

## **Good Health Status of Rural Women in the Reproductive Ages**

Paul Andrew Bourne, Joan Rhule

Corresponding author: paulbourne1@yahoo.com

Correspondence concerning this article should be address to Paul A Bourne, Research Fellow, Department of Community Health and Psychiatry, Faculty of Medical Sciences, the University of the West Indies, Mona, Kingston 7, St. Andrew, Jamaica, West Indies.

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## Good Health Status of Rural Women in the Reproductive Ages

**Paul Andrew Bourne** (Dip Ed, BSc, MSc, PhD candidate)  
Department of Community Health and Psychiatry  
Faculty of Medical Sciences  
University of the West Indies, Jamaica  
Email: [paulbourne1@yahoo.com](mailto:paulbourne1@yahoo.com)

**Joan Rhule** (Dip Ed, BA, MA, PhD candidate)  
Department of Community Health and Psychiatry  
Faculty of Medical Sciences  
University of the West Indies, Jamaica  
Email: [missjay\\_pat@yahoo.com](mailto:missjay_pat@yahoo.com)

### Abstract

**Background:** Women are traditionally over represented among the poor and therefore in the long run, have less access to remuneration and health resources, including health insurance and social security services. Women are disadvantaged on some fundamental economic indicators such as unemployment and access to economic resources. In 2007 in Jamaica, for instance among the 124 500 unemployed persons in the labour force, 65.4 % were women (Planning Institute of Jamaica, 2008). Thus, women's health and the control that they can exercise over resources are key factors in achieving effectiveness, efficiency, and sustainability in health interventions.

**Aims and Objectives:** This study examined the good health status of rural women in the reproductive ages of 15 to 49 years. Having extensively reviewed the literature, this paper is the first study of its kind in Jamaica and will provide pertinent information on this cohort for the purpose of public health planning.

**Method/Study Design:** The current research extracted a sample of 3 450 respondents who indicated that they were rural women ages 15 to 49 years. This sample was taken from a national cross-sectional survey from the 14 parishes in Jamaica. The survey used a stratified random probability sampling technique to draw the original 25 018 respondents. The non-response rate for the survey was 29.7%. Descriptive statistics were used to provide background information on the sample and logistic regression was used to establish a good health model.

**Results/Findings:** Using logistic regression analyses, 6 variables emerged as statistically significant predictors of current good health status of rural women (i.e. ages 15 to 49 years) in Jamaica. These are social standing (two wealthiest quintile – OR=0.524, 95%CI: 0.350,0.785); marital status (separated, divorced or widowed – OR=0.382, 95%CI: 0.147, 0.991); health insurance (OR=0.041, 95%CI: 0.024, 0.069); negative affective psychological conditions (OR=0.951, 95%CI:0.704, 1.284); asset ownership (OR=1.089, 95%CI:1.015, 1.168) and age of respondents (OR=0.965, 95%CI:0.949, 0.982).

**Conclusion:** Poverty is synonymous with rural area and women, and in spite of this reality, majority of rural women in Jamaica ages 15 to 49 years reported current good health status. Wealth creates more access to financial and other resources, and makes a difference in nutritional intake, water and food quality as well as an explanation for better environmental conditions. In this study, wealth did not mean better health but that poor women had greater health status than their wealthy counterparts. Another interesting finding was that good health is inversely correlated with the ownership of health insurance coverage.

**Keywords:** Health status, good health status, rural women, Jamaica

## **Introduction**

Many studies have shown that there is a statistical relationship between health status and poverty (Murray, 2006; Marmot, 2002; Muller & Krawinkel, 2005; Bloom & Canning, 2003; Smith & Waitzman, 1994), standard of living (Pacione, 2003; Bourne, 2007a, 2007b), and other socio-economic determinants (Grossman, 1972; Smith & Kington 1997; Bourne, 2009; Bourne & McGrowder, 2009; PAHO & WHO, 2007; Casas et al., 2001, Benzeval et al, 2001). According to Abel-Smith (1994), the influence of income on health decreases as the society shifts from lowers to higher levels of income. And this is in keeping with the findings that show an inverse relationship between income of a country and levels of mortality, and the reverse is equally true (Abel-Smith, 1994; Matsaganis, 1992). Other scholars have refined this association when they opined that it is inequalities of income within a country that explains higher mortality and not mere income (Cochrane et al, 1978). The use of mortality to assess health is primary because this is easily measurable, unlike the use of morbidity which is a minimalist's approach to the study of health (Grossman, 1972); but the latter still does not capture quality life expectancy and so is the former measure. The emphasis on income to provide explanation for health status without in cooperating sanitation, education and lifestyle practices (Bourne, 2007a, 2007b; Hambleton et al, 2005), water and (Abel-Smith, 1994), health care does not provide the core rationale for the health status of a population as the determinants of health covering, social, economic, psychological, environmental, and biological conditions.

In many societies across the world, poverty is rural and gender specific. Poverty is more than just the lack of income (i.e. low income) as it includes the lack of access to services, resources and skills, vulnerability, insecurity and powerlessness. There is another result of poverty which has a multiple effect on the economy, and that is poor health conditions owing to malnutrition, low water quality, non-access to primary health care and food insecurity. According to the WHO (2005), 80% of chronic illnesses were in low and middle income countries, suggesting that illness interfaces with poverty and vice versa. A study by Bourne & McGrowder (2009), using 2-decade of data on unemployment, self-reported and health-care-seeking behavior of Jamaicans (from 1988-2007), found that there was a positive correlation between poverty and unemployment; poverty and illness; and crime and unemployment. Understanding poverty is an insight to examining ill-health. PAHO (2001; 5) stated that "The relationship between poverty and ill health has been known for centuries..." and went further to state that poverty is a significant cause of diseases, suggesting that any study of health in developing countries must include this phenomenon.

