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Original Research

The role of health status and other variables on Social Networks among late Adult Men

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Abstract

Background: Social networks and the social support that emanate from these networks are important determinants of health status. However, the relationship between social networks and health status of elderly men in Jamaica is an under researched area.
Aims: This study seeks to understand the role of social network in the lives of older men in Jamaica as well as how health, depression, happiness, activities of daily living (ADL), instrumental activities of daily living (IADL) and other variables influence on social networks.
Methods: A 132-item questionnaire that included items, on social network, happiness, health status, ADL and IDL education and other demographic variables was used to collect the data. A multistage sample of 2000 older men 55 years and older from the parish of St. Catherine, Jamaica was used for this study.
Results: The majority of men in the sample have low functional dependence but good health status, and high cognitive functionality. There are five predictors of the role social networks. These predictors are health advice (OR = 2.21, 95%CI: 1.09 - 4.49), functional status (OR = 0.84, 95%CI: 0.71 - 1.00), health plan (OR = 0.02, 95%CI: 0.01 - 0.10), number of siblings alive (brothers - OR = 12.31, 95%CI:3.07 - 49.29; sisters - OR = 0.18, 95%CI: 0.05 - 0.58) and depression (OR = 2.48, 95%CI: 1.29 - 4.78).
Conclusions: This study can provide the bedrock upon which policies and programmes can be designed to aid older men.

INTRODUCTION

The Caribbean has been identified as the most rapidly ageing region in the world. Between 1960 and 1995, its elderly population grew by 76.8% [1] and for 1995 and 2000; the average growth rate was approximately 5.3%. The Region's elderly (i.e. ages 60+ years) has a percentage of total population was 4.3% in 1950 and it is estimated to exponentially rise to 15% by 2020 [1]. In Jamaica, a similar pattern has been observed with a clear and rapidly rising trend in the elderly population [2]. For the period 1879 to 1882, life expectancy at birth for Jamaican males was 37.02 years and 39.80 years for females. There has been a substantial rise in life expectancy of males and females in Jamaica as captured in the statistics for 2002 to 2004 which saw life expectancy being 71.26 and 77.07 years for males and females respectively [2,3]. This is a clear indictor of demographic ageing. Bourne [3] noted that the elderly in Jamaica represents 10% of the population and that they are physically independent, which denotes that there is a need for health status and social networks among the aged populace. In recent years, there has been growing interests in social networks and social support among urban and rural elderly [4] in an effort to understand and plan for this age cohort.

Social network analysis is one of the many ways that the

social life of the elderly can be examined. Ideally social networks can be defined as, all the people with whom the individual interacts, typically including persons who they live with as well those in categories of social identities such as neighbours, friends and colleagues at work [5]. It is documented in the literature that social support and social networks have positive effects on the health and well-being of elderly adults irrespective of where they are living [6, 7]. A study carried out in the United Kingdom examining the contributions of social networks and support to the subjective wellbeing (i.e. life satisfaction) of older persons found that health status is a greater predictor of the life satisfaction among urban elderly people than those living in a semi-rural community [8]. Greater source of strain operationalized as activities of daily living (ADL), physical health problems and economic deprivation were found among institutionalized rural elderly people than those living alone, those with less education, being white and a woman. These individuals all had smaller social networks but they were more likely to receive social support. Physical health status and ADL were highly predictive of life satisfaction and psychological distress among these rural elderly individuals [9]. Over time, positive health was only moderately associated with integration in a social support network. People with the poorest health had a low sense of control and low social support [10].

The social networks in which older people are embedded constitute a major source of personal wellbeing and a principal resource for personal care in later life [11]. The wellbeing of the elderly is associated with the happiness of the people with whom there are socially connected, indicating that happiness is also a social phenomenon similar to health [12]. Owing to the broad definition of health which was defined by the World Health Organization in its preamble in 1948, a subjective measurement has been developed to evaluate this concept. Health, therein, is people's self-rated assessment, which is widely used to health sciences [10, 11].

Older people who had negative feelings towards the members of their social network were less happy, which was mediated by attitudes toward life and self referent beliefs [13]. Also, men were less happy when they felt that their network was too demanding and when they wanted more people they could depend on [14]. The network of older people also plays an important role in their success in finding jobs. However, it is the reciprocal confidant relationship that was significantly related to finding employment and not other social network variables such as family and friends. This finding means that gaining employment was less related to who these elderly people knew and more on how involved these people were in their lives [15].

