that happiness does not provide an understanding of health status and vice versa as well as the fact that overall life satisfaction of elderly men in Jamaica is not explained by health status. However, life satisfaction was a predictor of happiness for older men.

In this research health status does not influence happiness which is contrary to the other studies (Siahpush *et al.*, 2008; Borghesi and Vercelli, 2007; Kahneman and

Riis, 2005; Easterlin, 2003; Brickman *et al.*, 1978; Stutzer and Frey 2003; Frey and Stutzer, 2002a, b; Blanchflower and Oswald, 2004; Argyle, 1999; Michalos *et al.*, 2002). One scholar went further than the negative statistical association between happiness and health status when he argued that over life's course, happier people were healthier people, which suggest that correlation is even in later life for both sexes. This study cannot concur with such a finding as there is no statistical relationship between happiness and health status at older ages for men in Jamaica, suggesting that happiness is not a good predictor of health status. Happiness therefore can be used to proxy health status of older men in Jamaican.

Research literature has long established that life satisfaction and happiness are estimates for each other and encapsulate the overall experiences of the individual (Selim, 2008; Siahpush *et al.*, 2008). Happiness is a crucible pursuit of human existence (James 1902). It is multidimensional and thus justifies its usage in measuring wellbeing instead of a traditional approach of income per capita (Gross Domestic Product per capita, GDP) (Diener *et al.*, 2002; Diener, 1984, 2000; Easterlin, 2003; Diener *et al.*, 1999) Happiness which was first introduced by a psychologist (Diener, 1984) as a subjective measure in assessing wellbeing has been accepted by some economists as a good proxy for wellbeing (Graham, 2008; Borghesi, and Vercelli, 2007; Mahon *et al.*, 2005; Layard, 2006; Easterlin, 2001; Veenhoven, 1993; Argyle, 1999; Stutzer and Frey, 2003; Easterlin, 2003; Brickman *et al.*, 1978; Frey and Stutzer, 2002a, b; Blanchflower and Oswald, 2004). Based on this established fact, information is now available on the multidimensional state of elderly men in Jamaica. Although happiness is fluid, the current study has revealed that a small proportion of elderly men in Jamaica reported that they were always happy (approximately 5 out of every 100) compared to 24 out of every 100 who claimed they were rarely happy. Embedded in this finding is the negative psychological state of many elderly people as this is reflected in their happiness (or unhappiness); and their happiness is not influenced by their health status.

Lyubomirsky (2001) forwarded a number of issues that justified happy from unhappy people. She identified 'comfortable income', 'robust health', 'supportive marriage', and 'lack of tragedy' or 'trauma' in the lives of people as factors that distinguish happy from unhappy people. In this study, 44% were married; 88% heads of household; 26% employed; 54% retired, 83% had primary or elementary education, for those who are employed 93% earned less than US \$283.23 per month (Ja\$70.61=1US\$) and although those variables were found not to statistically influence happiness, the aforementioned studies declared that they do. According to Borghesi, and Vercelli (2007), education, employment status, social capital and environmental variables influence happiness; this is not the case for older men in Jamaica. Neither is

marital status, occupational type, social support or church attendance. However, Borghesi *et al.* (2005) and Smith *et al.* (2005) identified that educational attainment; employment status; social support; genetic endowment; and the social (Fowler, and Christakis, 2008) and physical milieu are correlated with happiness and while this is not the case for older men in Jamaica; those variables do influence life satisfaction (Mroczek, and Spiro, 2005; Gwozdz, and Sousa-Poza, 2009) which indirectly impact health status.

According to Gwozdz, and Sousa-Poza (2009) life satisfaction decline with old age, which may explain why in the current study only 4 out of every 100 Jamaican older men reported being always happy and 30 out of 100 reported being happy most of the time. Like the literature this study concurs that there is a correlation between life satisfaction and marital status; life satisfaction and occupation; and life satisfaction and area of residence; but they were weakly related to each other. However, it was revealed also that there was no significant statistical association between employment status and life satisfaction, and life satisfaction and income, suggesting that the variables which influence life satisfaction as well as happiness for the elderly men are not necessarily the same as those that affect happiness or life satisfaction of the population (Selim, 2008; Siahpush *et al.*, 2008). Furthermore, another important finding is the disparity in factors that influence life satisfaction or health status of older men in Germany and Jamaica (Gwozdz and Sousa-Poza, 2009).