In Jamaica, poverty is substantially a rural and gender phenomenon. Statistics from the Planning Institute of Jamaica and the Statistical Institute of Jamaica (PIOJ & STATIN, 2008) revealed that in 1997, 19.9% of Jamaicans were poor. Of this figure, 73.3% was in rural areas; 13.1% in semi-urban zones and 13.6% in urban areas. One decade later (ie 2007), the prevalence of poverty fell to 9.9% of which 71.3% was in rural areas, 8.9% in semi-urban and 19.9% in urban zones. In the same year (ie 2007), 11.1% of persons living in female-headed households were classified as poor compared to 8.6% of those residing in male-headed household. Poverty is not only rural as there has been a rising in its levels in urban areas. The survey determined the poverty line was US\$ 1,070.32 per year (US \$2.92 per day) for an individual and US\$ 4045.29 per year for a family of five (US \$2.22 per person per day). The Jamaica Survey of Living Conditions (2002) indicated that the wealthiest 20% of the population accounted for 45.9% of national consumption while the poorest 20% accounted for only 6.1% of national consumption. On average, the wealthiest 10% of the population

consumed approximately 12.5 times more than the poorest 10%. This is a mean per capita annual consumption expenditure of US\$ 3963.53 compared to US\$314.48. Jamaica is not atypical in having poor people or having to address the predominance of this rural phenomenon. The World Bank (1996) estimated that in 1996, 38% of the total population (or 25% including Haiti) in the Caribbean or more than seven million people to be poor. In this study 46% of sample was poor (i.e. classified as in the two poorest income quintile), and so poverty plays a critical role in this paper.

According to Bourne (2008), in 1880 to 1882, life expectancy at birth for men was 37.02 years and 39.80 years for women with the gap between sexes widening to 5.81 years (71.26 for men and 77.07 for women). Despite the high life expectancy of women in Jamaica which is comparable to that of many developed nations (United Nations, 2002), people with lower socioeconomic status have worse health in all adult age groups, including older ages (House et al, 2005). Reduced capacity to generate income and the growing risk of illness increase the vulnerability of the elderly to poverty, regardless of their original economic status, in developing and industrialized countries (Lloyd-Sherlock, 2000). Poverty, therefore, is age, area and gender specific.

Women are traditionally overrepresented among the poor and therefore in the long run, have less access to remuneration and health resources, including health insurance and social security services. Women are disadvantaged on some fundamental economic indicators such as unemployment and access to economic resources. In 2007 in Jamaica, for instance among the 124 500 unemployed persons in the labor force, 65.4 % were women (Planning Institute of Jamaica, 2008). Thus, women's health and the control that they can exercise over resources are key factors in achieving effectiveness, efficiency, and sustainability in health interventions.

According to Marmot (2002), poverty accounts for poor nutrition and physical milieu, deprivation from material resources and further explains the higher levels of health conditions of those that are therein. The WHO (2005) concurs with Marmot as it opined that poverty explains chronic illness and premature death. Women are more likely to be poor, unemployed and have lower material wealth compared to men. Like the WHO (2005), Marmot (2002) and Abel-Smith (1997) showed the health challenges of being poor and by extension female. It therefore suggests that study of health status and women must include not only poverty but other socio-demographic variables.

Poverty is substantially more than income poverty; it is the denial of choices and opportunities for living a tolerable life (UNDP, 1997). Over the past two to three decades, our understanding of poverty has broadened from a narrow focus on income and consumption to a multi-dimensional notion of education, health, social and political participation, personal security and freedom, and environmental quality. Hence, those socio-economic factors not only explain poverty they influence health status for the individual, household, society, country and world.

Health which is more than the absence of diseases (WHO, 1948) suggests that people are multi-dimensional and any study of their health status must incorporate the environment (Pacione, 2), income (Grossman, 1972; Smith & Kingston, 1997; Bourne, 2009). The WHO has endorsed the evaluation of social determinants in any examination of health status (WHO, 2008; Kelly et al. 2007). It is the social determinants (i.e. non-biological factors) which produce the inequality in income, health and regards health development. Hence, addressing those determinants account for a percentage of health status (Hambleton et al. 2005). In a study of elderly Barbadians, Hambleton et al. (2005) found that biological conditions

accounted for 67.5% of health status of sample. This indicates that the social determinants are equally important in the examination of health status (they account for 32.5% of the explanatory power of health status).

Concomitantly, Hambleton et al.'s work reveals that there was a statistical causal relationship between socioeconomic conditions and the health status of Barbadians. The findings reveal that 5.2% of the variation in reported health status was explained by the traditional determinants of health. Furthermore, when this was controlled for current experiences, this percent fell to 3.2% (falling by 2%). When the current set of socioeconomic conditions were used they accounted for some 4.1% of the variation in health status, while 7.1% were due to lifestyle practices compared to 33.5% (out of 38.2%) that was as a result of current diseases (see Hambleton et al. 2005). It holds that importance placed by medical practitioners on the current illnesses – as an indicator of health status – is not unfounded as people place more value on biomedical conditions as responsible for their current health status.

Diener (1984, 2000) and others (Idler & Benyamini 1997; Idler & Kasl, 1999) have showed that wellbeing, happiness or health status is equally good to measure health or subjective wellbeing. Economists like Grossman (1972) and Smith & Kington (1997) have used self-reported health status in evaluating health of people. Hence, self-reported health status (health status) is widely accepted in health literature as a measure of the state of one's health. In this study, data were not collected on health status but on health conditions. The sample was asked to state whether they have an illness or not, and if they do what were the typology of health conditions. For this paper the researcher used good health status to indicate not reported a health condition and poor health to indicate at least one reported health condition. Self-reported ill-health is not an ideal indicator of actual health conditions because people may underreport; however, it is still an accurate proxy of ill-health and mortality (Idler & Kasl, 1991; Idler & Benyamini, 1997).

