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## **Jamaica Health and Lifestyle Survey 2007-8**

# **TECHNICAL REPORT**

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**December, 2008**

# Acknowledgements

Funding for the project was provided by the National Health Fund.

The project wishes to thank the respondents who participated in the survey and the Training and Field Staff, who worked to ensure the timely completion of the survey... We also wish to acknowledge the assistance of the Tropical Medicine Research Institute (TMRI), Office of Sponsored Research (OSR) and the Office of Finance (OOF) of the University of the West Indies.

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# EXECUTIVE SUMMARY

## **Jamaica Health and Lifestyle Survey II**

*Rainford Wilks, Novie Younger, Marshall Tulloch-Reid, Shelly McFarlane, Damian Francis*

During the last fifty years the major cause of death and disability in Jamaica has changed from communicable and infectious diseases to chronic non-communicable disease conditions. The major health challenges that we face in Jamaica today based on the changing epidemiological profile are largely rooted in our lifestyle and show a dominance of the three priority health areas, namely, chronic disease, sexually related conditions including HIV/AIDS and violence related injuries and deaths

There is mounting evidence that behavioural practices play a major role in the aetiology, management and prognosis of these conditions. This study provides nationally representative estimates of the burden and trends in these diseases and their association with lifestyle practices. The data will provide information on secular trends in CNCs in the Jamaican society and their risk factors; estimates of the levels of awareness, treatment and control among persons with CNCs have also been analyzed. This information will support the development of programs to encourage persons to engage in healthy lifestyles and should inform healthcare institutions on policy.

### **Specific Objectives**

- 1) Estimate trends in the prevalence of hypertension, diabetes, obesity and depressive symptoms in the Jamaican population and compare these estimates with 2000-01.
- 2) Estimate trends in the awareness, treatment and control levels for the chronic diseases among the population and evaluate the changes in these estimates over the last seven years.
- 3) Estimate trends in lifestyle and behaviour patterns (physical activity, cigarette smoking, and dietary patterns).
- 4) Estimate the trends in risk behaviour as it relates to violence, trauma and reproductive health.

### **Methodology and Data Quality**

The study is a cross-sectional, interviewer-administered survey. Two thousand eight hundred and forty-eight (2848) individuals' ages 15-74 years were recruited in their homes over a four month period. The survey included completion of a questionnaire, collection of anthropometric measurements and testing of fasting blood glucose, cholesterol and (HbA1c levels on the diabetic population) by finger-prick blood sampling. In addition to training and certification of interviewers prior to field work, instrument calibration and duplicate measures were done by supervisors to ensure data quality. Evidence of good data quality measures included, low non-response rate (1.7%) and the maintenance of good inter and intra observer reliabilities throughout the survey.

## **Socio-demographic Status**

The Jamaican population is predominantly black 93.7%; the majority of persons report being single s (43%) with 38% reporting being in a union whether common-law or marriage. Fifty percent of the population have attained at least a secondary school education. The proportion of Jamaicans with a tertiary level education has increased since 2000 from 8% to 11.3%. Almost 60% of Jamaicans 15-74 years are employed with 45% in full time paid employment. More than half of the population have access to the basic amenities of piped water (56%) and an unshared water closet (63%) and live in households with more than one person per habitable room.(50.4%); Crowding Index (1.4, CI 1.37-1.49).

## **Lifestyle**

Jamaicans spend on average 9-10 hours away from home each day and commute approximately one hour each way from work. The most frequent mode of transportation is the public passenger vehicle (51%) followed by a private car (25%). The majority of Jamaicans (93%) report having easy access to public transport and there were no urban: rural differences.

## **Violence and Injuries**

Twelve percent of Jamaicans sustained serious injury in the past five years, 6% of which were motor vehicle accidents. Almost half of Jamaican drivers habitually use a seat belt, whilst 40% of front seat passengers and only 4% of backseat passengers reported always using a seat-belt. Eighty-six percent of Jamaican riders never use a helmet. A very low proportion of Jamaicans (2%) report participating in violence with the majority( >70% ) being involved in a fight; but 10% have witnessed a violent act in the last month and 10% of the population say they carry a protective device the most popular implement being a sharp object such as a knife. (8%) Almost 70% of Jamaicans state their communities are safe/very safe.

## **Alcohol, Tobacco and Drug Use**

Sixty-five percent of the population 15-74 years currently use alcohol, 14.5% cigarettes, 13.5% marijuana and less than 1% hard drugs; the male prevalence is significantly higher among females. By the age of 16 years, nineteen percent of smokers had initiated smoking. There is a decline in the prevalence of current smokers as educational and socioeconomic levels increase. (19% and 20% vs. 6.0% and 10.0% respectively) Current alcohol use is however associated with higher educational and socioeconomic levels. (74% and 71% vs. 59% respectively) Smoking of marijuana is more prevalent in persons with a lower level of education. (13% vs. 10%)

## **Medical History and Health Seeking Behaviour**

There is a high frequency of familial history of chronic diseases in Jamaica. Fifty percent of Jamaicans have a parent or grandparent with hypertension, one thirds with diabetes and a little less than one fifth report a family history of stroke or cancer.

More than half of Jamaicans with a reported history of chronic disease have adopted lifestyle changes in response to their condition with more males reporting such changes for any given condition than females. The majority of Jamaicans report they usually take their medication for chronic disease, in instances of failure to do so the most frequently reported cause were “feeling better” and “not being able to afford medication”.

Almost one third of Jamaicans report being sick in the past year and 40% of those report self medication. A small proportion of Jamaicans (9%) have never had their blood pressure measured; whilst almost half report having done a blood pressure check in the past six months. Persons with health insurance were more likely to have had a blood pressure measure in the past six months. (59% vs. 44%) Nineteen percent of Jamaicans have private health insurance and men were more likely to have the benefit than women (M 22.4%, F 15.8%,  $p < 0.01$ ). The highest frequency of health insurance as a benefit occurs in young adults and middle aged persons.

Seventy-seven percent of Jamaicans 15-74 years have heard of the National Health Fund (NHF) and 36% have heard of the Jamaica Drugs for the Elderly (JADEP) programmes, the most reported source of this information being via the media. A total of 9.5% of Jamaicans 15-74 years are enrolled in the NHF and 2.5% of persons over sixty years are enrolled in JADEP. There were no geographical differences in enrolment.

### **Sources of Information on Health**

Television was the most frequently reported source of information on health related issues (58%) followed by the radio (44%) and the health worker (38%). The choice of radio was reported in similar proportions across all age groups. The majority of the younger population (15-44 yrs) reported television as their medium of choice whilst the older population (45-74 years) cited a health care worker. Television was also reported more frequently by persons at the secondary and tertiary education level and those of higher SES whilst the radio was more frequently cited by persons with a primary or lower educational background and lower SES.

### **Reproductive Health**

The family planning method of choice for Jamaicans is a condom with more males reporting than females (M 63%, F 41%, T 53%). A quarter of the population of 15-74 year olds used no form of family planning at last sex. One third of women have had 1-2 pregnancies and over forty percent 1-2 live births. The average period of lactation is twelve months. One in twenty women reported having hypertension during pregnancy, and less than 3% a history of diabetes. One third of Jamaican women have never had a Pap smear done and more than three quarters of Jamaican men have never done a Digital Rectal Examination (DRE).

### **Emotions and Mental Health**

More than half of Jamaicans (57.2%) say they are satisfied or very satisfied with their life and are in fair-good health (60.8%). The majority have done some form of activity for relaxation in the week prior to the survey. One in five Jamaicans are depressed; the prevalence of depression varies with socioeconomic background with persons of lower educational and socioeconomic backgrounds being more depressed.

There were no differences in the prevalence of depression by geographical distribution; however more persons who are underweight and have a co-morbid chronic disease were classified as depressed. The majority of Jamaicans regardless of background perceive themselves to be at their correct weight. Changes in perception occur in the presence of a chronic disease, where significantly more persons with any given condition think themselves a little overweight or overweight. ( $p < 0.05$ )

### **Physical Activity and Dietary Practices**

Physical activity among Jamaicans was examined in respect of both occupational and recreational involvement and in transportation to and from place of work. Almost a half (46%) of the adult population were classified as having low physical activity or being inactive while the highest proportion of men (48%) and women (43%) were classified as engaging in high physical activity and being inactive respectively. In excess of 50% of individuals with a chronic disease (excepting hypertension) were categorized as having a low physical activity level or inactive and conversely more than 50% of persons with hypertension were moderate to highly physically active.

The majority of Jamaicans were not on any special diet. Being on a special diet was reported by no more than 2% of the population. A preponderance ( $> 90\%$ ) of persons who were diagnosed as being obese, having a high blood pressure and having high cholesterol were not on a disease specific diet for their respective condition. The majority of the Jamaican population (74%) reported that vegetable oil was used for cooking, and about a quarter of persons did not use any fat on bread; however 60% of persons used soft margarine on bread. A third of individuals reported that frying was the preferred method of preparing their main protein. The vast majority (99 %) of Jamaicans currently consume below the daily recommended portions of fruits and vegetables with no apparent gender dimorphism.

### **Chronic Non-Communicable Diseases**

Jamaicans 15-74 years reported a 0.5% prevalence of cancer and a combination of self-report and examination confirmed the prevalence of obesity, hypertension, diabetes mellitus and high cholesterol to be 25%, 25%, 8% and 12% respectively. Approximately 150,000 Jamaicans in this age band have diabetes mellitus and one quarter have high blood pressure. While males and females have similar prevalence of hypertension and diabetes females demonstrate significantly higher prevalence of obesity and high cholesterol (38% vs. 12% and 16% vs. 8% respectively). One in five persons are depressed with marked sexual dimorphism in the prevalence estimates where twice as many women are depressed as men. (M 14.6; F 25.6; T 20.3  $p < 0.001$ ). For every 10000 persons, four have sickle cell disease and six out of every one hundred Jamaicans have the sickle cell trait whether AS or AC. . Half of the persons with hypertension are aware of their condition whereas three quarters of the persons with diabetes were aware. Only 14% of the persons with high cholesterol are aware of their condition. For persons with the stated cardiovascular diseases i.e. diabetes, hypertension and dyslipidaemia 71.5%; 40%; and 11.2% respectively are on treatment. Of those on medication 43.9%; 41.4% and 76.3% respectively are controlled. Obesity and increased age are significantly associated with increased prevalence of hypertension, diabetes mellitus and high cholesterol in both males and females. The prevalence of chronic diseases varied with socioeconomic status with more persons at the lower levels suffering from diabetes, hypertension and depression.