Social support constitutes the range of interpersonal aids that people require for daily functioning such as augmentation of self-concept, sense of belonging, cognitive guidance, concrete assistance in fulfilling tasks, and feeling loved and admired [16]. The apathy of elderly people who lived alone in a depopulated rural town in Japan significantly influenced their ability to engage into routine activities of daily living (ADL) [17]. There is a negative association between homecare and ADL among older Danish men. The provision of home care had a positive effect on the wellbeing of men who were largely incapacitated [18]. Affective and cognitive status was independently associated with age, ADL and instrumental activities of daily living (IADL) among elderly people. The number of medications these people were taking was also associated with IADL. Global health, the number of medications taken, the number of symptoms and disease and cognitive status were all independently associated with scores on the physical performance tests [19].

Despite the fact that network support is perceived as particularly important to African American men in very old age [4], the social networks of elderly men in Jamaica have not been widely addressed in the research literature. Therefore policy makers and practitioners in Jamaica are without the necessary knowledge base and research to create programmes and services that will engage men and, in particular, the elderly. The structure of social networks, the association between social support and health and/or wellbeing, quality and quantity of social interactions, isolation and loneliness, and their association with health are well established in the literature. However, the literature is void of a single study that has examined the role of health status and other variables (such as ADL, IADL, depression, happiness, life satisfaction, family history, and medication compliance as well as socio-demographic characteristics) on social networks. Hence, the current work seeks to (1) evaluate social networks in older men, (2) ascertain factors which influence social network among older men in Jamaica, and 3) examine the health status of older men, which are in keeping with the objectives of 1) providing factors that influences older men choice to engage into social networks, and 2) aid policy makers with empirical information that can be used to guide intervention programmes among older people, particularly men.

METHODS

The study used primary cross-sectional survey data on men 55 years and older from the parish of St. Catherine, Jamaica in 2007. The survey was submitted and approved by the University of the West Indies Medical Faculty's Ethics Committee. Stratified multistage probability sampling technique was used to draw the

sample (2,000 participants). A 132-item structured questionnaire was used to collect the data via face-to-face interviews. The instrument was sub-divided into general demographic profile of the sample, past and current good health status, health-seeking behaviour, and retirement status as well as social and functional statuses. The data were collected over a six month period. The overall response rate for the survey was 99% (n = 1,983). Data was stored, retrieved and analyzed, using SPSS for Windows Version 21.0.

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 electoral constituencies made up of a number of EDs. The one hundred and sixty-two (162) enumeration districts in the parish of St. Catherine provided the sampling frame. The sample size was determined with the help of STATIN. The enumeration districts were listed and single-stage cluster sampling was used to select the sample. The enumeration districts were numbered sequentially and selection of clusters was determined by calculating a sampling interval. From a randomly selected starting point, forty (40) ED (clusters) were subsequently selected with the probability of selection being proportional to population size. Advised by STATIN and utilizing the C-survey computer software, it was determined that 50 older men in each ED would be interviewed yielding a sample size of 2000.

The parish of St. Catherine had approximately 233,052 males, (preliminary census data 2001) of which 33,674 males were 55 years and over. STATIN maintains maps with ED 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 each ED.

Where the selected household did not have an older man the adjacent household was canvassed. If a household had a man 55 years and older 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. In households where there was more than one man 55 years old and over, then all were included in the survey. An experienced team of survey-administration specialists were trained and used to undertake the data collection. Several days of pilot-interviews were conducted in the field, across clusters and strata with particular emphasis on remote, low income, and less literate respondents, which aided the researchers to identify some non-obvious problems in terms of ambiguous questions, questions people were inclined to refuse to answer. The responses from the various pilot interviews yielded pertinent information, which were incorporated into the finalized instrument. Established questions and indices were used for this survey including subjective happiness and life satisfaction from Gallo [11], Bowling et al. [8] and ADL from Katz [34].

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 and surveys by STATIN suggest that the demographic characteristics of this parish are similar to Jamaica.