The reason for the importance of health conditions (illness) is simply that a healthy population holds the key to development. It is within this framework that a study of health is required to examine the factors that determine health status of women in the reproductive years of 15 to 49 years. It is clear from the review of the literature that health is influenced by income and other social factors. A literature search revealed that no study existing in the Caribbean, in particular Jamaica has sought to examine factors that determine the health status of rural women in the reproductive ages of 15 to 49 years. This is the first research of its type in the Caribbean and in particular Jamaica. It provides an insight into the factors that determine self-reported health status of women in ages 15 to 49 years, and this can now be used to guide public health policy. Hence, the purposes of this study are to (i) examine the good health status of women in the reproductive ages, (ii) model socio-economic determinants of good health status of women in the reproductive ages, and (iii) provide public health policy makers with research information on this cohort for better policies design in the future.

## **Methods**

### ***Participants and questionnaire***

The current research extracted a sample of 3 450 respondents who indicated that they were rural women ages 15 to 49 years. This sample was taken from a national cross-sectional survey from the 14 parishes in Jamaica. The survey used a stratified random probability sampling technique to draw the original 25 018 respondents. The non-response rate for the survey was 29.7%. The study used secondary cross-sectional data from the Statistical

Institute of Jamaica (2003) (ie Jamaica Survey of Living Conditions or JSLC). The JSLC was commissioned by the Planning Institute of Jamaica and the Statistical Institute of Jamaica. These two organizations are responsible for planning, data collection and policy guidelines for Jamaica.

The JSLC is a self-administered questionnaire, where respondents are asked to recall detailed information on particular activities. This information was collected by trained interviewers from the Statistical Institute of Jamaica. The questionnaire covers demographic variables, health, immunization of children 0–59 months, education, daily expenses, non-food consumption expenditure, housing conditions, inventory of durable goods and social assistance. Interviewers are trained to collect the data from household members. The survey is conducted between April and July annually.

### **Model**

The multivariate model used in this study (a modification of Bourne and McGrowder's health status model) captures a multi-dimensional concept of health and health status. It is fundamentally different from that of Bourne and McGrowder's model (2009) as it is gender (women) and age specific (15 to 49 years), and a number of new variables were included such as social standing; crime and pregnancy. Hence, the proposed model that this research seeks to evaluate is displayed (Eqn (2)):

$$H_t = f(\ln P_{mc}, ED_i, R_t, HI_i, HT_i, X_i, CR_i, (\sum NP_i, PP_i), M_i, F_i, N_i, A_i, \varepsilon_i) \quad [1]$$

Where the current good health status of a rural resident,  $H_t$ , is a function of 12 explanatory variables, where  $H_t$  is current good health status of person  $i$ , if good or above (ie no reported health conditions in the 4 weeks leading up to the survey period to trained interviewers from the Statistical Institute of Jamaica), 0 if poor (ie at least one health condition reported to trained interviewers from the Statistical Institute of Jamaica);  $\ln P_{mc}$  is the logged cost of medical care of person  $i$ ;  $ED_i$  is the educational level of person  $i$ , 1 if secondary, 1 if tertiary and the reference group is primary and below;  $R_t$  is the retirement income of person  $i$ , 1 if receiving private and/or government pension, 0 if otherwise;  $HI_i$  is the health insurance coverage of person  $i$ , 1 if they have a health insurance policy, 0 if otherwise;  $HT_i$  is the house tenure of person  $i$ , 1 if rent, 0 if squatted;  $X_i$  is the gender of person  $i$ , 1 if female, 0 if male;  $CR_i$  is crowding in the household of person  $i$ ;  $(\sum_{i=1}^2 NP_i, PP_i)$   $NP_i$  is the sum of all negative affective psychological conditions, and  $PP_i$  is the sum of all positive affective psychological conditions;  $M_i$  is the number of males in the household of person  $i$  and  $F_i$  is the number of females in the household of person  $i$ ;  $A_i$  is the age of the person  $i$  and  $N_i$  is the number of children in the household of person  $i$ ;  $LL_i$  is the living arrangements, where 1 = living with family members or relatives, and 0 = otherwise.

Variables were identified from the literature, using the principle of parsimony. Only those explanatory variables that are statistically significant ( $p < 0.05$ ) were used in the final model to predict current health status of Jamaican women in the reproductive ages of 15 to 49 years. Here, the final model that accounted for self-reported good health of Jamaican women in the reproductive years of 15 to 49 years is expressed in Eqn. [2].

$$H_t = f(W_i, MR_i, HI_i, NP_i, D_i, A_i, \varepsilon_i) \quad [2]$$

The current good health status of Jamaican women in the reproductive ages of 15 to 49 years,  $H_i$ , is a function of social standing of individual  $i$ ,  $W_i$ ; marital status of individual  $i$ ,  $MR_i$ ; health insurance of person  $i$ ,  $HI_i$ ;  $NP_i$  is negative affective psychological conditions of person  $i$ ;  $D_i$  is total number of durable goods owned by individual  $i$  (excluding property and land) and  $A_i$  is the age of the person  $i$ .

### ***Measures***

An explanation of some of the variables in the model is provided here. Health status is a dummy variable, where 1 (good health) = not reporting an ailment or dysfunction or illness in the last 4 weeks, which was the survey period; 0 (poor health) if there were no self-reported ailments, injuries or illnesses. While self-reported ill-health is not an ideal indicator of actual health conditions because people may underreport, it is still an accurate proxy of ill-health and mortality (Idler & Kasl, 1991; Idler & Benyamini, 1997). Social supports (or networks) denote different social networks with which the individual is involved (1 = membership of and/or visits to civic organizations or having friends who visit one's home or with whom one is able to network, 0 = otherwise). Psychological conditions determine the psychological state of an individual, and this is subdivided into positive and negative affective psychological conditions (Diener, 2000; Harris & Lightsey, 2005) Positive affective psychological condition is the number of responses with regard to being hopeful, optimistic about the future and life in general. Negative affective psychological condition is the number of responses from a person on having lost a breadwinner and/or family member, having lost property, being made redundant or failing to meet household and other obligations. Per capita income quintile was used to measure social standing. Poor (ie lower class) were all the individuals classified as in poorest and poor quintiles (ie quintiles 1 and 2); middle class were those classified as in quintiles 3 and wealth (upper classes) were those classified in quintiles 4 and 5 (quintile 5 being the wealthiest income quintile).