Private insurance coverage remains low and the uptake of benefits provided under the National Health Fund (NHF) programme remains low. The main reasons appear to be ignorance and apathy and these will have to be tackled by increased visibility in the electronic media which remains the major source for health information and greater involvement of medical doctors who remain a major source of health advice.

Over the last eight years the prevalence of obesity and hypertension have increased significantly in the Jamaican population while there was a insignificant increase in diabetes mellitus and a similar decrease in high cholesterol. There were slight increases in awareness and control rates for hypertension and diabetes mellitus but treatment rates were approximately the same.

## **Conclusions and Recommendations**

These data show that the burden of chronic non-communicable diseases remains very high in the Jamaican population and may be increasing. More Jamaicans are reporting low levels of physical activity compared to 8 years ago and this is accompanied by a significant increase in overweight and obesity which is strongly associated with hypertension, diabetes mellitus and high cholesterol. Violence and non-intentional injuries continue to contribute to mortality and morbidity and are aggravated by low levels of adherence to safety procedures including the wearing of seat belts and safety helmets. Condom use has increased and there may be a small decrease in the prevalence of sexually transmitted infections but multiple sex partners continue to be a feature among males.

A substantial proportion of Jamaica's disease burden relates to correctible lifestyle habits and behaviours. Experience from other countries have shown that these can be changed but it will require a combination of policy and environmental changes along with education and assumption of individual and community responsibility if we are to significantly change the current situation. The input of many other sectors along with those responsible for health will be required to create the environment that will allow individuals to change. This must include safer environments, increase opportunities for physical activity at stages in the life cycle, the availability of healthy food choices and an increased awareness of the risk posed by unhealthy behaviour and obesity. A national commission including all stakeholders is required to begin the process of acting on the evidence provided by this survey.



# PART ONE-INTRODUCTION

## CHAPTER 1

### Background

#### *Preface*

The leading causes of ill-health and death in Jamaica are: (i) Violence and Injuries (ii) Sexual and reproductive disorders including HIV/AIDS and (iii) Chronic non-communicable diseases. This has dictated that Jamaica's health policy pay particular attention to these areas in order to obtain valid estimates of the burden and identify risk factors and opportunities for interventions which will ameliorate the impact on the society. Over the last decade, collaboration between the University of the West Indies and the Ministry of Health has attracted support from national, regional and international agencies which has allowed for the investigation of these issues in order to improve our understanding and guide policy development.

The epidemiologic transition affecting the region has resulted in chronic non-communicable diseases (CNCDs) becoming the leading cause of illness and death in developing countries including the Caribbean region (1-6), and this has been reinforced by the recent Caribbean Commission on Health and Development (CCHD) which has confirmed the position of CNCDs as the leading cause of ill-health in the region (7). The Caribbean Community (CARICOM) and several Caribbean islands have sought to respond to this silent epidemic by convening consultations (Jamaica Healthy L-style 2004, Barbados Consultation 2005, Trinidad Consultation 2006, National Policy on CNCD, Jamaica 2008) at which evidence was presented and responses formulated. Jamaica has instituted a National Strategic Plan for the Promotion of Healthy Lifestyles (2004-08) and has also instituted the National Health Fund which, among other things, provides assistance to patients suffering from the leading CNCDs.

In the Caribbean, CNCDs account for 60% of deaths among adults and in Barbados, the prevalence of diabetes was estimated to be 10.1% in men and 15.2% in women (CCHD Report). Hypertension was more frequently reported with 17.3% in men and 28.8% in women, while obesity prevalence estimate are 50% in men and 54% in women (8). In Jamaica, the 2000-1 Health and Lifestyle Survey among persons 15-74 year old, found the prevalence of overweight/obesity, hypertension and diabetes to be 46%, 20% and 7% respectively and the burden was disproportionately borne by females (8). Hypertension, diabetes, hypercholesterolemia and obesity are strongly associated with cardiovascular sequelae which accounts for 30 – 40% of deaths in Jamaica(9). These health conditions are associated with a high economic cost. According to the epidemiological profile of selected health conditions and services in Jamaica (1990-2002 report) the leading contributors to the cost of care at government Hospitals: 1996, 1999 and 2002 were (i) diseases of the circulatory system which cost J\$192M in 1996

and J\$597 M in 2002 and (ii) diabetes J\$127M in 1996 and J\$222M in 2002(10). The leading cause of death in Jamaica in 2004 was also diseases of the circulatory system (11).

In 1993 Figueroa and his colleagues (12) showed a reported prevalence of hypertension among women and men as 18% and 8% respectively. Diabetes prevalence was 4.8% for men and 3.3% for women. More recently Jamaican Healthy Lifestyle Survey 2000-2001 showed that among persons 15-74 years old, the overall prevalence estimate of hypertension was found to be 20.9%, diabetes mellitus 7.2% and obesity 19.7%. Obesity (13) was more prevalent in females compared to males (30% compared to 10%) (8). Hypertension and diabetes were at similar prevalence between men and women (hypertension – 19.9% and 21.7% and diabetes – 6.3% and 8.2% respectively). Awareness of the illness in that population with hypertension and diabetes status was 55.3% and 76.3% respectively and among those aware of their condition, the proportions being treated for these conditions were; - hypertension 42% and diabetes mellitus 67.7% while the proportions under control were 47.7 and 39.8% respectively. There was a strong association between obesity and diabetes and hypertension.

Lack of physical activity, another risk factor for CVD(14-16), was also estimated in 2000-01 and showed significant sexual dimorphism, 21% of men being classified as low activity or inactive compared to 41% of females. In addition to the impact that low physical activity has on physical health it also affects the social environment (civic participation, community capacity and investment) and will therefore play an important role in overall health and quality of life(17). Physical activity is influenced by the built environment including residential space, recreational areas, work space and aspects of their daily commute(18). In addition there may also be important interactions between socioeconomic status and age with the built environment in that the economically disadvantaged and elderly may be more severely affected by their immediate surroundings due to limited mobility (17;19).

Mental health is an important aspect of overall health and well being. There is evidence that suggests that depressive disorders frequently accompany other chronic medical illnesses. The 2000 Lifestyle Survey found approximately 25 % depressive symptoms in the general population. The burden of healthcare associated with depression has increased significantly and this only includes those cases which are diagnosed. Low self-esteem and self-worth often leads to suicidal ideations and this prevalence is higher in the 10- 19 age group (20). The quality of life assessment will serve as a guide to policy makers in determining the extent to which these disease conditions, risk behaviours and the environment, impact on the persons day to day activities and ultimately the workforce.

Sickle cell disease is the most common genetic disorder in Jamaica and if not properly treated can result in high rates of premature morbidity and mortality. In Jamaica it is estimated that one in every three hundred persons have the sickle cell disease (SS) and one in every five hundred sickle cell C- disease, (SC) ; 13.5% percent are carriers of the sickle cell trait, whether AS or AC(21). While these are estimates of the prevalence of disease at birth, there have been no estimates of the prevalence of sickle cell disease or the trait in the adult Jamaican population.

Sexual and reproductive health is also critical and is among the nation's health priorities. Between 1993 and 2000 the data shows a modest reduction in persons having multiple sexual partners, (7% and 1%

reduction in males and females respectively) an increase in condom use, a decrease in the use of crack/cocaine and an increase in marijuana use (22). The prevalence of these risks remains higher than desired and efforts to reduce these levels continue and their results must be informed by up to date research information.

Injuries remain a major cause of morbidity and mortality and place a tremendous strain on the resources of the health care services. Injuries represent the largest preventable cause of the use of health services and results in disability and death in the population (10). Violence and related injuries are now the third major cause of death following infectious and chronic non-communicable disease; accounting for ten percent (10%) of mortality worldwide (23). Locally, injuries from violence in schools and communities are increasing(24). Over the period 1999-2000, 12,179 injury cases were identified through the Jamaica Injury Surveillance System (JISS) of which 52% were violence related injuries and 15% were motor vehicle injuries. Unintentional injuries were significantly more among males (65%) than females (37%). As with every other injury type, persons aged 25-44 years were most likely to be involved in a motor vehicle incident, accounting for two fifths of all motor vehicle incidents (25).

Periodic surveys provide evidence on prevalence and secular trends and this has proved very useful in the United States of America where the NHANES monitor the trends in both diagnosed and non-diagnosed chronic non-communicable diseases and other conditions from nationally representative samples. These surveys are useful in providing information on public health policy. Policy makers must include: efficient systems to estimate disease burden and secular trends; estimation of risk factors for the disease; identification of the determinants of health behaviours; development a health policy to address population based approach to diseases and making efficient the treatment approaches to those already afflicted (26). The scope of the 2007 healthy lifestyle survey in conjunction with previous and subsequent surveys will provide the data required to assist the country to respond to the health burdens of CNCs, sexual and reproductive health conditions, injuries and sickle cell disease and will provide an opportunity to assess quality of life. These data will provide opportunities to test the association between putative risk factors and important health outcomes.

### ***Purpose and Rationale***

Lifestyle habits are recognized as having an important influence on health. High risk lifestyle and behaviours have been reported in the Jamaican society with alcohol consumption, unsafe sexual practices, inactivity, tobacco and marijuana smoking, and poor diet being prevalent even in adolescence(22;27). These habits have been associated with adverse outcomes including intentional and non-intentional injuries, aggression, sexually transmitted infections, obesity and other chronic diseases. These and other lifestyle issues have now begun to have a significant impact on the country's health profile resulting in an increased burden on the health resources. For example, injuries now represent a leading cause of hospital emergency room visits (10) and there is increasing concern about sexually transmitted infection including HIV/AIDS, early and unplanned pregnancies and increasing obesity and sedentary lifestyle which are harbingers of chronic non-communicable diseases.