Measures

The dependent variable is social network. It is self-reported involvement in church, civic organization, social clubs and community groups, families and among friends. This is a binary variable, where 1 = social network, 0 = otherwise. It is taken from the questions, 'do you attend church, civic organization, social clubs and community group? And, 'are you supported by families and/or friends? The option is either yes or no. The variable happiness was measured based on the person's self-report about their happiness. It is a Likert scale question, which ranges from always to rarely happy. 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. The variable health status was measured using people's self-rating of their overall health status, which ranges from excellent to poor. The question was 'how would you rate your health today?' The response choices were (1) excellent; (2) good; (3) fair and (4) poor. Current self-reported health status was a binary variable, where 1= good (including moderate and excellent health status) and 0 = otherwise. In terms of the variable life satisfaction, the question was "all things considered, how satisfied are you with your life as a whole nowadays?'Life satisfaction is a binary variable, where 1= good-to-excellent self-reported overall satisfaction in life, 0 = otherwise. Depression is measured using response to the question - 'are you depressed?' The option is either yes or no. In terms of education, the question that was asked was, 'what is the highest level of education you have attained?' The response choices were (1) no formal education, (2) basic school, (3) primary school/all age, (4) secondary/high/technical school, (5) vocational (ie apprenticeship/trade), (6) diploma, (7) undergraduate degree, (8) post-graduate degree. For childhood illness, the first question for this variable was 'were you seriously ill as a child?' The response choices were (1) yes, (2) no. The second question was 'were you frequently ill as a child?' The response choices were (1) yes, (2) no. If the response to either question was yes, it is coded as poor childhood health status and if the response is no in both cases it is coded a good health status in childhood. Age group was categorized into three sub-groups. These were (1) ages

55 to 64 years, (2) ages 65 to 74 years and (3) ages 75 years and older (i.e. 75+ years).

Functional status is the summation of ADL and IADL. Performance of ADL is used to describe and monitor the improvement in the functional status of a person compared to his or her baseline level of functioning 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 prioritizing care and resources. Generally though, these should be seen as rough guidelines for the assessment of a patient's ability to care for themselves. There are 14 items (including daily activities, household chores shopping, cooking and paying bills). The reliability of the items was very high, Cronbach $\alpha = 0.801$. In scoring the Katz ADL, independence on a given function is given a score of 1 and being dependent is given a score of 0. Total scores range from 0-14 with lower scores indicating high dependence and higher scores indicating greater independence.

The IADL was used to assess the participants' accomplishment of activities that are necessary for their continued independent residence in the community. The IADL is more sensitive to subtle functional deficiencies than the ADL. In addition, the IADL differentiates among task performance including the amount of help needed to accomplish each task. Since only men were used as participants in the study, the University of Wollongong's modified IADL functional ability scale was used to assess the IADL of men in the study. Consequently the domains of food preparation, laundry and housekeeping were omitted in this study with regard to the IADL for older men.

The IADL scores reflect the number of areas of impairment i.e. the number of skills/domains in which subjects are dependent. Scores ranged from 0-5. Higher scores indicate greater impairment and dependence. High dependence ranges from 0 to 5.5; moderate dependence is from 5.6 to 9.7 and low dependence (i.e. independence) ranges from 9.8 to 14.0. Independence means without supervision, direction, or active personal assistance. The Cronbach alpha for AIDL was 0.793, which indicates a high reliability of the measure. 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 was used to further describe the functional status of men with regard to ADL. Any variable that had a high correlation was excluded, and well as any variable that had a non-response rate in excess of 20 percent.

Statistical analyses

Descriptive statistics were employed to provide background information on the sample and Chi-square was used to examine non-metric variables. Logistic regression was used to examine a binary dependent variable (i.e. social network) and some socio-demographic variables (employment status, number of siblings who are alive, area of residence, education, marital status and medication compliance) and other variables (current health status, health status in childhood, depression, life satisfaction, happiness). Level of significance was $P < 0.05$. Where collinearity existed ($r > 0.7$), variables were entered independently into the model to determine those that should be retained during the final model construction. To derive accurate tests of statistical significance, we used SUDDAN statistical software (Research Triangle Institute, Research Triangle Park, NC), and this adjusted for the survey's complex sampling design.