### ***Statistical analysis***

Statistical analyses were performed using the Statistical Packages for the Social Sciences v 16.0 (SPSS Inc; Chicago, IL, USA) for Widows. Descriptive statistics included frequency; mean and standard deviation were used to provide background information on the sample. A single hypothesis was tested, which was: the health status of rural residents is a function of demographic, social, psychological and economic variables. The enter method in logistic regression was used to test the hypothesis in order to determine those factors that influence the health status of rural residents. The logistic regression used as dependent variable was binary. The final model was based on those variables that were statistically significant ( $p < 0.05$ ), and all other variables were removed from the final model ( $p > 0.05$ ). Categorical variables were coded using the 'dummy coding' scheme.

The predictive power of the model was tested using the 'omnibus test of model' and Hosmer and Lemeshow's (2000) technique to examine the model's goodness of fit. The correlation matrix was examined in order to ascertain whether autocorrelation (or multi-collinearity) existed between variables. Cohen and Holliday (1982) stated that correlation can be low/weak (0–0.39); moderate (0.4–0.69), or strong (0.7–1). This was used in the present study to exclude (or allow) a variable. Finally, Wald statistics were used to determine the magnitude (or contribution) of each statistically significant variable in comparison with the others, and the odds ratio (OR) for interpreting each of the significant variables.



**Results: Demographic Characteristics of sample**

Of the sampled respondents (n=3,450), 84.7% reported good health; 3.3% were pregnant; 89.6% had secondary level education; 20.1% were married; 78.6% were never married; 5.5% had private health insurance coverage; 58.3% were owners of lands; 40.1% had some form of social support; mean age was 29.7 years (SD=9.9 years); 45.7% belonged to the two poorest quintiles compared to 34.1% who were classified in the two wealthiest quintiles and 49.6% visited a public hospital or public health care establishment in the 4-week period of the survey (Table 1). On an average, there were 2 persons per household (SD=1 person), with average medical expenditure being US \$26.37 (SD= US\$40.81).

Of the 15.3% of the sample that indicated poor current health status, 69.3% reported being diagnosed with (chronic) recurring illness. Marginally, more of those who reported being diagnosed with a recurring ailment had hypertension (36.4%); 31.8% did not specify the condition; 22.7% indicated arthritis and 9.1% claimed diabetes mellitus. When those who mentioned having a recurring dysfunction were asked about the length of the last attack, the median number of days was 7 days. They also indicated that 3 days were the median number of days that prevented them from carrying out their normal activities.

**Table 1: Demographic characteristic of sample**

	Number	Percent
Current Health Status:		
Poor	511	15.3
Good	2832	84.7
Pregnant:		
No	3143	96.7
Yes	106	3.3
Social Support:		
No	2065	59.9
Yes	1385	40.1
Educational Level:		
Primary or below	151	5.3
Secondary or post-secondary	2574	89.6
Tertiary	149	5.2
Visits to:		
Public hospital or establishment	122	49.6
Private hospital or establishment	124	50.4
Social Standing (ie per capita Income quintile):		
1=Poorest	768	22.3
2	808	23.4
3	698	20.2
4	707	20.5
5=Wealthiest	469	13.6
Marital status:		
Married	665	20.1
Never married	2605	78.6
Divorced/Separated/Widowed	45	1.3
Health Insurance:		

No	3138	94.5
Yes	183	5.5
Land Ownership:		
No	1025	41.7
Yes	1432	58.3
Age (Mean ± SD)	29.7 ± 9.9	
Crowding (Mean ± SD)	2.1 ± 1.3	
Average Annual Consumption per household (Mean ± SD):		
†Ja. \$30,216.64± Ja.\$39,095.35; (Minimum: Ja.\$1,546 to maximum: Ja.\$1,876,821)		
Medical Expenditure (Mean ± SD)	†Ja.\$1,344.22 ± Ja.\$2,079.87	

†Ja \$50.97 = 1 US\$

Disaggregating current good health status of the sample by pregnancy or no pregnancy revealed that there is no statistical difference between the two groups ( $p=0.356$ ). Approximately 85% of the sample reported good current health status compared to 83% of the women who were pregnant and 85% for those who were not pregnant (Table 2).

**Table 2: Current Health Status by Pregnancy Status**

Health status	Pregnancy Status		Total n (%)
	Not pregnant n (%)	Pregnant n (%)	
Poor	480 (15.3)	18 (17.0)	498 (15.3)
Good	2663 (84.7)	88 (83.0)	2751 (84.7)
Total	3143	106	3249

$\chi^2 (1) = 0.231, p=0.356$

A cross tabulation between reported recurring illness and per capita population quintile revealed a statistical correlation ( $p=0.030$ ) (Table 3). Self-reported diabetes mellitus was reported as illness of wealthy rural women in the reproductive ages of 15 to 49 years (24% for quintile 4 and 25% for quintile 5). Table 3 showed that 42% of those in quintile 2 who reported a recurring illness had hypertension, 50% of those in quintile 3 and 75% of the wealthiest quintile. Self-reported arthritis was greater in the wealthy quintile (76%) compared to 28.6% for those in quintile 2. Substantially, more rural women in the reproductive ages of 15 to 49 years reported an unspecified illness (100%) compared to 28.6% of those in the poor quintile and 50% of those in the middle income quintile.