### ***Research Objectives***

The primary objective of the community-based survey is to determine health status and health seeking behaviour, nutritional status, burden of risk factors, and lifestyle behaviours of a nationally representative sample in Jamaica and relate these to relevant demographic, environmental and socio-economic factors.

### ***Specific Objectives***

- Describe health, lifestyle and behaviour patterns (physical activity, cigarette smoking, alcohol consumption, sexual activity and exposure to violence and non-intentional injuries ) by demographic and socio-economic characteristics
- Estimate markers of chronic non-communicable diseases (CNCDs) by obtaining anthropometric measurements, fasting glucose levels and cholesterol levels and identify factors associated with CNCD risk profile.
- Identify factors associated with abnormal sexual and reproductive health and exposure to violence and non-intentional injuries
- Assess the built environment and explore associations with health and disease
- Estimate the prevalence of the sickle cell disease and trait in the Jamaican population.
- Identify opportunities for effective intervention

# CHAPTER 2

## Methodology

### *Sample size determination*

Data from the Statistical Institute of Jamaica (STATIN) shows the population of Jamaica in 2004 to be 2.682M(11). The 15-74 age band accounts for approximately 70 % of the population. Taking the multi-stage cluster sampling methodology into consideration, and allowing for a 10% non-response, a sample of 2914 respondents will allow for the estimation of the prevalence of obesity (19.7%), hypertension (20.8%) and diabetes (7.3%) with an error of +/- 2% in each case at the 95% level of significance (28).

### *Study Coordination*

The study was coordinated at the Epidemiology Research Unit (ERU) of the Tropical Medicine Research Institute (TMRI), the University of the West Indies, Mona.

### *Sampling design*

In order to ensure comparability of data the methods used were similar to previous surveys (12;27). This is a cross-sectional, interviewer administered survey in which a national sample of 2914 individuals was obtained by a random selection of clusters (enumeration districts [EDs]) proportionate to the population of the parishes. Jamaica is divided into fourteen parishes and these parishes are further divided into enumeration districts (EDs) by the STATIN. An ED is defined as a geographical area to be enumerated by a single enumerator and consists of up to four hundred dwellings. At the last Labour Force Survey (2006) the island was divided into 254 sampling regions (SR) (an amalgamation of EDs within parishes). Within SRs, primary sampling units (PSUs) are created from one or more than one contiguous EDs to yield areas and populations of sufficient size to act as clusters for sampling (minimum 80 dwellings). Two PSUs are randomly selected from each SR, yielding a nationally representative sample of 508 PSUs (~10% of EDs nationally). This study base is used as the sampling frame for most surveys and this sampling frame is refreshed every three to four years by STATIN. We elected to recruit 30 participants per PSU and with a required sample size of 2914 participants we would therefore need 97 (2914/30) PSUs (clusters). The number of PSUs per parish was determined by probability proportionate to size (PPS) of the parish and this was achieved by applying the sampling fraction of 97/508 to the number of PSUs within the sampling frame for that parish. We elected to over-sample and recruit 3000 respondents therefore we would require approximately 100 clusters, however in order to achieve a balanced selection by PPS, 102 EDs were selected and provided by STATIN for our sample selection. (Appendix 2)

The selection of clusters was done by STATIN and EDs were randomly chosen as a sub-set of the sample used in the most recent Labour Force Survey (2006) which is designed to be nationally representative. Using maps prepared by STATIN, households were systematically selected beginning at a random starting point and based on predetermined sampling intervals to recruit 2914 participants in twelve age-sex categories i.e. male and female 15 – 24; 25 – 34; 35 – 44; 45 – 54; 55 – 64; 65 – 74 years old. Within each cluster (PSU) the sampling interval N was equal to the number of households divided

by the sample (agreed to be 30) so that in a PSU with 300 households the sampling interval would be 10. Thus every 10<sup>th</sup> household, beginning with the STATIN assigned random starting point, would be targeted for participant selection. Within each household, a single individual was chosen to participate. The participant from each household was selected by the KISH methodology (Appendix 3). Interviewers were required to revisit households where adults are not at home at the time of first contact with the household. A minimum of three visits were made before the household/participant is deemed a refusal. The interview took place in English. If a participant did not understand a concept on the questionnaire, the interviewer tried to simplify the concept. If the respondent still did not understand, the interviewer would select the ‘don’t know’ response. Efforts were made to differentiate “don’t know” from a ‘refusal to respond’.

Respondents within the ages of 15-74 years were recruited to participate via a multi-stage systematic sampling design. Table 2.1 shows the distribution of PSUs by parish.

**Table 2.1: Distribution (#) of Selected Primary Sampling Units in the Recruitment, JHLSII 2008**

Parish	# Urban	# Rural	Tot # PSU
Kingston	6	0	6
St Andrew	18	4	22
St Thomas	2	2	4
Portland	1	1	2
St Mary	1	3	4
St Ann	2	4	6
Trelawny	1	3	4
St James	4	2	6
Hanover	2	2	4
Westmoreland	2	2	4
St Elizabeth	1	5	6
Manchester	4	4	8
Clarendon	2	6	8
St Catherine	14	4	18
Total	60	42	102

### ***Recruitment Process***

Within each PSU 30 households were systematically selected at intervals determined by the number of households in the PSU e.g. 300/30 would result in every 10<sup>th</sup> house being targeted for recruitment. The scheme chose a random starting point and works systematically from that starting point. For each household selected, one respondent between the ages of 15-74 eligible for interview was selected by the KISH methodology.

### ***Recruitment and Training of Field Team***

Supervisors and Field staff were selected from a pool of experienced interviewers who had worked with STATIN and on other studies. The field team was trained on participant selection, questionnaire administration, anthropometry, blood pressure measurement using a sphygmomanometer and the measuring of blood glucose, cholesterol, via finger-stick sample. A sample for assessment of sickle status was also obtained via finger-prick on a special blotting paper to be sent to the laboratory for analysis. Training was completed over a one week period and field workers were only assigned duties in which their competence was certified. As a basis for certification Inter – Observer Reliabilities between the trainer and potential interviewer were determined

### ***Curriculum for Field Training:***

- Survey procedures – including role-playing on introducing the survey to a prospective subject by the interviewer
- Questionnaire administration – included detailed examination of each question and a practice interview session with groups of triads [interviewer-respondent-observer]. Each triad reported on issues within the group and the relevant adjustments to the questionnaire were noted and made.
- Random selection via the KISH methodology in households where there were more than one eligible respondent was explained, understood and simulated.
- Map Reading- a STATIN representative trained the group in map reading. Procedures in surveying an ED were outlined in order to reduce bias in household selection.
- Interviewer Assessment of the community and household
- Anthropometry and blood pressure measurement.
- Cholesterol and glucose testing using the Accutrend GCT machine
- Obtaining a sample for analysis of sickle status via finger-prick.

### ***Project Team*** (Appendix 4)

The Project Team comprised:

- Investigators
- Biostatistician
- Project Coordinator
- Research Assistant
- Data Coordinator
- Data Entry Clerks
- Regional Supervisors (5)
- Team Leaders (7)
- Interviewers ( 40)

### ***Field Protocol***

Field teams were assigned to the four health regions as shown:-

- Region 1(Southeast):- Kingston & St Andrew (KSA), St Catherine ,St Thomas
- Region 2 (Northeast):- St Ann, St Mary, Portland
- Region 3 (South):- Clarendon, Manchester, St Elizabeth
- Region 4 (West):- Westmoreland, Hanover, St James, Trelawny

Regional supervisors were assigned to each of these four areas with specific responsibility for the management of the data collection and quality control checks. Two supervisors were assigned to Region 1 (KSA, St Thomas and St Catherine) because of the large population base in this region and one to each of the others.

In order to improve recruitment response the population was sensitized via press releases issued to the print and electronic media by the UWI Public Relations Department. Communication between investigators, coordinators and the field team was facilitated by closed user- group cellular phone.

### ***Ethical Issues***

The project was reviewed and approved by the Ethical Committees of the Ministry of Health and the University of the West Indies/University Hospital of the West Indies (UWI/UHWI).

A confidentiality form was signed by each interviewer upon completion of training and written; informed consent was obtained from each participant in the study or a guardian.

### ***Measurements***

The questionnaire was administered at recruitment and covered the following major areas:-

1. Demographic Information
2. Family Health History
3. Medical History
4. Health Seeking Behaviour
5. Social History
6. Lifestyle
7. Emotions and Mental Health
8. Physical Activity Levels
9. Sexual Practices
10. Dietary Habits
11. Sources of Information
12. Community and Home Environment

### **Biomedical Measures**

- Blood Pressure
- Anthropometry
- Fasting Glucose and total Cholesterol levels
- Sickel Cell Blots
- Glycosylated Haemoglobin Levels ( only on participants with diabetes )



# CHAPTER 3

## Data Quality

### *Supervision and Quality Control Measures*

The field supervisor monitored the daily activities of his/her field staff. The supervisor conducted fortnightly checks, including the field equipment checks with each team member. All problems were reported to the project coordinator at weekly intervals via a group cellular telephone network. Monthly meetings were held with the supervisors and in-house staff to discuss problems arising during the field work. Each week the completed questionnaires were collected by the field supervisors and checked/edited for errors and omissions and then submitted to the Project Coordinator via courier service. Approximately 10 % of the respondents were partially re-interviewed and biomedical measures repeated for the purpose of quality control. Participants to be subjected to Quality Control checks were randomly selected at the coordinating centre to reduce bias. The supervisors conducted the quality control checks. The results of the second interviews were compared with the original data. We used percent agreement between responses obtained by supervisors and responses by interviewers to assess data quality for the interviews. (Appendix 5) All measures of Glycosylated Haemoglobin Levels (HbA<sub>1c</sub>) were conducted by the Research Assistant and National Co-ordinator using the NycoCard HbA<sub>1c</sub> Reader from Axis Shield (*ISO 9001/ISO 13485*). Blots with the sample of blood were returned to the Sick Cell Unit at the TMRI and analysed by electrophoresis to estimate sickle status.

### *Data Management*

Following submission of the completed questionnaires, these were rechecked at the coordinating centre by both the project coordinator and research assistant. The questionnaires were sent to the in-house data entry clerks for data entry. Following data entry the questionnaires and the dataset were sent to the data coordinator for data cleaning to assure accurate data input. The cleaned dataset was then sent to the biostatistician for analysis.