Model

Conceptual, theoretical and methodological guidelines exist that establish the relationship between social relationship and health [20-23], and how research should be conducted in the future [21]. This allows for the utilization of multivariate analyses (models) which indicate different independent variables that are associated with a single dependent variable such as health or cognitive functioning [24, 25]. The overarching theoretical and empirical framework that will be adopted in this study is an econometric model that was developed by Bourne & McGrowder [25]. Using multivariate analysis, Bourne & McGrowder [25] established a model which examines many factors that singly influenced health status of people (Equation [1]).

$$H_t = f(P_{mc}, ED, R_t, A_t, Q_t, HH_t, C, E_n, MS, HI, HT, SS, LL_i, X_i, CR, DI, (\sum NP_i, PP_i), M, N, FS, A_i, \varepsilon_i) \quad \text{.....[1]}$$

Where H_t is current good health status, P_{mc} denotes price of medical care, ED is education, R_t is retirement income of person i, A_t is Assets, Q_t represents population income quintile , HH_t is head of household, C is consumption, E_n denotes environmental conditions, MS is marital status, HI is health insurance, H_{t-1} is house tenure, SS is social support, LL is living arrangement of person i, X is gender of person i, CR is crowding, NP is negative psychological and PP is positive psychological conditions, M is number of males in household, FS is number of females in household, A_i symbolizes age of respondent i, and N denotes number of children in household (below 18 years).

In order to examine the effect of many independent variables (i.e. health status, age, on a single dependent variable (social networks), the researchers used a similar principle utilized by Bourne & McGrowder.

The proposed model that this research seeks to evaluate is displayed (Eqn1):

$SN_i = f(H_{ti}, HAPP_i, LS_i, C_i, AR_i, A_i, CA_i, ED_i, HH_i, MS_i, P_i, HEA_i, EM_i, D_i, TM; AM_i, F_i, HP_i, HO_i, CF_i, \sum X_{ij}, \varepsilon_i)$.....[2]

Where SN_i (social networking) is a function of current good health status of person i, H_t; happiness, $HAPP_i$; life satisfaction, LS_i; children, C_i; area of residence, AR_i; age group of respondent, A_i; church attendance, CA_i; educational level, ED_i; head of household, HH_i; marital status, MS_i; number of person in household, P_i; poor health status in childhood, HA_i; employment status, EM_i; self-reported depression, D_i; taking medication, TM_i; health advise, HEA_i, functional status, F_i; health insurance plan, HP_i; cognitive functionality, CF_i; and X_{ij} is a vector of the number of siblings the participant has alive. The health insurance plan that is assessed is that of elderly men which is acquired through private health insurance companies such as Sagicor, Guardian Life etc or from the Government. Health advice is information on health related matters that improves a person's well-being whether it is on diagnosis, treatment of a disease etc.

All the 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 determine SN_i (i.e. social networking) of older men in Jamaica. This final model identified the correlates of SN_i of older men in Jamaica, (Eqn2).

$SN_i = f(D_i, HEA_i, F_i, HP_i, \sum X_{ij}, \varepsilon i)$…[3]

RESULTS

Demographic characteristics

Of the sampled participants (n = 2,000), 74.2% indicated that they had good health in their childhood; 74.4% reported good current health status; 51.0% lived in rural areas; 3.5% were mostly satisfied with life; 10.4% had moderate to high functional dependence; 89.6% had low functional dependence (i.e. independence); 21.9% were aged 75 years and older; 35.6% were aged 64.5 to 74 years and 42.6% reported ages 55 to 64 years. In addition, 94.1% had high cognitive functionality; 43.1% reported that they were depressed; 67.3% reported that they do some kind of physical exercise; 24.0% indicated being rarely happy; 4.5% mentioned that they were happy most time and 71.5% claimed occasional happiness. Twenty four percent of elderly men indicated that they were rarely happy, 40.5% reported sometimes, 31.0% mentioned often and only 4.5% reported always.

One half of the participants indicated that they spent JA. $100 (US $1.45) monthly for medical expenditure; 34.0% bought their prescribed medication; 17.1% reported that they have been hospitalized since their sixtieth birthday and 65.8% reported that they took no medication. Of those who mentioned that they were ill during their childhood (17.5%, n = 350), 34.9% said that the illness were measles or chicken pox, 26.3% mentioned asthma, 10.0% pneumonic fever, 8.9% polio, 6.6% accident, 4.6% jaundice, 1.7% hernia, and 5.1% indicated gastroenteritis. Furthermore, 17.7% of the sample reported that they were seriously ill during their childhood.