With the down turn in the American economy, Jamaicans have been experiencing a significant reduction in remittances, which act as an income for many families including the elderly. This will further erode the life satisfaction of elderly men as they will be incapacitated by the inability to afford basic necessities and their independence will be threatened, as they must now seek the assistance of church, friends and other social networks in order to survive. Although social networking and employment status were not found to be statistical associated with happiness in the current work, men equate the ability to provide for their families and spend on particular things, as they desire, as apart of their happiness. Hence, income or wealth is a good predictor of happiness for this cohort (Frey and Stutzer, 2002a, b; Borghesi and Vercelli, 2007; Graham, 2008), not having data on wealth hampers a possible explanation instead of many of the other variables that were tested.

The literature has provided a plethora of studies that showed the correlation between happiness and health status; but this is not the case for elderly men in Jamaica. Using stratified probability sampling technique of 2,000 elderly men, this study found no association between the happiness and current health status, and vice versa. What accounts for this disparity? While health and happiness are correlated in the general populace of the world, other

nations, and many countries outside of Jamaica, it is not the case for men ages 55 years and older in Jamaica based upon men's unwillingness to seek openly and truthfully about their health. This brings into question the validity of value judgement or the self-reported health of this study.

The validity of using people's assessment of their life satisfaction and health is old and has already been resolved. Nevertheless, it will be succinctly forwarded here for those who are not cognizant of this discourse. Scholars have established that there is a statistical association between subjective wellbeing (self-reported wellbeing) and objective wellbeing (Diener, 2000; Lynch, 2003) and Diener (1984) went further when he found a strong correlation between the two variables. Gaspart (1998) opined about the difficulty of objective quality of life (GDP per capita) and the need to use self-reported wellbeing in assessing wellbeing of people. He wrote, "So its objectivism is already contaminated by post-welfarism, opening the door to a mixed approach, in which preferences matter as well as objective wellbeing" (Gaspart, 1998) which speaks to the necessity of using a measure that captures more to the this multidimensional construct than continuing with the traditional income per capita approach. Another group of scholars emphasized the importance of measuring wellbeing outside a welfarism and/or purely objectification, when they said that "Although GDP per capita is usually used as a proxy for the quality of life in different countries, material gain is obviously only one of many aspects of life that enhances economic wellbeing" (Becker *et al.*, 2004) and that wellbeing depends on both the quality and the quantity of life lived by the individual (Easterlin 2001).

The discourse of subjective wellbeing using survey data cannot deny that it is based on the person's judgement, and must be prone to systematic and non-systematic biases (Schwarz and Strack, 1999). In an earlier work, Diener (1984) argued that the subjective measure seemed to contain substantial amounts of valid variance. This will not be addressed in this paper, as this is not the nature or its scope. Despite this limitation, a group of economists noted that 'happiness or reported subjective well-being is a satisfactory empirical approximation to individual utility' (Frey and Stutzer, 2005) and this is a rationale for its usage in wellbeing research.

The current study has not only provided pertinent research information on happiness v health status in elderly men in Jamaica, it also examined health status and happiness as well as other variables such as childhood health status, life satisfaction and some other sociodemographic variables. Life satisfaction; employment status; education; health insurance; head of household; marital status; childhood health status; church attendance; and happiness of elderly Jamaicans do not statistically influence health status. All those variables are well established in research literature as statistically

significant correlates with health status. Studies have moved beyond those variables being mere correlates to predictors of health status (Bourne, 2008a, b; Grossman, 1972; Smith and Kington, 1997; Hambleton *et al.*, 2005; Bourne and McGrowder, 2009). A recently published study on rural Jamaican by Bourne, and McGrowder (2009) identified 12 explanatory predictors of good health and another by Bourne (2008b) found 11 predictors of wellbeing of aged Jamaicans. The aforementioned studies are different from the current as there is a difference in regards to the measurement of health status. Those studies operationalized health (or subjective wellbeing) as health conditions whereas this one used general self-reported health status, which is keeping with literature (Grossman, 1972; Smith and Kington, 1997; Hambleton *et al.*, 2005), but departs in respects to the predictors.