### *Data Analysis*

Analyses were performed with the programs available on Intercooled STATA 9.0 and Epi Info 6.0. Analyses included the computation of means, frequencies, cross tabulations, and multivariate analyses to explore associations between putative risk factors and the main outcomes of interest. The sample size was sufficiently powered to perform the multiple types of analyses proposed and allowed for sub-group analyses (age groups, sex, region, urban/rural residence, etc.) Descriptive analyses were conducted to identify the trends and risk factors in the population and their inter-correlations for the period 2001-2007. A review and careful examination of the descriptive patterns stratified by sex, age and social status were completed before proceeding to more complex multivariate modelling. Comprehensive data trails were maintained.

### ***Representativeness of the Sample - Creation, application and implication of post-stratification weights***

The Jamaica Health and Lifestyle Survey aimed to provide data and information on a nationally representative sample of the population. The study collected and analysed data on factors associated with healthy lifestyles in this population. In order to obtain national estimates of the factors of interest; the sampling weights were calculated and applied to estimates of the population parameters of interest. The sampling weights calculated were post-stratification weights which attempts to account for inadequacies of the sampling frame. The post-stratification adjustment cells were defined using the parish by gender distributions of Jamaicans aged 15 to 74 years of age. These weights indicated the number of males and females represented by each male and female in the sample of 15-74 year olds selected in the study. The weights were obtained by dividing the number of persons in each parish by gender stratum in the entire island based on the 2007 demographic statistics, by the number of persons in the sample within the corresponding parish by gender categories. When these weights are used in the estimation of the gender distribution of the age group studied, the values reflect those obtained using 2007 demographic statistics.

The post-stratification weight can be further modified by the base weight and non-response adjustment weight. The base weight would account for the differential selection probabilities used in the sample while the non-response adjustment attempts to eliminate bias in estimates obtained from respondents whose distribution differs from that of the persons who did not respond to given items. Non-response adjustment weights were estimated for persons who refused to participate and those who consented to participate but refused any part of the biomedical measures and were applied to estimates based on data from these tests.

### ***Confidentiality of Data***

The data will be kept confidential and available only to project researchers. The completed questionnaires will be stored in locked storage areas. Each Participant will be assigned a numeric identification number; linking individual names with identification numbers will be kept secure and will be the responsibility of the Principal Investigator. The data will be kept in perpetuity in order to describe secular trends in these conditions at the population level.

## PART TWO RESULTS

### CHAPTER 4

#### Socio-demographics

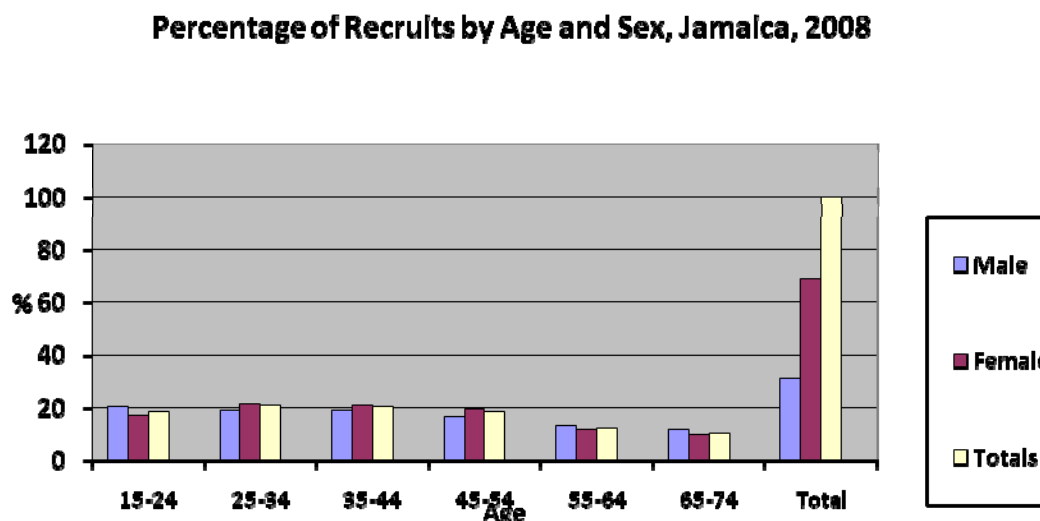
##### Section 4.1: Description of Sample and Study Population

The sample consists of 2848 respondents; (68.7%) females and (31.3%) males. Table 4.1 and Figure 4.1 show the proportional distribution of the sample by age and sex. We attempted to recruit 2976 participants and had 50 persons who (1.7%) refused to participate in any section of the questionnaire. Of the 2926 participants enrolled, 78 were excluded on the basis of misapplication of the Kish sampling strategy resulting in a final sample of 2848 respondents. Females outnumber males 2:1 in the sample but there were more males than females among the 15-24 and 55-74 year-olds. More younger persons were recruited, compared to older persons but the difference was less than expected based on distribution in the general population reflecting an over-sampling among older persons. Forty one percent of persons recruited were aged 25-44 years.

**Table 4.1: Percentages (%) of Persons Recruited from the Respective Ten-Year Age Bands Within and Across Sex, JHLSII, 2008**

Age Band (years)	Male	Female	Total
15-24	20.5	17.2	18.3
25-34	19.1	21.5	20.8
35-44	18.9	21.0	20.4
45-54	16.5	19.2	18.3
55-64	13.2	11.6	12.1
65-74	11.8	9.5	10.2
Totals	100.0	100.0	100.0

**Figure 4.1: Percentages (%) of Persons Recruited from the Respective Ten-Year Age Bands Within and Across Sex, JHLSII, 2008**



In all parishes the female recruits were about twice in number to the males recruited. The highest proportion of recruits were from St Andrew and St Catherine which can be attributed to the larger proportion of the population residing in these parishes and probability proportionate to size sampling methodology. (Table 4.2)

**Table 4.2: Percentages (%) and Numbers (n) of Persons Recruited from the Different Parishes by Sex, JHLSII, 2008**

Parish	Males	Females	Totals
	% (n)	% (n)	% (n)
Kingston	5.4 (48)	6.2 (121)	5.9(169)
St. Andrew	17.4(154)	20.8 (407)	19.7(561)
St. Thomas	3.3 (29)	4.2(83)	3.9(112)
Portland	2.5(22)	1.9 (37)	2.1(59)
St. Mary	4.6(41)	3.9 (77)	4.1 (118)
St. Ann	6.0 (53)	6.2(121)	6.1 (174)
Trelawny	4.3(38)	4.1 (81)	4.2 (119)
St. James	6.1( 54)	6.0( 118)	6.0(172)
Hanover	4.0(35)	4.3(85)	4.2(120)
Westmoreland	4.0(35)	4.3(84)	4.2(119)
St. Elizabeth	6.5(58)	5.7(111)	5.9(169)
Manchester	8.5 (75)	7.8(153)	8.0(228)
Clarendon	9.9 (88)	7.6 (149)	8.3 (237)
St. Catherine	17.7(157)	17.0(334)	17.2(491)
Total	100.0 (887)	100.0(1961)	100.0(2848)

Table 4.3 shows the weighted age-sex distribution. The weighted distribution of the sample by age and sex closely resembles that of the 15-74 age range in the general population (STATIN 2007).

**Table 4.3: Weighted Percentages (%) of Persons Recruited from the Respective Ten-year Age Bands Within and Across Sex, JHLSII, 2008**

Age Band	Male	Female	Total
15-24	25.9	25.0	25.4
25-34	23.1	24.5	23.8
35-44	22.0	22.7	22.4
45-54	12.9	13.8	13.3
55-64	8.7	8.1	8.4
65-74	6.9	6.6	6.7
Totals	100.0	100.0	100.0

Tables 4.4 and all subsequent tables show weighted values for the respective parameter estimates. Tables 4.4a and b show that the between parish proportions within sex and age groups is consistent with the overall picture with St Catherine and St Andrew reporting the highest proportions in all age and sex groups.

**Table 4.4 a: Weighted Percentages (%) of Recruits by Age, Sex and Parish, JHLSII 2008**

Parish	15-24 Age Group			25-34 Age Group			35-44 Age Group		
	M	F	T	M	F	T	M	F	T
Kingston	6.1	4.0	5.1	4.8	4.4	4.6	6.7	5.4	6.0
St. Andrew	16.1	18.6	17.3	19.6	20.5	20.1	15.9	19.1	17.6
St. Thomas	6.1	4.1	5.1	3.6	5.2	4.5	2.7	3.1	2.9
Portland	2.8	5.5	4.1	5.7	4.6	5.1	1.4	3.7	2.5
St. Mary	6.6	3.4	5.0	4.8	1.9	3.3	3.0	4.5	3.8
St. Ann	4.7	4.4	4.6	8.8	4.5	6.5	4.6	5.5	
Trelawny	2.3	1.8	2.0	1.6	1.8	1.7	3.0	3.2	3.1
St. James	6.1	9.6	7.9	13.5	9.0	11.1	9.9	8.1	9.0
Hanover	7.2	3.6	5.4	2.5	2.9	2.7	0.5	2.0	1.3
Westmoreland	3.8	8.3	6.1	5.7	6.5	6.1	9.0	9.7	9.4
St. Elizabeth	4.1	3.3	3.7	5.3	5.2	5.2	7.1	5.0	6.0
Manchester	7.1	6.5	6.8	6.5	6.3	6.4	6.3	3.5	4.8
Clarendon	6.5	8.9	7.7	5.4	8.6	7.1	9.1	9.2	9.1
St. Catherine	20.7	18.1	19.4	12.2	18.6	15.6	20.9	18.0	19.4
Totals	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