**Table 3: Recurring Illness by Per capita Population Quintile**

Recurring Illness	Per Capita Population Quintile					Total n (%)
	1=poorest n (%)	2 n (%)	3 n (%)	4 n (%)	5=wealthiest n (%)	
Diabetes mellitus	0 (0.0)	0 (0.0)	0 (0.0)	16 (24.0)	17 (25.0)	33 (9.1)
Hypertension	0 (0.0)	49 (42.0)	33 (50.0)	0 (0.0)	50 (75.0)	132 (36.4)
Arthritis	0 (0.0)	33 (28.6)	0 (0.0)	50 (76.0)	0 (0.0)	83 (22.7)
Unspecified	50(100.0)	33 (28.6)	33 (50.0)	0 (0.0)	0 (0.0)	116 (31.8)
Total	50	115	66	66	67	22

$\chi^2 (12) = 22.755, p = 0.030$

There is a statistical correlation between visits to the type of health care facilities and social standing of rural women in the reproductive ages of 15 to 49 years ( $\chi^2 (4) = 22.993, p < 0.001$ ). Three times more of the poorest respondents visited public health care establishment than private health care facilities in comparison to 3 times more of the wealthiest who attended private than public health care establishment for health care visits (Table 4). Here table 4 showed that as one's social standing increases from poorest to wealthiest, they switch from the usage of public to private health care facilities.

**Table 4: Visits to Private or Public Health Care Establishment by Social Standing**

Visits to health care establishment	Per Capita Population Quintile					Total n (%)
	1=Poorest n (%)	2.00 n (%)	3.00 n (%)	4.00 n (%)	5.00=Wealthiest n (%)	
Private	13 (26.0)	28 (45.9)	19 (50.0)	37 (61.7)	27 (73.0)	124 (50.4)
Public	37 (74.0)	33 (54.1)	19 (50.0)	23 (38.3)	10 (27.0)	122 (49.6)

Count	50	61	38	60	37	246
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$\chi^2(4) = 22.993, p < 0.001$

### Results: Multivariate Regression

Using logistic regression analyses, 6 variables emerged as statistically significant predictors of current good health status of rural women (ie. ages 15 to 49 years) in Jamaica (Table 5). These are social standing (two wealthiest quintile – OR=0.524, 95%CI: 0.350,0.785); marital status (separated, divorced or widowed – OR=0.382, 95%CI: 0.147, 0.991); health insurance (OR=0.041, 95%CI: 0.024, 0.069); negative affective psychological conditions (OR=0.951, 95%CI:0.704, 1.284); asset ownership (OR=1.089, 95%CI:1.015, 1.168) and age of respondents (OR=0.965, 95%CI:0.949, 0.982). Controlling for the effect of other variables, the average likelihood of reporting good health increased by nearly 5 times.

Further examination of the model (i.e. Equation (2)) revealed that this had a significant predictive power (model  $\chi^2 = 259.945, p < 0.001$ ; Hosmer and Lemeshow's goodness of fit  $\chi^2 = 9.649, p = 0.71$ ; Nagelkerke  $R^2 = 0.320$  or 32.0%) and correctly classified 87.1% of the sample (correctly classified 98.5% of those who reported good health and 26.2% of those who indicated poor health status). The logistic regression model can be written as:  $\text{Log}(\text{probability of good health/probability of not good health}) = 3.131 - 0.645 (\text{two health quintiles}) - 0.964 (\text{Separated, Divorced or widowed}) - 3.195 (\text{Ownership of Health Insurance Coverage}) - 0.057 (\text{Negative Affective psychological conditions score}) + 0.085 (\text{Asset ownership score}) - 0.035 (\text{Age})$ .

**Table 5: Logistic Regression of Good Health Status of Women in the Reproductive Ages**

Variable	Coefficient t	Std Error	Odds Ratio	95.0% C.I.
				Lower, Upper
Middle Quintile	-0.177	0.207	0.838	0.558, 1.258
Two Wealthiest Quintiles	-0.645	0.206	0.524	0.350, 0.785**
†Poorest quintile				
Log HealthCare Cost	0.000	0.000	1.000	1.000, 1.000
Separated, Divorced or Widowed	-0.964	0.487	0.382	0.147, 0.991*
Married	-0.037	0.177	0.964	0.681, 1.364
†Single				
Health Insurance	-3.195	0.267	0.041	0.024, 0.069***
Physical environment	0.112	0.166	1.118	0.807, 1.549
Social support	-0.046	0.148	0.956	0.715, 1.277
Secondary schooling	-0.062	0.314	0.940	0.508, 1.741
Tertiary schooling	0.184	0.461	1.201	0.487, 2.966
†Primary and below				
Living arrangement	0.069	0.564	1.071	0.355, 3.234
Crowding	-0.077	0.062	0.926	0.820, 1.046
Crime Index	0.001	0.008	1.001	0.985, 1.017
Landownership	-0.051	0.153	0.951	0.704, 1.284
Negative Affective	-0.057	0.024	0.945	0.902, 0.990*
Positive Affective	0.007	0.033	1.007	0.945, 1.074

Asset ownership (exclude land)	0.085	0.036	1.089	1.015, 1.168*
Age	-0.035	0.009	0.965	0.949, 0.982***
Dummy pregnant	-0.072	0.425	0.931	0.405, 2.141
Household Head	0.430	0.485	1.537	0.594, 3.976
Average Income per head	0.000	0.000	1.000	1.000, 1.000
House tenure (rented)	-2.095	1.801	0.123	0.004, 4.197
House tenure (owned)	-0.036	1.092	0.965	0.114, 8.198
†House tenure (squatted)				
Constant	3.131	1.304	22.902	-

$\chi^2$  (23) = 259.945,  $p < 0.001$ ;