There is a convergence of predictors as this study concurred with the literature that ageing is associated with lower health status; social support (Fowler and Christakis, 2008), and the place of residence are determinants of health status. Area of residence is not only a correlate of health status; but the current study found that elderly men who lived in urban areas have lower health status, suggesting that healthier old men in Jamaica resided in rural areas.

Functional capacity of the elderly is well established in health literature as influencing health status and by extension happiness (Yi and Vaupel, 2002; Bogue, 1999). The young-old (ages 60 to 64 years) are more likely to be the most functioning as the organism is just beginning the transition into the aged arena (Erber, 2005; Brannon and Fiest, 2004). This phenomenon means that human mortality increases with age of the human adult, but that this becomes less progressive in advance ageing. Thus, biological ageing is a process where the human cells degenerate with years (i.e. the cells die with increasing age), which explains the inverse association between ageing and subjective wellbeing (Netuveli *et al.*, 2006; Prause *et al.*, 2005). Bogue (1999) summarized the characteristics of three elderly cohorts (young-old – ages 60 to 74; aged or old-old – 75 to 84 years and oldest old - 85+ years), when he showed that as the elderly ages from young-old to aged their health problems increased from low to moderate and thus increased to high for the oldest-old and that this is similar to their physical disability.

Performance of Activities of Daily Living (ADL) is used to describe the functional status of a person. It is used to determine a baseline level of functioning and to monitor improvement in activities of daily living (ADL) overtime. There are systems such as the Katz ADL tool that seek to quantify these functions and obtain a numerical value. These systems are useful for the prioritizing of care and resources. Generally though, these should be seen as rough guidelines for the assessment of a patient's ability to care for themselves. Scoring the ADL findings (Katz *et al.*, 1970; 1993) Independence on

a given function received a score of 1 point while if dependent, 0 point was given. There were 14 items (including daily activities; household chores; shopping; cooking; paying bills). The reliability of the items was very high,  $\alpha = 0.801$ . Total scores thus could range from 0-14 with lower scores indicating high dependence and higher scores indicating greater independence. Instrumental Activities of Daily Living (IADL) The Instrumental Activities of Daily Living tool (IADLs; Lawton, and Brody, 1969) was the basis for assessing participants' difficulty with IADL. IADL are those activities whose accomplishment is necessary for *continued independent residence in the community*.

The independent activities of daily living are more sensitive to subtle functional deficiencies than ADL's and differentiate among task performance including the amount of help needed to accomplish each task. Due to the fact that the study was being conducted among men only, some tasks, which are normally done by women, would not apply. Thus consistent with international practice, the University of Wollongong's modified IADL functional ability scale which uses a scale of 5 points for men and eight for women to assess the IADL functional ability of men in the study (Centre of Health Service Development, 2001). Consequently the domains of food preparation, laundry and housekeeping were omitted in this study with regard to the Instrumental Activities of Daily Living for older men. Scoring the IADL: IADL scores reflect the number of areas of impairment, i.e. the numbers of skills/domains in which subjects are dependent. Scores range from 0-5. Higher scores thus indicate greater impairment and dependence.

Hence, Functional status is the summation of ADL and IADL. Cohen and Holliday (1982) stated that correlation can be low/weak (0-0.39); moderate (0.4-0.69), or strong (0.7-1). Hence, high dependence ranges from 0 to 5.5; moderate dependence is from 5.6 to 9.7 and low dependence (ie independence) ranges from 9.8 to 14. Independence means without supervision, direction, or active personal assistance. The performance on the functions can be further classified and analyzed using the format below. The classification recognizes that combinations of independence/dependence with respect to particular functions reflect the different degrees of levels of capability with respect to ADL. The classification outlined below (Katz *et al.*, 1970; Katz *et al.*, 1993) was used to further describe the functional status of men with regard to ADL. Based on the aforementioned discussion on ageing and health status as well as ageing and functional capacity, ADL and IADL are strongly correlated which indicates that ageing and functional capacity should not be a separate independent variable as there would be high multicollinearity between those two factors. Hence, ageing category was used instead of functionality capacity as an independent variable.