**Table 4.4 b: Weighted Percentages (%) of Recruits by Age, Sex and Parish, JHLSII 2008**

Parish	45-54			55-64			65-74			Totals		
	M	F	T	M	F	T	M	F	T	M	F	T
Kingston	2.8	5.8	4.3	3.5	5.7	4.6	5.0	2.9	2.5	5.0	4.7	4.9
St. Andrew	17.3	23.6	20.4	15.6	19.7	17.6	17.0	15.3	15.9	17.0	19.7	18.4
St. Thomas	3.0	6.1	4.5	1.5	3.5	2.5	3.8	3.9	3.9	3.8	4.3	4.1
Portland	9.8	1.4	5.1	10.9	6.9	9.0	5.1	6.1	6.3	5.1	4.5	4.8
St. Mary	5.6	5.6	3.3	3.2	4.2	3.7	4.9	6.1	6.0	4.9	3.8	4.3
St. Ann	7.5	6.1	6.5	4.0	8.8	6.4	6.0	8.7	7.6	6.0	5.6	5.8
Trelawny	1.9	3.1	1.7	2.3	2.5	2.4	2.4	4.5	5.1	2.4	2.5	2.5
St. James	3.7	5.6	11.1	8.6	7.9	8.3	8.5	9.0	7.4	8.5	8.4	8.5
Hanover	1.5	2.0	2.7	0.6	4.2	2.4	2.9	1.9	1.7	2.9	2.8	2.9
Westmoreland	6.5	7.9	6.1	10.7	5.2	8.0	6.4	8.7	6.5	6.4	7.9	7.2
St. Elizabeth	8.4	5.9	5.2	6.4	4.4	5.4	6.0	7.0	6.9	6.0	4.8	5.4
Manchester	2.8	3.4	6.4	2.5	6.8	4.7	5.6	4.1	4.0	5.6	5.2	5.4
Clarendon	13.2	7.0	7.1	13.2	7.0	10.1	9.3	7.7	14.1	9.3	8.4	8.8
St. Catherine	16.2	16.5	15.6	16.8	13.3	15.1	17.2	14.0	12.3	17.2	17.3	17.2
Totals	100	100	100	100	100	100	100	100	100	100	100	100

There is relatively even distribution of the proportions of the population residing in urban and rural areas in both sex and age categories with slightly larger proportions of young persons residing in urban areas and the reverse among older persons. A notable departure from this pattern is the larger proportion of males 25-34 years in urban compared to rural areas (25% vs. 19%) this is offset by a slightly higher proportion of males in rural areas in the older age groups between 35-74 years. The urban-rural differences by age group among females are generally smaller. (Table 4.5)

**Table 4.5: Distribution (%) of Age Groups by Sex and Area of Residence, JHLSII 2008**

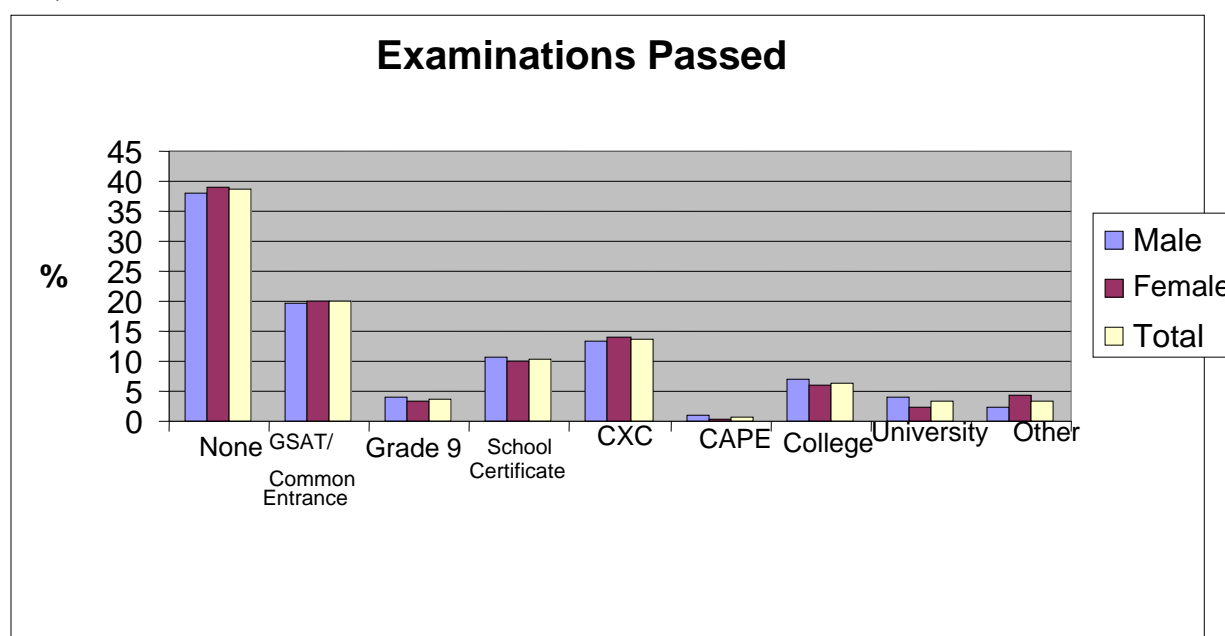
Age at last birthday (yrs)	Males		Females		Totals	
	Urban	Rural	Urban	Rural	Urban	Rural
15-24	26.3	25.0	25.6	23.9	25.9	24.4
25-34	25.2	19.1	24.8	24.0	25.0	21.6
35-44	21.0	24.1	22.8	22.4	21.9	23.2
45-54	14.1	13.2	12.9	12.8	13.5	13.0
55-64	7.9	10.1	7.6	8.9	7.8	9.5
65-74	5.5	8.6	6.3	8.0	5.9	8.3
Totals	100.0	100.0	100.0	100.0	100.00	100.00

Table 4.6 shows that the population sampled were predominantly black. (M 94.4%, F 93.1%, T 93.7%). Fifty-nine percent (59%) and significantly more males than females (70.8 vs. 47.3%;  $p < 0.001$ ), are employed. Ten percent are students. Christianity is the most frequently reported religious affiliation and the majority, more than two-thirds of the population, attends church at least once per month with women reporting more frequent attendance, 42% reporting 3-4 visits to church per month compared to 28% of men. Almost a third of men report no religious affiliation compared to 15% of women. More

than a third of men and women report being married or in a common-law relationship; a similar proportion of men and women also reported being single. Divorce was infrequently reported but compared to their female counterparts; almost twice as many males are divorced/separated (4.0 % vs. 2.2 %) and more men report visiting relationships than women. Almost 90% of the population have attained at least a secondary level education. Those reporting primary/junior high education or less is similar between sexes but a larger proportion of women report secondary education (61% vs. 54%) with a higher proportion males with tertiary education reporting (13% vs. 10%). Jamaicans 15-74 years attended school for an average of ten years with no sex difference.

Data gathered on examinations passed revealed that 40% of Jamaicans report they have never passed an examination while twenty-three percent have passed an examination that would equip them for a secondary level education. (Fig. 4.2)

**Figure 4.2: Proportions (%) Showing the Different Types of Examinations Passed by Jamaicans 15-74 by Sex, JHLSII 2008**



**Table 4.6: Distribution (%) of Demographic Indices within and Across Sex, JHLSII 2008**

<b>Demographic index</b>	<b>Males</b>	<b>Females</b>	<b>Total</b>
<b>Age (years)</b>			
15-24	25.0	25.9	25.4
25-34	24.5	23.1	23.8
35-44	22.7	22.0	22.4
45-54	12.9	13.8	13.3
55-64	8.1	8.7	8.4
65-74	6.9	6.6	6.7
<b>Race</b>			
Black	94.4	93.1	93.7
Mixed	5.6	6.9	6.3
<b>Employment Status</b>			
Employed	70.8	47.3	58.8
Unemployed	18.8	43.3	31.3
Student	10.4	9.4	10.0
<b>Religious Affiliation</b>			
Christian	67.9	84.0	76.1
Other Religion	2.1	0.4	1.2
No Religion	30.0	15.6	22.7
<b>Church Attendance in past month</b>			
Never	25.0	16.1	20.4
once or twice	47.4	41.8	44.5
three or four times	18.8	30.7	25.0
>4times	9.0	11.3	10.1
<b>Union status</b>			
Single	43.3	43.0	43.2
Married /Common-law	35.7	40.0	37.8
Divorced/Separated	3.0	2.2	2.6
Visiting	18.0	15.0	16.5
<b>Educational Level</b>			
None/Basic	0.9	0.5	0.7
Primary/Junior High	32.3	29.0	31.0
Secondary	54.0	61.0	57.5
Tertiary	13.0	9.7	11.3
<b>Highest Qualifying Examination Passed</b>			
None	40.3	39.2	40.0
Primary	21.0	23.4	22.2
Secondary	15.0	15.2	15.1
Vocational	13.3	14.0	14.0
Professional	10.6	8.5	9.5
<b>Mean # of school years (95%CI)</b>	10.7 (10.1,11.2)	10.6 (10.1,11.1)	10.6 (10.1,11.1)



## Section 4.2: Employment

The 58% of persons who reported being in some form of employment includes 46% who are employed full-time, 9% part-time and 4% seasonally employed. The proportion of those employed who are in full-time employment is quite consistent between the sexes at approximately three-quarters. (Data not shown) Of all those employed 42.7% are self-employed representing 24.8% of the population and differs sharply between the sexes where 46.3% of the employed or 32.8 of the male population are self-employed compared to 39.3% of employed women representing 18.6% of the population.(Data not shown)

Of the 42.7% of employed persons who report self-employment, 35.3% are self-employed as their primary occupation whilst 3.3% are self-employed as their secondary occupation and 4.1% are self-employed in both primary and secondary occupations. The proportion (of persons reporting self-employment in their primary occupation is quite consistent at approximately a third of those employed but this differs by sex as a proportion of the population as a whole, with 25.5% males, 16.4% females and 20.5% overall. (Data not shown)

Of the thirty percent of persons who reported being unemployed; half are not actively seeking employment and is consistent in males and females. (Table 4.7)

**Table 4.7: Employment Status (%) of Jamaican Nationals 15-74 Years, JHLSII 2008**

Employment Characteristics	Male	Female	Total
<b>Employed</b>	70.8	47.3	58.8
Full-time	55.6	36.6	45.8
Part-time	9.7	8.2	9.0
Seasonally	5.4	2.6	4.0
Unemployed/Student	29.2	52.7	41.2
<b>Self employment categories<sup>1</sup></b>			
Not Self-employed	53.7	60.7	57.3
Self-Employed:	46.3	39.3	42.7
Self-employed in 1 <sup>0</sup> occupation	36.0	34.7	35.3
Self-employed in 2 <sup>0</sup> occupation	4.1	2.5	3.3
Self employed in both	6.2	2.2	4.1
<b>Student</b>	10.4	9.4	9.9
<b>Unemployed</b>	18.8	43.3	31.3
Seeking employment	9.8	19.5	14.7
Not seeking employment	9.0	23.8	16.6

<sup>1</sup>Of those employed; <sup>2</sup> In the population

Table 4.8 shows that 41% of the work force is primarily employed in highly skilled positions in their primary occupations according to the JSOC, 1991 classification. (Appendix 6) More females than males are employed in these highly skilled positions (48.3% vs. 34.2% respectively) however significantly more males than females are employed in skilled positions. (M 40.9%, F 7.5%,  $P < 0.005$ ). There is a greater clustering of the population in the skilled/unskilled occupations for their secondary jobs with approximately 70% of both men and women reporting these professions. Professional occupations were reported by between 4% and 6% in both primary and secondary jobs and in both sexes.