-2 Log likelihood = 1316.563

Hosmer and Lemeshow goodness of fit  $\chi^2=9.649$ ,  $p = 0.71$

Nagelkerke  $R^2=0.320$

Overall correct classification = 87.1%

Correct classification of cases of good or beyond health status = 98.5%

Correct classification of cases of no dysfunctions = 26.2%

†Reference group

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

## Discussion

The current study found that of the thirteen socio-economic variables that were examined, six of them are predictors of good health status of women in the reproductive ages. These socio-economic determinants are social standing (two wealthiest quintiles); marital status (separated, divorced, widowed); health insurance coverage; psychological condition (negative affective psychological condition); asset ownership and age of respondents. This concurs with the findings of the WHO (2005) that social determinants should be taken into consideration in the study of health status. The predictors of health status are not only socio-economic and biological factors; there are also psychological conditions such as happiness, life satisfaction and affective conditions (Diener, 1984, 2000, Lyubomirsky, 2001; Lyubomirsky & Diener 2005; Frey & Stutzer 2002a, 2002b, 2005; Casas, 2001). Another study (Hambleton et al. 2005) found social, economic and biological factors to be predictors of health status of Barbadian elderly. Continuing, the socio-economic determinants contributed 12% of the explanatory power in Hambleton et al.'s work ( $R^2 = 38.2\%$ ). The explanatory power of this research is 32.0% compared to 38.2% for Hambleton and colleagues' study. Although the r-squared in the current work is lower (0.32) than that in Hambleton et al.'s research, it is still comparatively a good model.

In this research we used people's assessment of their health conditions to evaluate their health status. The use of self-reported health status (ie subjective wellbeing) is well established in research literature as a good measurement for health or subjective wellbeing (Diener, 1984; 2000; Cummins, 2005). Using people's assessment of their life satisfaction and health is old, and has already been resolved. Nevertheless, it will be succinct issues 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 went further when he found a strong correlation between the two variables (Diener, 1984). Gaspart (1998) opined about the difficulty of objective quality of life (GDP per capita) and the need to use self-reported wellbeing in the assessment of the

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) This speaks to the necessity of using a measure that captures more to this multidimensional construct that continues 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 enhance economic wellbeing” (Becker et al, 2004) and that wellbeing depends on both the quality and the quantity of life lived by the individual.

The discourse of subjective wellbeing using survey data cannot deny that it is based on the person’s judgments, and must be prone to systematic and non-systematic biases (Frey & Stutzer, 2005). Diener, an early survey wrote that “[the] measures seem to contain substantial amounts of valid variance” (Diener, 1984:551). Self-reported scales do have artifacts or biases such as memory biases and different self-presentational approach among people. Hence, in spite of those limitations, the measure can be used to assess health as it will not be used to evaluate objective health. It is this rationale that explains why a group of economists noted that “happiness or reported subjective well-being is a satisfactory empirical approximation to individual utility” (Frey & Stutzer, 2005) and this justifies its usage in wellbeing (or health) research.

The current research used self-reported health status to examine those factors that determine good health status of rural women in the reproductive ages 15 to 49 years. Unlike a recent study conducted by Bourne and McGrowder (2009) – using a randomly selected sample of 5,683 rural Jamaicans, They found that good health status was predicted by medical expenditure; health insurance; education; house tenure; gender; psychological conditions (i.e. positive and negative affective psychological conditions); typology of household members and age of respondents and retirement income. This study concurred with age; negative affective psychological conditions; health insurance, and added some new factors such as social standing; marital status, and asset ownership. Those socio-economic and psychological factors were also found to be statistical significant in other studies (Grossman, 1972; Smith & Kington, 1997; Hambleton et al. 2005; WHO, 2005).

Bourne and McGrowder’s work showed that 83 out of every 100 rural residents had good health status compared to this study that revealed that 85 out of every 100 rural women (ages 15 to 49 years) reported good health. This study has not only highlighted the current good health status inequality between rural Jamaicans and rural women in the reproductive ages 15 to 49 years in Jamaica, but it showed the health disparity between the typology of variables. Another study conducted by Asnani et al. (2008) found that rural respondents had greater physical and mental health scores than urban dwellers. They also found that the former group self-reported fewer limitations to their daily activities owing to their health conditions. This research went further than the other to find that there was no statistical difference between the self-rated good health status of rural women who were pregnant and those who were not.

In a 2005 publication the WHO found that 80% of chronic illnesses were in low and middle income countries. In the current study 46% of Jamaican women in the reproductive ages were classified as poor or in the poorest income quintile. Fifteen percent of the sample indicated poor health status (having at least one health condition) which is greater than the number of Jamaicans who reported ill in the same period (2002). The percentage of women in the reproductive ages reporting a health condition was also more than the number of females

who indicated having a health condition in the same time. In 2002, 19.7% of Jamaicans were classified as living in poverty while 46% of women in the reproductive ages were classified as in poorest 40% and 22.3% in the poorest 20%. The WHO noted that illness is associated with poverty, and this study concurs with that finding as well as other studies (McCally et al. 1998).

Poverty is among the socio-economic (or non-medical) determinants of health. McCally et al. (1998) noted that 43 out of every 100 children in the developing nations had a lower height for their age and that 50 million of them had low weight. Poverty affects one's capability (Sen, 1979), educational attainment, socio-physical environment, nutrition, income, material possession, choices, level of consumption, availability to purchase health coverage and attend health care, social participation, life expectancy, premature deaths and health conditions. Like McCally et al. (1998) stated, "A sociologic measure of poverty is concerned not with consumption but with social participation", suggesting the social aspect to this phenomenon and its importance in any socio-economic determinant of health.

The findings of the current research revealed that 36.4% of sample indicated that they were diagnosed hypertension; 22.7% indicated arthritis and 9.1% claimed diabetes mellitus compared to 22.4%, 8.8% and 12% of the population respectively. Poverty is not only associated with more illness (Palmore, 1981); but it is correlated with more lifestyle health conditions. In a paper titled 'Health Disparity in Latin America and the Caribbean', Casas et al. (2001) offered some explanations for more health conditions in the poor. They stated that less access to health services accounted for the greater burden of diseases affecting the poor in Latin America and the Caribbean as well as access to material resources. Another issue which was noted by Casas et al. (2001;38) is fact that women's reproductive system is among the reasons why they seek and utilize more health care services than men, and that they have a greater probability of morbidity over their lifespan than men. Palmore (1981; 24) argued that "One of the most serious consequences of lower socioeconomic status is poor health. It is well known that poorer people in general have poorer health" which is some explanation for more health conditions affecting rural women in the reproductive ages than women of the general population of Jamaica.