## CONCLUSION

The current work has shown that happiness is not influenced by health status nor is it determined by employment status, educational attainment; marital status; church attendance or any other form of social networking which means that health status is not synonymous with happiness nor is happiness equivalent to health status for older men in Jamaica. Happiness is not correlated with health status and vice versa for elderly Jamaicans, and so understanding happiness does not comprehend health status. Happiness and health status cannot be used to proxy each other for the elderly cohort as they are mutually exclusive events. Happiness however, is correlated with life satisfaction and people's general perception about their life is a good predictor of happiness; suggesting that life satisfaction can measure happiness. A qualitative assessment is needed to understand elderly men's value system, as this will provide answers for the disparity between the two phenomena. In spite of the need to do further studies on the issue, research findings are now available upon which better public policies can be framed from here onwards.

## REFERENCES

- Abbe, A., C. Tkach and S. Lyubomirsky, 2003. The art of living by dispositionally happy people. *J. Happin. Stud.*, 4: 385-404.
- Acton, G.S. and J.J. Zodda. 2005. Classification of psychopathology: Goals and methods in an empirical approach. *Theor. Psychol.*, 15: 373-399.
- Argyle, M., 1999. Causes and Correlates of Happiness. In: *Well-Being: The Foundations of Hedonic Psychology*, D. Kahneman, E. Diener, and N. Schwarz, (Eds.), New York: Russell Sage Foundation.
- Becker, G.S., T.J. Philipson and R.R. Soares, 2004. The quantity and quality of life and the evolution of world inequality. <http://www.spc.uchicago.edu/prc/pdfs/becker05.pdf#search=%22preston%2C%20quality%20of%20life%22> (Accessed August 22, 2006).
- Blanchflower, D.G. and A.J. Oswald, 2004. Wellbeing over Time in Britain and the USA. *J. Public Econ.*, 88: 1359-1386.
- Bogue, D.J., 1999. *Essays in human ecology*, 4. The ecological impact of population aging. Chicago: Social Development Center.
- Borghesi, S. and A. Vercelli, 2007. Happiness and health: two paradoxes. Paper presented at the Conference "Policies for Happiness" held at the University of Siena, 14-17 June, for their useful comments.
- Bourne, P.A. and D.A. McGrowder, 2009. Rural health in Jamaica: examining and refining the predictive factors of good health status of rural residents. *Rural and Remote Health*, 9(2): 1116. Available from: <http://www.rrh.org.au>.