**Table 4.8: Employment Skills Classification (%) of Jamaicans Aged 15-74, JHLSII, 2008**

Primary Occupation				Secondary Occupation		
	Male	Female	Total	Male	Female	Total
Professional	4.0	5.0	4.5	5.8	3.7	4.7
Highly Skilled	34.2	48.3	41.4	11.4	23.0	17.2
Skilled	40.9	7.5	23.9	54.0	50.0	52.0
Unskilled	9.4	17.1	13.3	13.8	22.2	18.0

### **Section 4.3: Social Indices**

More than half of the population have piped water into their homes with a further 25% having access to piped water. Two per cent of the population report that bottled water is the main source for drinking. Seventy-six percent of the Jamaican population age 15-74 have access to a water closet for sewage disposal and the majority of them do not share this with another family. A quarter of the population continues to use pit latrines

Just over a half of the population report a weekly household income of J\$5,000.00 to J\$20,000.00 and over a third reporting J\$5,000.00 or less. Less than 10% of Jamaican households earned more than J\$20,000.00 per week. Jamaican households were, on average crowded with 1.4 persons per habitable room and were more so among females (1.7 vs. 1.2). (Table 4.9)

**Table 4.9: Percent Distribution of Persons Aged 15-74 Years by Household Ownership of Selected Social Amenities, The Percentage Residing in Households with Six or More Amenities, and The Mean Household Crowding Index, by Sex , JHLSII 2008**

<b>Social Amenity</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Water Source</b>			
River/Spring	6.3	5.2	5.7
Tank/Drum	11.7	11.0	11.3
Standpipe	3.6	4.4	4.0
Pipe Outside house	18.6	22.6	20.6
Piped into house	57.3	55.0	56.1
Bottled Water	2.6	2.0	2.2
<b>Toilet facility</b>			
None	0.1	0.5	0.3
Hole in the earth	0.4	0.2	0.3
Shared Pit latrine <sup>1</sup>	4.7	5.9	5.3
Unshared pit latrine	18.3	18.1	18.2
Shared water closet <sup>2</sup>	12.7	13.8	13.2
Unshared water closet	63.7	62.0	63.0
<b>6-15 household items<sup>3</sup></b>	67.1	59.0	63.0
<b>Weekly Household Income(JA \$)</b>			
≤ 5000	34.5	38.1	36.4
5001- 20,000	56.8	53.2	55.0
> 20,000	8.7	8.6	8.7
<b>Crowding Index (CI)</b>	1.2(1.09-1.22)	1.7(1.61-1.79)	1.4(1.37-1.49)

Urban household enjoy more basic social amenities than their rural counterparts. Twice as many urban households have piped water compared to rural household (69.7% vs. 31.4%) while a quarter of rural households rely on a tank/drum compared to 3% of urban dwellers. Almost 50% of rural households have an unshared water closet as their main toilet facility and 49% have shared water closet or pit latrines compared to 70% and 30% of the urban households respectively. Household income of persons living in rural areas is substantially less than urban dwellers. Approximately a half of rural dwellers earn <J\$5000.00 per week compared to just over a quarter of urban counterparts (U29%, R 50.6%,  $p<0.001$ ). Household crowding index was higher among rural dwellers (Table 4.10)

**Table 4.10: Percent Distribution of Persons Aged 15-74 Years by Household Ownership of Selected Social Amenities, The Percentage Residing in Households with Six or More Amenities, and The Mean Household Crowding Index, by Geographical Location, JHLSII 2008**

<b>Social Amenity</b>	<b>Urban</b>	<b>Rural</b>	<b>Total</b>
<b>Water Source</b>			
River/Spring	8.2	14.6	5.7
Tank/Drum	2.6	27.1	11.3
Standpipe	1.7	8.2	4.0
Pipe Outside house	22.2	17.8	20.6
Piped into house	69.7	31.4	56.1
Bottled Water	3.0	0.9	2.2
<b>Toilet facility</b>			
None	0.3	0.5	0.3
Hole in the earth	0.0	0.9	0.3
Shared Pit latrine <sup>2</sup>	3.8	8.0	5.3
Unshared pit latrine	7.8	37.1	18.2
Shared water closet <sup>2</sup>	18.3	4.0	13.2
Unshared water closet	69.8	49.6	62.3
<b>6-15 household items</b>	72.5	45.7	
<b>Weekly Household Income(JA \$)</b>			
≤ 5000			
5001- 20,000	29.0	50.6	36.4
> 20,000	60.3	44.6	55.0
	10.7	4.7	8.7
<b>Crowding Index</b>	1.4 (1.31-1.45)	1.5(1.43-1.63)	1.4 (1.38-1.49)

We examined the associations between socio-demographic characteristics and educational level (Table 4.11). Household crowding seems to be most frequent among those reporting secondary educational achievement but the lowest levels of crowding were in those reporting the highest educational levels. The frequency of pit latrine use decreases with higher educational achievement with 47% among primary or lower compared to 33% among those with post secondary education, while the availability of water closets increased from 64% to 98% respectively. Similarly, household possessions increased with education, with almost 70% of post-secondary educated persons possessing 9-15 items compared to 55% of persons with primary or lower education reporting less than 5 items in their homes. More persons with secondary school education live in crowded households. (55.9% vs. 46%) More females at all levels live in crowded households than males. However significantly less females with a post secondary school education live in crowded households compared to those with lower levels of education. (p<0.001)

**Table 4.11: Associations (%) between Socio-demographic Characteristics, JHLSII 2008**

	Education								
<b>Socio-demographic Characteristics</b>	<b>Primary or Lower</b>			<b>Secondary</b>			<b>Post Secondary</b>		
	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>
<b>Crowded Household</b>	37.4	56.7	46.7	41.2	68.4	55.9	23.5	33.0	45.2
<b>Toilet Facilities</b>									
Pit latrine	37.4	56.7	46.7	41.2	68.4	55.9	23.5	45.2	33.0
Shared Water closet	38.1	33.2	35.7	20.1	24.1	22.2	1.0	4.0	2.4
Unshared water closet	61.9	66.9	64.3	79.9	75.9	77.8	99.0	96.0	97.6
<b>Household Possessions</b>									
< 5 items	53.2	57.4	55.2	26.5	39.0	33.3	6.3	5.0	5.7
6-8 items	28.4	28.5	28.4	36.3	34.7	35.4	23.3	26.0	24.5
9-15 items	18.4	14.1	16.3	37.2	26.3	31.4	70.4	69.8	68.9

# CHAPTER 5

## Lifestyle

### Section 5.1: Violence and Injuries

Twelve percent of Jamaicans sustained a serious injury in the past five years and 9.0 % in the past year. (Table 5.1) Motor vehicle accidents were the most frequently reported cause of injury in the past five years (6%) while 1.8% and 1.1% of this age group suffered injuries from domestic and criminal incidents, respectively. Cuts and stab wounds (4.7% M, 2.7% F, 3.6% T), followed by broken bones (3.4% M, 2.5% F, 2.9% T), were the more commonly reported injury types. Other types of injury included sprains.

**Table 5.1: Distributions (%) of The Major Causes and Types of Serious Injury Sustained by 15-74 Year-old Jamaicans, JHLSII 2008**

Characteristic	Males	Females	Total
<b>Serious Injury in past 5 years</b>	15.2	9.3	12.2
<b>Cause of Injury in past 5 years</b>			
Motor Vehicle Accident	7.0	4.4	5.7
Domestic	2.1	1.5	1.8
Industrial	0.4	0.2	0.3
Criminal	1.2	0.9	1.1
Involved in			
A fight	1.4	0.6	1.0
A Fall	3.2	1.4	2.3
<b>Serious Injury in past year</b>	10.8	6.9	8.8
<b>Cause of Injury in past year</b>			
Purposefully inflicted - self	0.1	0.3	.2
- other	1.5	1.6	1.6
Accidentally Inflicted - self	7.6	2.8	.1
- other	1.5	1.8	1.6
<b>Type of Injury in past year</b>			
Concussion/Head Injury	0.5	0.4	0.5
Cut/Stab Wound	4.7	2.7	3.6
Burns	0.6	0.4	0.5
Broken Bones/Falls	3.4	2.5	2.9
Gunshot wounds	0.2	0.1	0.2
Other	1.6	0.8	1.2
No serious injury	89.2	93.2	91.2

Three times as many males reported being drivers compared to females aged 15-74 years. Habitual seat belt use by these drivers was more frequently reported by males than females with 55% and 31% respectively reporting seat belt use 'always' or 'most times'. On the other hand, 22% of drivers report never using a seat belt while driving and this was much more frequent among women (45%) compared to men 11% (Table 5.2). These data suggest that female front seat passengers use seat belts more frequently than female drivers with approximately 10% 'never' or 'hardly ever' using it and 55% using it 'most times' or 'always'. This compares to 31% of female drivers who use seatbelts 'always' or 'most times'. The seatbelt habits of male drivers are very similar to male front seat passengers. Back seat passengers in general use seatbelts infrequently, less than 4% in all groups.