Further analysis of the socio-demographic characteristics revealed that there was no statistical difference between happiness, current health status, social networking, taking medication, self-rated depression, having children, age of respondents, and area of residence ($P > 0.05$). There is a statistical difference between ownership of a house and area of residence ($P < 0.001$). Forty-six percentage of older rural men owned their own home compared with 36.2% of urban older men (Table 1). A statistical difference was also found between childhood health status and area of residence ($P < 0.001$). Approximately 78.7% of urban older men reported that they had good health status in childhood compared to 69.9% of rural older men. The cross tabulation between marital status and area of residence revealed a correlation ($P = 0.002$). In rural Jamaica, there were more older men who were in common law union (7.6%) than in urban areas (6.05%) and those who were widowed (rural - 10.2%; urban - 6.3%). There were more urban older men who were married (45.6%) than married rural men (43.9%) (Table 1)

Multivariate analyses

Of the 21 variables identified by the literature [Eqn. (1)], 5 of them were found to be predictors of social network [Model (2) or Eqn (2)]. The model [Eqn (2)] used in the study had a statistical significant predictive power [model χ^2 (23) = 318.131, $P < 0.001$; -2 Log likelihood = 274.486; Hosmer and Lemeshow goodness of fit χ^2 =1.648, $P = 0.990$]. From the classification matrix, overall, 91.9% of the data were correctly classified: 52.9% of cases in social network and 98.1% in no social network. Furthermore, 63.5% of the variability in social network of older men in Jamaica can be explained by 5 predictors. These variables are self-reported depression (OR = 2.48, 95%CI: 1.29, 4.78); health advice (OR = 2.21, 95%CI: 1.09, 4.49); functional status (OR = 0.84, 95%CI: 0.71, 1.00); health insurance plan (OR = 0.02, 95%CI: 0.01, 0.10); and number of siblings who are alive (brothers - OR=12.31, 95%CI:3.07, 49.29; sisters – OR = 0.18, 95%CI: 0.05, 0.58) (Table 2).

Table 1. Socio-demographic characteristics of sample by area of residence

Variable	Area of Residence		*P*
	Urban	Rural	
Age			
55 – 64 years	438 (44.6)	413 (40.5)	0.141
65 – 74 years	342 (34.9)	370 (36.3)	
75+ years	201 (20.5)	236 (23.2)	
Marital Status			
Single	359(36.6)	327 (32.1)	0.002
Married	447 (45.6)	447 (43.9)	
Separated	54 (5.5)	58 (5.7)	
Common-law	59 (6.0)	77 (7.6)	
Widowed	62 (6.3)	110 (10.8)	
Ownership of dwelling			
No	626 (63.8)	550 (54.0)	0.001
Yes	355 (36.2)	469 (46.0)	
Self-reported depression			
No	564 (57.5)	574 (56.3)	0.316
Yes	417 (42.5)	445 (43.7)	
Take Medication			
No	662 (67.5)	653 (64.1)	0.060
Yes	319 (32.5)	366 (35.9)	
Have Children			
No	39 (4.0)	31 (3.0)	0.155
Yes	942 (96.0)	988 (97.0)	
Social Networking			
No	562 (57.3)	621 (60.9)	0.053
Yes	419 (42.7)	398 (39.1)	
Self-reported Health in Childhood			
Good	772 (78.7)	712 (69.9)	0.001
Poor	209 (21.3)	307 (30.1)	
Self-rated Current Health Status			
Good	683 (74.6)	712 (74.2)	0.458
Poor	233 (25.4)	247 (25.8)	
Employment status			
Employed	257 (26.2)	254 (24.9)	0.292
Unemployed	188 (19.2)	224 (22.0)	
Retired	536 (54.6)	541 (53.1)	
Happiness			
Rarely	229 (23.3)	251 (24.6)	0.213
Occasionally	700 (71.4)	730 (71.6)	
Most time	52 (5.3)	38 (3.7)	

DISCUSSION

The paper examines the role of health and other variables on social network of late adult men. Research has indicated that social network size and frequency of contact are important social factors that can improve quality of life for older adults [26]. This study found that there were five factors that predicted social networks in our sample of older men. These were health advice, functional status, health insurance plan, the number of siblings alive and depression, and not current or past health status. In this study just over two-fifths of the men in both urban and rural areas were married, and 10.2% urban and 6.3% rural men widowed. Men are more likely than women to arrange their social networks around their spouse. Thus, women's social support networks are typically more robust than men's and widowed men may be at a particular risk for losing crucial connections to social support networks and drastic reductions in frequency of interaction [27]. Van Tilburg (1995) found that elderly, unmarried men have the smallest social networks of all groups [28].