- Bourne, P.A., 2008a. Health Determinants: Using secondary data to model predictors of well-being of Jamaicans. *West Indian Med. J.*, 57: 476-481.
- Bourne, P.A., 2008b. Medical Sociology: Modelling well-being for elderly people in Jamaica. *West Indian Med. J.*, 57: 596-604.
- Brannon, L. and J. Feist, 2007. An Introduction to Behavior and Health. In: *Health Psychology*. 6th Edn. Los Angeles: Thomson Wadsworth.
- Brickman, P., D. Coates and R. Janoff-Bulman, 1978. Lottery Winners and Accident Victims: Is Happiness Relative? *J. Pers. Soc. Psychol.*, 36: 917-927.
- Centre of Health Service Development, 2001. Towards a national measure of functional dependency for home care services in Australia. Stage 1 report of the HACC dependency data items project 2000 updated. Faculty of Health and Behavioural Sciences, University of Wollongong. [http://chsd.uow.edu.au/Publications/2001\\_pubs/Stage%201%20HACC%20Report\\_May01\\_Update.pdf](http://chsd.uow.edu.au/Publications/2001_pubs/Stage%201%20HACC%20Report_May01_Update.pdf). (Accessed: January 12, 2004)
- Chida, Y. and A. Steptoe, 2008. Positive psychological well-being and mortality: a quantitative review of prospective observational studies. *Psychosom. Med.*, 70: 741-56
- Cohen, L. and M. Holliday, 1982. *Statistics for Social Sciences*. London, England: Harper and Row.
- Crisp, R., 2005. The Stanford Encyclopedia of Philosophy. In: *Wellbeing*. E.N. Zalta, (Ed.), (Winter 2005 Edn.) <http://plato.stanford.edu/archives/win2005/entries/wellbeing/> (Accessed: April 4, 2009).
- Diener, E., 2000. Subjective well-being: the science of happiness and a proposal for a national index. *Am. Psychol.*, 55: 34-43.
- Diener, E., J. Horwitz and R.A. Emmon, 1985. Happiness of the very wealthy. *Soc. Indic. Res.*, 16: 263-274.
- Diener, E., R.J. Larson, S. Levine and R.A. Emmon, 1999. Subjective wellbeing: Three decades of progress. *Psychol. Bull.*, 125: 276-302.
- Diener, E., R.E. Lucas and S. Oishi, 2002. Subjective well-being: the science of happiness and life satisfaction, In: *Handbook of Positive Psychology*. C. Snyder, and S. Lopez, (Eds.), Oxford: Oxford University Press.
- Diener, E. and M.E.P. Seligman, 2002. Very happy people. *Psychol. Sci.*, 13: 81-84.
- Diener, E., M. Suh, E. Lucas and H. Smith, 1999. Subjective well-being: Three decades of progress. *Psychol. Bull.*, 125: 276-302.
- Diener, E., 1984. Subjective well-being. *Psychol. Bull.*, 95: 542-575.
- Easterlin, R.A., 2003. Building a better theory of wellbeing. Prepared for presentation at the Conference "Paradoxes of Happiness in Economics", University of Milano-Bicocca, March 21-23. <http://www-rcf.usc.edu/~easterl/papers/BetterTheory.pdf> (accessed April 4, 2009).
- Easterlin, R.A., 2001. Income and happiness: Towards a unified theory. *Econ. J.*, 111: 465-484.
- Evans, C.C., M. Sherer, T.G. Nick, R. Nakase and S. Yablon, 2005. Early impaired self-awareness, depression, and subjective wellbeing following traumatic brain injury. *J. Head Trauma Rehab.*, 20: 488-500.
- Erber, J., 2005. *Aging and older adulthood*. New York, Waldsworth, Thomson Learning.
- Fowler, J.H. and N.A. Christakis, 2008. Estimating peer effects on health in social networks: a response to Cohen-Cole and Fletcher; and Trogdon, Nonnemaker, and Pais. *J. Health Econ.*, 27: 1400-1405.
- Frey, B.S. and A. Stutzer, 2002a. What Can Economists Learn from Happiness Research? *J. Econ. Literature*, 40: 402-435.
- Frey, B.S. and A. Stutzer, 2002b. *Happiness and Economics: How the Economy and Institutions Affect Well-Being*. Princeton: Princeton University Press.
- Frey, B.S. and A. Stutzer, 2005. *Happiness Research: State and Prospects*. *Rev. Soc. Econ.*, 42: 207-228. [http://www.bsfrey.ch/articles/420\\_05.pdf](http://www.bsfrey.ch/articles/420_05.pdf), (Accessed: April 6, 2009).
- Fromson, P.M., 2006. Self-discrepancies and negative affect: The moderating roles of private and public self-consciousness. *Soc. Behav. Personal.*, 34: 333-350.
- Gaspart, F., 1998. Objective measures of well-being and the cooperation production problem. *Soc. Choice Welfare*, 15: 95-112.
- Graham, C., 2008. Happiness and health: Lessons – A Question – For Public Policy. *Health Affairs*, 27: 72-87.
- Grossman, M., 1972. *The demand for health: a theoretical and empirical investigation*. New York: National Bureau of Economic Research.
- Gwozdz, W. and A. Sousa-Poza, 2009. Ageing, health and life satisfaction of the oldest old: An Analysis for Germany. Discussion Paper No. 4053, March 2009. <http://ftp.iza.org/dp4053.pdf> (Accessed: July 9, 2009).
- Hambleton, I.R., K. Clarke, H.L. Broome, H.S. Fraser, F. Brathwaite and A.J. Hennis, 2005. Historical and current predictors of self-reported health status among elderly persons in Barbados. *Revista Panamericana de salud Pública*, 17: 342-352.
- Harris, P.R. and O.R. Jr. Lightsey, 2005. Constructive thinking as a mediator of the relationship between extraversion, neuroticism, and subjective wellbeing. *Eur. J. Personal.*, 19: 409-426.
- Huppert, F., 2006. Positive Emotions and Cognition: Developmental Neuroscience and Health Perspectives, In: *Hearts and Minds: Affective Influences on Social Cognition and Behaviour*. J. Forges, (Ed.), Psychology Press, Philadelphia.