**Table 5.2: Frequency (%) of Seat Belt Use amongst Jamaicans 15-74 Years, JHLSII 2008**

Frequency of Use	Driver			Front Seat Passenger			Back Seat passenger		
	M	F	T	M	F	T	M	F	T
Never	11.3	44.8	22.1	6.1	6.3	6.2	79.9	85.2	82.6
Hardly ever	3.2	2.4	2.9	4.3	3.5	3.9	8.7	6.8	7.8
Sometimes	30.4	11.9	24.4	36.6	35.5	26.1	7.2	4.1	5.7
Most Times	12.9	6.4	10.8	12.8	14.7	13.8	1.1	1.1	1.1
Always	42.3	24.5	39.8	40.3	40.0	40.1	3.1	2.8	2.9

An estimated 38.4% of the population report ever riding a bicycle or motorbike and among these riders only 6% report safety helmet use at most times or always with a higher proportion among males than females (7% vs. 3%). Among Jamaicans in general, 41% of persons report being pillion riders on motorbikes or bicycles with higher proportions of men reporting this practice (54% vs. 31%). Less than 4% use helmets sometimes, most times or always while 38% never or hardly ever use these protective devices. Among pillion riders 7% women and 6% men report using helmets sometimes, most times or always, marginally more than among the riders (Table 5.3)

**Table 5.3: Frequency (%) of Helmet Use amongst Jamaicans 15-74 years, JHLII 2008**

Frequency of Use	Rider (of those who ride)*			Of all persons			Pillion Rider		
	M	F	T	M	F	T	M	F	T
Never	83.6	90.5	85.6	46.5	19.8	32.8	46.0	25.9	35.7
Hardly ever	3.1	5.2	3.7	1.7	1.1	1.4	2.5	1.5	2.0
Sometimes	6.2	1.6	4.8	3.4	0.4	1.9	3.1	0.6	1.8
Most Times	2.4	0.7	1.9	1.3	0.2	0.7	0.9	0.4	0.6
Always	4.8	2.1	4.0	2.7	0.5	1.5	1.6	1.0	1.3
Never rides a motor-cycle	-	-	-	44.4	78.2	61.6	46.0	70.8	58.6

Table 5.4 shows the frequency of Jamaicans exposure to and involvement in violence. Approximately 2% of Jamaicans report that they participated in violent acts in the past month and the majority (>70%) were involved in fighting and this equates to 1.1% of the population being involved in fights in the last month. A larger proportion (9%) report witnessing at least one violent event in the last month, of which shooting, stabbing and domestic violence most frequently reported. Ten per cent (10%) of the population report that they carry some form of protective device with males reporting almost twice the frequency among females while a fifth of the population, both males and females, regard their communities as potentially dangerous. (Figure 5.1)

**Table 5.4: Frequency (%) with Which Jamaicans 15-74 Years Witnessed or Participated in Violent Acts in the Past Month, JHLSII, 2008**

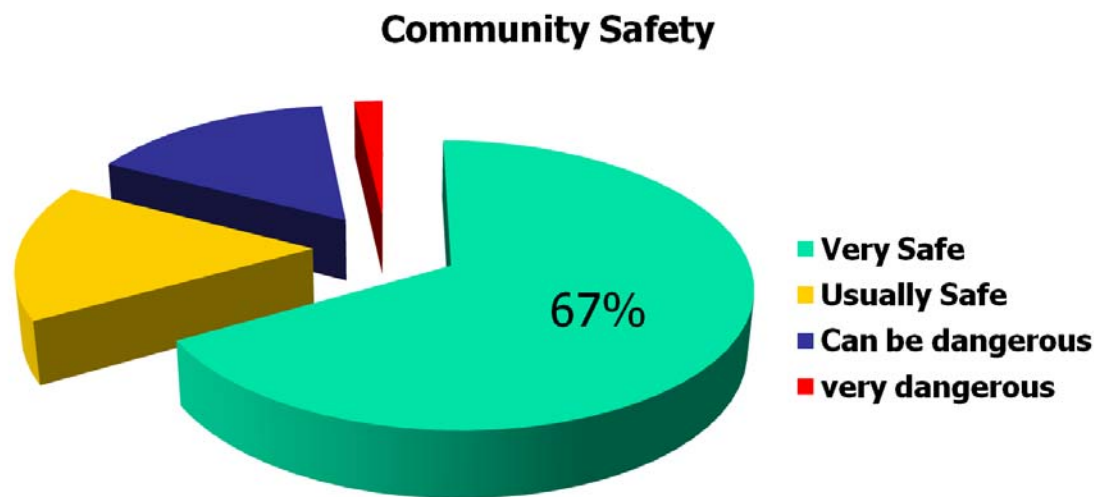
<b>Frequency</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Participated in violent act</b>	<b>2.2*</b>	<b>1.3</b>	<b>1.8*</b>
1-2	1.6	0.9	1.2
3-5	0.2	0.5	0.3
Unknown			
Type of incident participated in past month			
Shooting	2.7(0.05)	0.0	1.5 (0.02)
Stabbing	1.7(0.03)	0.1	1.0 (0.1)
Domestic	24.2(0.4)	0.3	24.3 (0.4)
Fight	71.4(1.3)	1.0	73.2 (1.1)
<b>Witnessed violent act</b>	<b>10.9</b>	<b>7.9</b>	<b>9.4*</b>
Number of episodes			
1-2	8.5	6.0	7.2
3-5	1.6	1.2	1.4
More than 5	0.6	0.4	0.5
Type of incident witnessed in past month			
Shooting	26.3(2.8)	38.7 (2.9)	31.6 (2.9)
Stabbing	40.8(4.4)	25.9 (2.0)	34.5 (3.1)
Domestic	31.3(3.3)	31.2 (2.4)	31.2 (2.9)
Rape	0.0	1.3 (0.1)	0.5 (0.05)
Other	1.6 (0.2)	2.9 (0.2)	2.2 (0.2)
<b>Protective Device</b>	<b>12.9</b>	<b>6.9</b>	<b>9.9</b>
Pepper Spray	0.1	0.8	0.4
Sharp Instrument	10.5	5.5	8.0
Blunt Instrument	0.3	0.1	0.2
Gun	1.9	0.3	1.1
Other	0.0	0.1	0.1
Community			
Safe/Very safe	65.5	65.1	65.2
Usually safe	20.2	15.4	17.8
Can be dangerous	13.3	16.6	15.0
Very dangerous	1.0	3.1	2.1

\* Difference of 0.3% persons stated they could not estimate the frequency with which they were involved in violent acts.

() =Frequency among the general population



**Figure 5.1: Perception (%) of Community Safety as Reported by Jamaicans 15-74 Years, JHLSII 2008**



Almost two-thirds of persons with a primary school or lower education never drive a car; half of persons with a secondary school level education and three quarters with post-secondary, are drivers. There is a significant gender difference within drivers who use a seatbelt, with twice as many males than females at the post-secondary level using a seatbelt whilst driving (84% vs. 42%) and four times as many in the secondary and seven times in the lower educational range respectively. The majority of Jamaicans at all educational levels use a seatbelt when riding as a front seat passenger. A very small proportion (4%) of Jamaicans at all levels of education use a helmet when riding a bike. Twice as many persons who have a secondary level education have been exposed to violence when compared to those of a primary school or post-secondary school level. (14.1% vs. 7.4 and 6.8% respectively) (Table 5.5)

**Table 5.5: Proportion (%) of Persons with Reported Lifestyle Behaviour by Educational Attainment, JHLSII 2008**

Social History	Education								
	Primary or lower			Secondary			Post-secondary		
	M	F	T	M	F	T	M	F	T
<b>Seat belt Use</b>									
Drivers									
No	9.9	12.0	10.9	10.6	15.8	13.4	1.2	8.4	4.4
Yes	42.8	5.6	24.9	56.8	15.7	34.6	84.9	46.1	67.8
Never drives	47.3	82.5	64.2	32.6	68.5	52.0	14.0	45.6	27.9
Front seat passengers									
No	9.3	12.4	10.8	12.2	9.4	10.7	5.1	4.2	4.7
Yes	90.7	87.6	89.2	87.8	90.6	89.3	94.9	95.8	95.3
<b>Helmet Use</b>									
Rider									
No	41.0	14.0	28.0	55.8	25.3	39.3	35.0	15.1	26.3
Yes	7.3	0.1	3.9	7.8	1.2	4.2	5.8	2.0	4.1
Never Rides	51.8	85.9	68.2	36.4	73.6	56.5	59.2	82.9	69.6
Pillion Rider									
No	45.7	23.6	35.1	54.5	30.6	41.6	31.3	19.9	26.3
Yes	6.8	0.8	3.9	5.0	2.2	3.5	3.6	2.8	3.3
Never Rides	47.5	75.6	61.0	40.5	67.2	54.9	65.1	77.3	70.4
<b>Injuries Sustained</b>									
Motor vehicle accident	6.9	3.1	5.1	5.5	4.7	5.0	13.7	7.0	10.8
Criminal	2.0	0.7	1.4	0.7	1.2	0.9	1.4	0	0.8
Domestic	2.6	1.6	2.0	2.4	1.6	1.9	0	0.8	0.4
Exposure to violence	9.5	5.1	7.4	16.3	3.2	14.1	9.3	3.3	6.8

## Section 5.2: Occupational Characteristics

The majority of the population reports having easy access to public transportation (>90%) and the largest proportion (51.3%) use public transportation in getting to work while similar proportions (one fifth) either use a car or walk to work. Higher proportions of men than women report working on the night shift, using a car and riding motorbikes or bicycle in getting to work while greater proportions of women use public transportation (Table 5.6).

**Table 5.6: Description (%) of Occupational Characteristics of Jamaicans Aged 15-74 Years, JHLSII 2008**

Description	Male	Female	Total
Works at home	18.2	19.8	19.0
Works on night shift	15.3	6.2	10.7
<b>Mode of transport to work</b>			
Walk	21.4	21.5	21.4
Bike/Bicycle	7.3	0.5	3.9
Public passenger vehicle	43.6	58.7	51.3
Private Transport(Staff bus etc)	2.7	2.5	2.6
Car(Private personal)	25.1	16.8	20.8
Easy Access to public transportation	93.5	92.8	93.1

Jamaicans spend approximately nine to ten hours away from home each working day and the difference between males and females (10.7 vs. 10.1 hours) just fails to achieve statistical significance (Table 5.7). There was no significant difference between urban and rural dwellers overall or in either sex. Point estimates of commuting time averaged just about an hour and while these were consistently lower among rural dwellers the differences between rural and urban dwellers never achieved statistical significance (Table 5.7).