In this study, it can be inferred from the data that although poverty is a health hazard, it is non-advantageous for rural women in the reproductive years 15 to 49 years. This is supported by the morbidity data that showed the five leading causes of health conditions in women in Jamaica (heart disease, hypertension, diabetes mellitus, arthritis, and neoplasm cancer), most of those diseases are causes of unhealthy lifestyle practices (Davidson et al, 2002; Jamaica Social Policy Evaluation, 2003). In an article published by CAJANUS, the prevalence rate of diabetes mellitus affecting Jamaicans was higher than in North American and "many European countries" (Callender, 2000:67). Diabetes Mellitus was not the only challenge faced by patients; McCarthy, (2000) argued that between 30 to 60% of diabetics also suffered from depression, which is a psychiatric disorder.

The issue of the lifestyle practices accounted for the health disparity between rural women in the reproductive years of 15 to 49 years and those in the two wealthiest quintiles compared to those in the two poorest quintiles. It is reinforced in the fact that there is no statistical difference between the health status of rural women who were in the two poorest quintiles and those in the middle quintile. In light of the above, the wealth disparity between the two aforementioned groups is narrowed and can aid in the explanation of the health disparity between wealthy and poor rural women in Jamaica. This research showed that hypertension

and diabetes mellitus which are lifestyle causes of non-communicable diseases were higher in the wealthiest quintile than the poorest quintile. An interesting finding was unwillingness of those in the poor to poorest quintile to declare their dysfunction, unlike those in the middle to upper classes. Of the sample, 4 out of every 100 rural women in the reproductive ages 15 to 49 years reported having hypertension, 2 out of every 100 had arthritis, 1 out of every 100 had diabetes mellitus and 3 out of every 100 did not specify their recurring illness.

One of the disparities between the current study and that of Bourne and McGrowder was social standing. In the latter work this variable was not significant, while it is in the former one. The finding in this paper revealed that the odds of self-reported good current health status of those rural women in two wealthiest quintiles were 48% lower than that of the odds of rural women in the two poorest quintiles. This contradicts works that have established the correlation between poverty and health status (Murray, 2006; Marmot, 2002; Muller & Krawinkel, 2005; Bloom & Canning, 2003; Smith & Waitzman, 1994). Marmot (2002) opined that poverty influences health through malnutrition, low water and environmental quality, and the non-access to material resources further validate poor health status. This assumes that wealth accounts for better environmental quality and good health status.

While wealth opens access to financial and/or other materials resources, it is an explanation of poor lifestyle choices. Wealth does not mean that people become more health conscious. Instead, it means access to liquor, cigars, hard drugs, and many excess that are of themselves health hazards. The issue of poor environment is not a disparity for rural areas in Jamaica, as the quality of milieu in those places is relative high. Hence, the health status difference between rural women in the reproductive years of the two wealthiest and two poorest quintiles would be owing to lifestyle practices and access to more financial resources.

Social standing is among the variables that explain health status of rural women in the reproductive years of 15 to 49 years. Another factor is marital status. Studies have shown that a statistical correlation existed between marital status and health status (Moore et al., 1997; Lillard & Panis 1996; Smith & Waitzman 1994; Ross et al., 1990; Cohen & Wills, 1985; Gore 1973). Some studies have shown that married people have a lower mortality risk in the healthy category than the 'nonmarried' (Goldman, 1993), and this justifies why they take less life-threatening risks (Smith & Waitzman, 1994; Umberson, 1987). According to Delbés & Gaymu (2002), "The widowed have a less positive attitude towards life than married people, which is not an unexpected result" (Delbés & Gaymu, 2002, pp. 885-914) explaining why in this study they had a lower good health status than those who were never married.

Using a sample of 1049 Austrians from ages 14 years and over, Prause et al. (2004) found that married individuals had greater subjective health-related quality of life index (8.3 ) than divorced persons (7.6) or singles (7.7). Smock, Manning and Gupta (1999) concurred with Prause et al that there is a direct relationship between married women and economic well-being. Drawing on longitudinal data from the National Survey of Families and Households for 1987-1988 (NSHH1) and a follow-up survey (NSFH2) of some 13, 008, a sample size of 2665 females from 60 years and older was used. Each study had a response rate of approximately 74 % for NSFH1 and 82% for NSFH2. The research revealed that married women had a higher economic well-being than divorced females. It was found that females who were remarried experienced an equally high level of well-being as their married counterparts, which was higher than that experienced by single females.

Notwithstanding the plethora of studies that have shown correlation between married people being healthier, Lillard and Panis (1996, 321) contradicted all those traditional findings when they found that healthier men are less likely to be married; and secondly, that healthier



married men enter into this union later in life and that they do postpone remarriage. Conversely, Lillard and Panis revealed that it is unhealthy men that enter marriage at an early age, which suggest that these men do so because of health reasons (Lillard and Panis 1996, 321, 322). Their survey was in itself not a contradiction, but adds potency to the other studies that marriage offers the benefit of lower mortality and better quality of life. Like Lillard & Panis (1996), we disagreed with the finding that married people are healthier as it was found that there is no significant statistical difference between good health status of non-married women in the reproductive ages and married women.

The current study refutes the aforementioned finding as there was no statistical difference between current health status of married rural women in the reproductive ages of 15 to 49 years and non-married ones. However, in this study, non-married rural women in the reproductive years 15 to 49 years had a greater current health status than those divorced, separated or widowed. Furthermore, the odds of reporting good health status for divorced, separated or widowed rural women in this study was 62% less likely than the odds of reporting good health status of non-married rural women in the current work.