- Jackson, M., S. Walker, T. Forrester, J. Cruickshank and R. Wilks, 2003. Social and dietary determinants of body mass index in Jamaican of African. *Eur. J. Clin. Nutr.*, 57: 621-627.
- James, W., 1902. *Varieties of Religious Experience*. New York: Mentor.
- Kart, C.S., 1990. The Realities of Aging. In: *An Introduction to Gerontology*, 3rd Edn. Boston: Allyn and Bacon.
- Kahneman, D. and J. Riis, 2005. Living, and Thinking about it, Two Perspectives, In: *The Science of Wellbeing*. F.A. Huppert, B. Kaverne, and N. Baylis, (Eds.), Oxford University Press.
- Kashdan, T.B., 2004. The assessment of subjective wellbeing (issues raised by the Oxford Happiness Questionnaire). *Personal. Indivi. Differ.*, 36: 1225-1232.
- Katz, S., T.D. Downs, H.R. Cash and R.C. Grotz, 1970. Progress in development of the index of ADL. *The Gerontologist*, 10: 20-30.
- Katz, S., A.B. Ford, R.W. Moskowitz, B.A. Jackson and M.W. Jaffe, 1993. Studies of illness in the ages. The index of ADL: standardized measure of biological and psychosocial function. *JAMA*, 185(12): 914-919.
- Lawton, M.P., and E.M. Brody, 1969. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist*, 9: 179-86.
- Layard, R., 2006. *Happiness: Lessons from a New Science*, Penguin, London.
- Leung, B.W., G.B. Moneta and C. McBride-Chang, 2005. Think positively and feel positively: Optimism and life satisfaction in late life. *Int. J. Aging Hum. Develop.*, 61: 335-365.
- Lima, M.L. and R. Nova, 2006. So far so good: Subjective and social wellbeing in Portugal and Europe. *Portuguese J. Soc. Sci.*, 5: 55-33.
- Lynch, S.M., 2003. Cohort and Life-course patterns in the relationship between education and health: A hierarchical approach. *Demography*, 40: 309-331.
- Lyubomirsky, S., L. King and E. Diener, 2005. The benefits of frequent positive affect: Does happiness lead to success? *Psychol. Bull.*, 6: 803-855.
- Lyubomirsky, S., 2001. Why are some people happier than others? The role of cognitive and motivational process in well-being. *Am. Psychol.*, 56: 239-249.
- McConville, C., E.E. Simpson, G. Rae, A. Polito, Z. Andriollo-Sanchez, N. Meunier, O. Stewart-Knox, J.M. O'Connor, A.M. Boussett, Cuzzolaro and C. Coudray, 2005. Positive and negative mood in the elderly: the Zenith study. *Eur. J. Clin. Nutr.*, 59: 22.
- McCullough, M.E., C.G. Bellah, S.D. Kilpatrick and J.L. Johnson, 2001. Vengefulness: Relationships with forgiveness, rumination, wellbeing, and the big five. *Personal. Soc. Psychol. Bull.*, 27: 601-610.
- Mahon, N.E., A. Yarcheski, Rutgers and T. Yarcheski, 2005. Happiness as related to gender and health in Early Adolescents. *Clin. Nurs. Res.*, 14: 175-190.
- Mroczek, D.K. and A.III. Spiro, (2005). Change in Life Satisfaction During Adulthood: Findings From the Veterans Affairs Normative Aging Study. *J. Personal. Soc. Psychol.*, 8: 189-202.
- Michalos, A.C., B.D. Zumbo and A. Hubley, 2002. Health and the quality of life. *Soc. Indic. Res.*, 51: 245-286.
- Netuveli, G., R.D. Wiggins, Z. Hildon, S.M. Montgomery and D. Blane. 2006. Quality of life at older ages: evidence form the English longitudinal study on aging (wave 1). *J. Epidemiol. Commun. Health.*, 60: 357-371.
- O'Donnell, V. and H. Tait, 2003. Wellbeing of the non-reserves Aboriginal population. *Statistics Canada Catalogue*, pp: 89-589.
- Prause, W., B. Saletu, G.G. Tribl, A. Rieder, A. Rosengerger, J. Bolitschek, B. Holzinger, G. Kaplhammer, H. Datschning, M. Kunze, R. Popovic, E. Graetzhofer, and J. Zeitlhofer, 2005. Effects of socio-demographic variables on health-related quality of life determined by the quality of life index-German version. *Hum. Psychopharm. Clin.*, 20: 359-365.
- Pressman, S.D., and S. Cohen, 2005. Does positive affect influence health? *Psychol. Bull.*, 131: 925-971.
- Ringen, S., 1995. Wellbeing, measurement, and preferences. *Scand. Sociol. Assoc.*, 38: 3-15.
- Schwarz, N., and F. Strack, 1999. Reports of subjective well-being: judgmental processes and their methodological implications. In: *Well-being: The Foundations of Hedonic Psychology*. D. Kahneman, E. Diener, and N. Schwarz, (Eds.), Russell Sage Foundation: New York, pp: 61-84.
- Seligman, M.P., and M. Csikszentmihalyi, 2000. Positive psychology: an introduction. *Am. Psychol.*, 55: 5-14.
- Selim, S., 2008. Life satisfaction and happiness in Turkey. *Soc. Indic. Res.*, 88: 531-562.
- Sheldon, K., and S. Lyubomirsky, 2006. How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *J. Positive Psychol.*, 1: 73-82.
- Siahpush, M., M. Spittal, and G.K. Singh, 2008. Happiness and life satisfaction prospectively predict self-rated health, physical health, and the presence of limiting, long-term health conditions. *Am. J. Health Promot.*, 23: 18-26.
- Smith, D.M., K.M. Langa, M.U. Kabeto, and P.A. Ubel, 2005. Health, wealth, and happiness financial resources buffer subjective well-being after the onset of a disability. *Am. Psychol. Soc.*, 16: 663-666.
- Smith, J.P., and R. Kington, 1997. Demographic and economic correlates of health in old age. *Demography*, 34: 159-170.