In addition to spouses and children, friends and other

relatives located in close proximity may provide social support and help to promote better mental well-being for older adults. Studies have found that contact with friends is more effective in decreasing depression in elderly populations than contact with adult children [29, 30]. Like marriage and parenthood, however, the influence of friends and family on the mental well-being of older adults may differ by gender, race, age, and class. Studies by Cloos et al. of the perception of the elderly in six Caribbean countries, which are inextricably linked with 'active ageing' found that some elders receive social and financial support from relatives while others fear isolation and face deprivation [31]. In this study there is a positive relationship between health advice from family and friends and social network. This could indicate that an increase in number of health advice increases social network among elderly men.

Previous research has suggested that social support and functional status influence the subjective well-being of the elderly [32]. Deng et al. reported that both social support from family members and cognitive function appear to be key factors associated with quality of life among the very old in China [33]. This study showed that there is an inverse relationship between functional status and social network. This could indicate that as the functional status of the elderly men decreases their social network increases. Some 74.4% of the men reported having good current health status and 89.6% of them had low functional dependence. This suggests that the persons in these older men' social network provides crucial support in response to their declining functionality or lack of independence. Seeman and colleagues reported that the people with lowest social support tend to have the poorest health and need more assistance [10]. Moreover, functional health is determined by the levels ADL and IADL [34].

Table 2. Logistic regression of social network by some variables

Variable	Coefficient	*P*	Odds ratio	CI (95%)
Dummy Own Dwelling	0.525	0.147	1.69	0.83 - 3.44
Cognitive Functionality	-0.060	0.721	0.94	0.68 - 1.31
Dummy Have Children	0.201	0.833	1.22	0.19 - 7.87
Dummy Depression	0.910	0.006	2.48	1.29 - 4.78
Dummy Take Medication	0.567	0.092	1.76	0.91 - 3.41
Dummy Education	0.919	0.266	2.51	0.50 - 12.67
Dummy Health Advise	0.795	0.027	2.21	1.09 - 4.49
Functional status	-0.173	0.048	0.84	0.71 - 1.00
Dummy area of residence (1=urban)	0.416	0.210	1.52	0.79 - 2.91
Elderly (ages 64 to 74 years)	-0.083	0.828	0.92	0.44 - 1.95
Elderly (ages 75 years and older)	-0.440	0.372	0.64	0.25 - 1.69
†Elderly (ages 55 to 64 years)			1.00	
Dummy Current Health Status	0.412	0.235	1.51	0.77 - 2.98
Dummy Happiness	-0.110	0.777	0.90	0.42 - 1.92
Life Satisfaction	0.133	0.747	1.14	0.51 - 2.56
Health status in childhood	0.065	0.867	1.07	0.50 - 2.30
Household Head	0.072	0.890	1.07	0.39 - 2.97
Married	0.082	0.825	1.09	0.53 - 2.24
Separated, Divorced, or Widowed	-0.231	0.679	0.79	0.27 - 2.37
†Single (include common-law)			1.00	
Health plan	-3.835	0.000	0.02	0.01 - 0.10
Employed	0.441	0.246	1.56	0.74 - 3.28
Number of Brother (s) Alive	2.510	0.000	12.31	3.07 - 49.29
Number of Sister(s) Alive	-1.742	0.004	0.18	0.05 - 0.58

χ^2 (23) =318.131, $P < 0.001$
-2 Log likelihood = 274.486
Hosmer and Lemeshow goodness of fit χ^2=1.648, $P = 0.990$
Nagelkerke R^2 =0.635
†Reference group

There is a growing awareness that common mental conditions, such as depression and other chronic degenerative conditions may contribute strongly to disability, impaired well-being and the use of health services by older people [35, 36]. The ageing of Jamaican population implies greater demand of hospital services. A key finding of this study is a negative relationship between health insurance plan and social network where the absence of a health insurance plan leads to an increase in social network. This finding suggests that men who do not have a health insurance plan, are able to obtain medical care by receiving financial assistance from friends and family members. There is also evidence in the literature that social involvement with friends and family may help moderate the negative effects of ill health and depression by offering emotional, functional, and financial assistance [37, 38].