This leads to the next variable, which is health insurance coverage. For this study, health insurance coverage was negatively correlated with good health status which concurs with Bourne and McGrowder's work (2009), and other studies (Wagstaff, 2001; PAHO, 2001). In the current research, the odds of good health for rural women in the reproductive ages 15 to 49 years who had health insurance coverage was 96% less than the odds of good health for rural women who do not have health insurance coverage. This indicates that health insurance coverage aids in health seeking behavior as it lower out of pocket expenditure. According to Wagstaff (2001), 60% of health care cost in Bangladesh is out of pocket reiterating the burden of health care for rural women in the reproductive ages in Jamaica who do not have health insurance. In the pursuit of healthy lifestyle, one of the measures of wellness is health seeking behavior. Health insurance is a curative measure of illness as people hold health plan policies more if they are more likely to be ill than less likely, suggesting that people analyze their health risk and if it is highly likely to become ill, they will hold health insurance and not the vice versa and this is within the context of them being employed and being able to spend for this service out of their income (or wages). Wagstaff (2001:57) argued that many households fall into poverty because of out-of pocket payment for health care, and the other aspect of this would be the premature deaths of many people who are poor.

Age is the next variable which is a predictor of current good health status of rural women in this sample. It is well established in health literature that there is a negative correlation between age and health status (Abel-Smith, 1994; Grossman, 1972; Hambleton et al, 2005; Bourne, 2008; Bourne & McGrowder, 2009) and this also extends to biological studies. The negative association between age and good health status is once again concurred as the current work revealed that the odd of reporting good health status for each additional year of the rural women in the reproductive ages of 15 to 49 years is 3.5% less than the odds of a rural woman who is one year younger.

Another variable that is inversely correlated with good health status was negative affective psychological conditions. Acton & Zodda (2005) aptly summarized these negative affective psychological conditions and they found that "expressed emotion is detrimental to the patient's recovery; it has a high correlation with relapse to many psychiatric disorders" (Acton & Zodda, 2005, pp. 373-399). Studies have revealed that up to 80% of people who

committed suicide had several depressive symptoms (Rhodes et al, 2006). From a 10-year longitudinal study conducted in the United States by Beck et al (Beck et al, 1985) it is further stated that hopelessness was a major predictor of suicidal behavior which was equally concurred by Smyth & MacLachlan (2005). In this study negative affective psychological conditions were operationalized using loss of breadwinners, family members; jobs and general hopelessness of an individual which further explains the negative association between this variable and good health status. Continuing, the odds of reporting good health status based on increased negative affective psychological conditions is 9.8% less than the odds of lowered negative affective psychological conditions for rural women in ages 15 to 49 years. Unlike the other predictors of good health status, asset ownership was the only one that was positively correlated with current good health status for the sampled respondents. The findings revealed that the odds of reporting good health status for those who owned more assets was 8.9% more than for those who owned less assets. This concurs with other studies that showed the direct correlation between asset ownership and health status (Grossman, 1972; Summers & Heston, 1995) and according to Summers & Heston (1995), “The index most commonly used until now to compare countries' material well-being is their GDP<sub>POP</sub> [production of goods and services]” “However, GDP<sub>POP</sub> is an inadequate measure of countries' immediate material well-being, even apart from the general practical and conceptual problems of measuring countries' national outputs” (Summers & Heston, 1995). Generally, from that perspective, the measurement of quality of life is, therefore, highly economic and excludes the psychosocial factors, and if quality of life extends beyond monetary objectification then it includes biological, nutrition, social, cultural, economic and psychological factors. The World Bank went further when it said that women’s health status is influenced by a complex set of biological, social, cultural and psychological variables which are all interrelated (World Bank, 1994).

An interesting finding that is embedded in this research is the quality of the health care institutions in Jamaica. The research showed that those in the poorest quintile had a greater health status than those in the wealthiest quintile, and that those in the poorest quintiles enjoyed the same good health status as those in the middle class (i.e. quintile 3). Given that 46% of the sample was in the poorest social standing and that 74% of those who were in this social standing visited public health care establishment for medical care, then a part of the explanation for the good health status of this group will be owing to the quality of primary health care and public medical health care institution in the society. Within the context that those in the wealthy and wealthiest social standings have a greater access to financial resources, they are both able to visit private health care institutions and spend substantially more on health care than those in the poor social standing. This spending does not translate into better health status, suggesting that income cannot buy better health.

## **Conclusion**

Poverty is synonymous with rural area and women, and in spite of this reality, majority of rural women in Jamaica ages 15 to 49 years have reported good current health status. Wealth creates more access to financial and other resources and makes a difference in nutritional intake, water and food quality as well as an explanation for better environmental conditions. In this study, wealth did not mean better health but that poor women had greater health status than their wealthy counterparts. Another interesting finding was that good health is inversely correlated with the ownership of health insurance coverage, suggesting that Jamaican rural

women (ages 15 to 49 years) do not buy health plans because they are healthy but owing to unhealthy risk factors. Women's health is not merely important because of academic literature; but that it is pivotal to their earning capacity, health of the children and the general household. Hence, understanding women's health is to comprehend its multiple effects on different areas of the family, the household and the nation. Good health in this study can be predicted by 6 factors (social standing, marital status, health insurance, negative affective psychological conditions, assets ownership and age of respondents) this adds more information than voluminous amount of literature on maternal mortality and/or fertility of this age cohort. In keeping with some issues raised in this paper, the researchers recommend that a lifestyle survey be conducted on this age cohort in order to provide pertinent information and direction for public health policy programs.

In summary, non-medical determinants of health are equally important in understanding the health status of women in the reproductive ages in Jamaica and public health practitioners must include these in their planning and programs that are geared towards health promotion in this age-gender and area specific cohort.

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