- Statistical Institute of Jamaica (STATIN), 2004. Population Census 2001 (Vol: 8): Marital and Union Status. Kingston, Jamaica. Statistical Institute of Jamaica.
- Statistical Institute of Jamaica (STATIN), 2008. Jamaica Survey of Living Conditions, 2007. Planning Institute of Jamaica (PIOJ), STATIN.
- Step toe, A., K. O'Donnell, M. Marmot, and J. Wardle, 2008. Positive affect and psychosocial processes related to health. *Br. J. Psychol.*, 99: 211-217.
- Stutzer, A, and B.S. Frey, 2003. Reported subjective well being: A challenge for economic theory and economic policy. <http://www.crema-research.ch/papers/2003-07.pdf> (Accessed: April 5, 2009).
- Veenhoven, R., 1993. Happiness in nations, subjective appreciation of in 56 nations 1946-1992. Rotterdam, Netherlands: Erasmus University.
- Watson, D., *et al.*, 1999. The two general activation systems of affect: Structural findings, evolutionary considerations, and psychobiological evidence. *J. Personal. Soc. Psychol.*, 76: 820-838.
- Watson, D., L.A. Clark, and A. Tellegen, 1988a. Development and validation of brief measures of positive and negative affect: The PANAS Scale. *J. Personal. Soc. Psychol.*, 54: 1063-1070.
- Watson, D., L.A. Clark, and A. Tellegen, 1988b. Positive and negative affectivity and their relation to anxiety and depressive disorders. *J. Abnorm. Psychol.*, 97: 346-353.
- Wilks, R., 2007. Hypertension in the Jamaican population. A presentation to the Trinidad and Tobago national consultation on chronic non-communicable diseases. [http://www.health.gov.tt/applicationloader.asp?app=doc\\_lib\\_details&id=28&hilit e=wilks](http://www.health.gov.tt/applicationloader.asp?app=doc_lib_details&id=28&hilit e=wilks) (Accessed: May 19, 2008)
- Yi, Z., and J.W. Vaupel, 2002. Functional capacity and self-evaluation of health and life of oldest old in China. *J. Soc. Issues.*, 58: 733-748.