Moriarty and Butt [39] found that different ethnic groups have not only different expectations for social support but that their actual forms of social support vary widely in terms of diversity, consistency, and purpose. Whites were much more likely to only ask their adult children for help in the case of a crisis as compared to other ethnic groups [39]. African and Caribbean Americans reported more diverse availability of social support than whites and Asians, such as extended kin and church community members, a finding that could be found in our Jamaican population. Blacks are more likely than Whites to live in close proximity to siblings in adulthood [39]. Despite the closer proximity among Black siblings, an analysis of sibling neighbours finds no racial difference in exchange of instrumental support. However, frequent contact with sibling neighbours is more common among Blacks than Whites [39]. Results also indicated that older persons received more support from nearby siblings when they do not have other core family members (spouses, children or parents) in their family network [40]. Similarly in this study siblings are important influence in the core of the elderly men's social network. There is a negative relationship between having sisters and social network, and a positive relationship between having brothers and social network. This is because Jamaica is patriarchal society in which men normally receive more salary than women. Therefore men have more resources than women to support ailing siblings. These women may also be married or in common law relationships which reduce the amount of time and resources they can spend with an ailing sibling.

Depression a common mental health problem among older adults is associated with decreased quality of life, difficulties in daily functioning, and increased utilization of health services as well as risk of suicide [41, 42]. In this study approximately two-fifths of the elderly men were depressed and just over one-fifth reported that they were rarely happy. A study by Ritch et al. found that elderly people from ethnic minorities may be at particular risk of suffering from dementia and depression [43]. Differences in vascular risk profile in Afro-Caribbeans may result in higher rates of multi-infarct dementia [43], and living in a hostile environment may predispose to depression [44]. The district areas in the parish of St. Catherine have high levels of unemployment, show signs of deprivation and have moderate crime rates, and so may be considered a somewhat hostile environment. So it would not be unreasonable to expect to find psychiatric or psychological morbidity in these elderly men.

This study found that there is a positive relationship between depression and social network. This could indicate that the elderly men who are depressed experienced an increase in social network. This increase in social network and support can improve mood and social wellbeing. Happiness is a social phenomenon because people's happiness is associated with the happiness of the people with whom they have social connections [18]. This increase in social network is of critical importance because some 64.5% of the men in our sample reported that they were rarely happy or sometimes happy. However, other studies have shown that although higher numbers of friends is associated with higher levels of subjective well-being, this effect does not hold for African Americans in old age [45]. Thus, the oldest African Americans may be at risk for depression not only because they are experiencing shrinking friend and family networks with age but also because the influence of friends on well-being may decrease with age in black populations. Although family and friend proximity is often indicative of strong social support and thus better wellbeing for older adults, there are a few studies that conclude that kin interaction has no concrete impact on elderly well-being [46, 47] or even a negative effect [45]. Despite, the depressed mood among a large portion of our sample, 94.1% of the men in our study have high cognitive functionality which is a surprising finding because cognitive functionality decreases with the existence of depression. The importance of affect and cognition is underscored by the findings of Hansen and colleagues that among elderly people there were independent associations between affective and cognitive status and ADL, IADL and age [18].

This study has highlighted the importance of social network in the health and functional dependence of older men in Jamaica which is an under researched area. These is need for more research on social network on health in Jamaica among different social classes and racial and ethnic groups, people in rural and urban

areas, among women, and a more wide ranging age cohort of people.

LIMITATION

There are some limitations to this study. The use of secondary data is a limitation of itself as the study was constricted by the data therein. The sample was drawn from the parish of St. Catherine so the results should not be generalized to the entire country. Also, there is the possibility that social desirability bias occurred. The participants may have told the interviewers what they wanted to hear to get the approval of the interviewers. In addition, the attributions people make to their behaviours and their functional and health status is sometimes incorrect and lies below conscious awareness. However, the study provides rich data for analysis, policy guideline and future research focus.

CONCLUSION

This study looked at the role of social network among late adulthood men in Jamaica. The majority of older men reported good current health status, high cognitive functionality but low functional dependence. The role of social network among older men was predicted by health advice, functional status, health insurance plan, the number of siblings alive and depression. This study provides pertinent insights into social network among older men, and has far reaching implications for public health and future research in Jamaica. Despite the information which emerged from this paper, there is the need for more research on social network and health that will extend to population in order to obtain further understanding of the phenomena, and evaluate any differences between the population, older men and older women. These areas of research are needed to increase our understanding of the social network and health in Jamaica. This study, therefore, will be able to aid policy formulations, intervention programmes, social medicine understanding of the older men and guide future research in the area of health status and social support of older men.

CONFLICT OF INTEREST

The researchers have no conflict of interest to report at this time.

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