**Table 5.7: Mean Time Spent During Commute and at Work by Geographical Distribution amongst Jamaicans 15-74 Years, JHLSII 2008**

Mean Travel Times(95%CI)	Urban	Rural	Total
Average time spent away from home (hrs)			
M	10.9(10.5-11.3)	10.4(10.0-10.9)	10.7(10.4-11.0)
F	10.4(10.0-10.7)	9.6(9.1-10.2)	10.1(9.8-10.4)
T	10.6(10.3-10.9)	10.0(9.6-10.4)	10.4(10.2-10.7)
Average commute time per day(mins)			
M	58.4(48.1-68.8)	50.0(40.0-60.0)	55.2(48.0-62.4)
F	60.3(52.1-68.4)	55.2(45.5-64.9)	58.6(52.7-64.5)
T	59.4(51.6-67.2)	52.5(44.5-60.5)	56.9(51.5-62.4)

### Section 5.3: Cigarette, Alcohol and Drug Use

We examined the frequency of alcohol, tobacco and illegal drug use among Jamaicans. (Table 5.8) Approximately 65 % of the population 15-74 years in Jamaica report that they currently use alcohol while 13.5% use marijuana and 14.5% smoke cigarettes. The use of these substances varied by sex with frequency of current alcohol use more than 60% higher among males; marijuana smoking was reported five times more frequently and cigarette smoking was over three times more frequent among men.

**Table 5.8: Proportion (%) of Persons Aged 15-74 Years with Given Risk Behaviour by Sex, JHLSII 2008**

<b>Risk Behaviour</b>	<b>Males</b>	<b>Females</b>	<b>Total</b>
Alcohol Use -			
Current	80.1	49.2	64.3
Past	4.0	3.9	3.0
Marijuana Use -			
Current	22.9	4.4	13.5
Past	22.3	10.0	16.0
Cigarette Smoking -			
Current	22.1	7.2	14.5
Past	23.0	10.8	16.8

Table 5.9 gives the percentage of Jamaican males and females in the 15-74 age groups who have used alcohol, marijuana or cigarettes by age group. The current use of alcohol was highest in the 15-24 age band and decreased steadily with age; conversely the proportion of persons who reported past use of alcohol increased steadily with age. Current marijuana use tended to decrease with age while current cigarette smoking tended to increase but the magnitude of change in prevalence with increasing age was not as large as that for alcohol use. The current use of alcohol is highest in the 25-34 age and decreases among older persons from 64% to 48%. The age trend in the use of marijuana is less obvious but current use is more frequent among 25-54 year old Jamaicans than among those in the 55-74 year old group. The trend with age is even less obvious for cigarette smoking although the frequency of current use appears to increase with age and is highest (21%) in middle age (45-54 years old).

**Table 5.9: Age Specific Proportion (%) of Jamaicans Aged 15-74 Years with Given Risk Behaviour, JHLSII 2008**

<b>Risk Behaviour</b>	<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>	<b>Total</b>
Alcohol Use -							
Current	77.5	83.2	80.0	64.0	65.9	48.0	74.5
Past	1.0	0.0	5.1	8.0	10.3	27.0	5.1
Marijuana Use -							
Current	13.0	19.8	16.5	22.3	16.0	13.0	16.0
Past	15.0	14.2	13.8	10.1	8.6	4.3	13.5
Cigarette Smoking -							
Current	10.3	15.2	13.6	20.7	15.2	17.0	14.5
Past	11.5	12.4	19.0	20.3	27.0	26.0	16.8

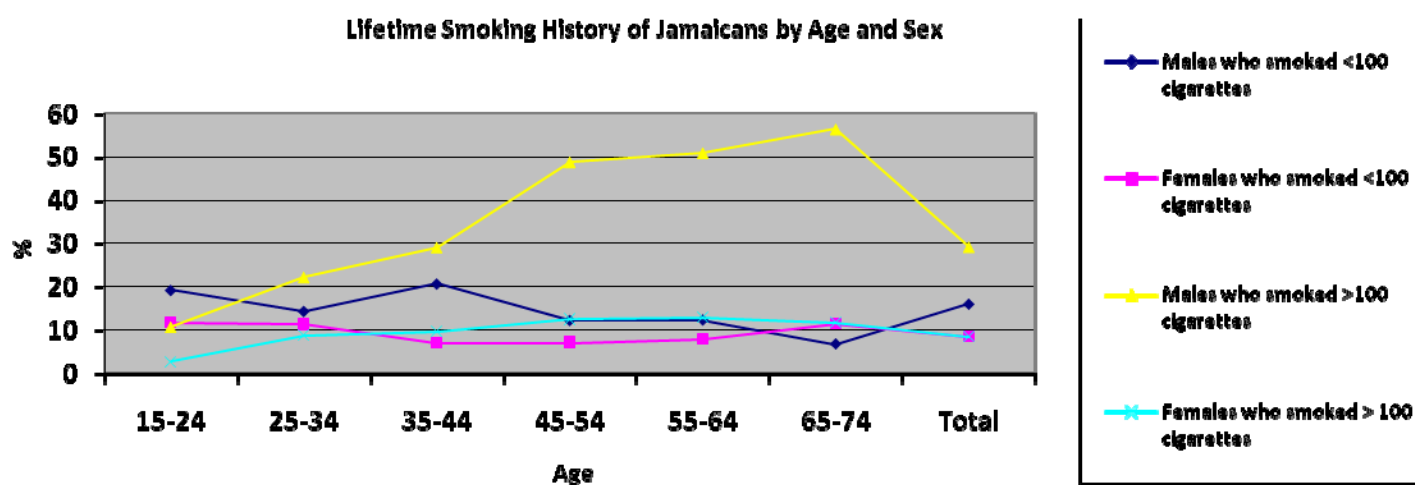
We investigated the history of smoking among the Jamaican population and these data are shown in Table 5.10. While 14.5% of the population gives a history of current smoking, 31% give a history of ever smoking and as for current smokers the frequency is higher among males. Less than 2% of smokers have attempted to discontinue smoking in the last 4-5 years. Almost one fifth of the population have smoked more than a 100 cigarettes in his/her lifetime with the large sex difference persisting.

**Table 5.10: Proportion (%) of Jamaicans 15-74 Years who Reported Varying Smoking Habits, JHLSII 2008**

Smoking History	Male	Female	Total
Ever smoked	45.1	18.0	31.3
Currently smoke	22.1	7.2	14.5
<i>Tried stopping smoking -</i>			
0- 5 months ago	1.2	0.8	1.0
6-11 months ago	1.3	0.5	0.9
1-3 years ago	2.5	1.3	1.9
4-5 years ago	1.7	0.5	1.1
More than 5 years ago	16.3	7.7	11.9
<i>Smoked -</i>			
More than 100 cigarettes in a lifetime	29.2	8.4	18.6
Less than 100 cigarettes in al lifetime	15.9	9.5	12.6

Three times as many men reported smoking more than 100 cigarettes in a lifetime than did women. (M 29.2%, F 8.4%, T 18.6%,  $p < 0.001$ ) Figure 5.2 shows that the number of persons who have smoked more than 100 cigarettes in a lifetime increases up to age 45 years and then plateaus. By the age of 15 years, 6% of Jamaicans had started smoking cigarettes with three times more males reporting early initiation.

**Figure 5.2: Proportion (%) of Jamaicans Aged 15-74 Years who Reported Smoking More than 100 Cigarettes, JHLSII 2008**



We examined the age at which the smoking habit was initiated. The 30% of the population which reported smoking include 19% (63% of smokers) who reported initiation at 16 years or older. The proportion of smokers who initiate the habit prior to 16 years old is consistent among both males and females despite the much lower population prevalence of smoking among females compared to males.

**Table 5.11: Proportion (%) of Jamaicans Aged 15-74 Years who Reported Initiating Cigarette Smoking at Given Ages by Sex, JHLSII 2008**

Age group	Male	Female	Total
<= 7	0.3	0.3	0.3
8-9	1.1	0.4	0.7
10-11	1.6	1.2	1.4
12-13	3.8	1.7	2.8
14-15	9.4	2.5	5.9
>= 16	27.5	11.0	19.1

Table 5.12 shows the proportions of the population which initiate smoking at various ages by age category. There is a suggestion that among younger age groups higher proportions appear to be initiating smoking. Among smokers in the younger age groups (15-34 years) a higher proportion report initiating smoking prior to 15 years old (> 6%) compared to older smokers (45-74 years) where less than 4 % report this early initiation of smoking.

**Table 5.12: Proportion (%) of Jamaicans Aged 15-74 who Reported Initiating Cigarette Smoking at Given Ages by Age Bands, JHLSII 2008**

Age group	15-24	25-34	35-45	45-55	55-64	65-74
<= 7	0.2	0.4	0.4	0.4	0.0	0.0
8-9	1.5	0.2	0.5	0.5	0.5	1.0
10-11	2.3	1.0	1.2	1.3	1.6	0.0
12-13	1.8	4.5	2.2	3.1	2.0	2.5
14-15	5.5	4.9	7.8	5.3	6.8	4.7
>= 16	10.5	15.7	18.9	29.5	28.3	19.1

A third of Jamaicans have used ganja in any form and thirty percent of Jamaicans have ever smoked marijuana with males reporting this three times more frequently than females. Less than a half of reported users are current smokers of the product but this differs between males and females with a third of females and a half of males reporting current use (Table 5.13). The most commonly reported frequency among current users is daily use with 9.6% of the population (approximately 50% of current smokers) reporting this frequency and males almost nine times more than among females reporting (M 17.4, F 2.1%). Cocaine use was infrequent with 0.1% of the population of 15-74 year olds report ever using it and 0.2% any other hard drug.

**Table 5.13: Proportion (%) of Persons who reported a History of Use of Non- Narcotics Amongst 15-74 Year Old Jamaicans, JHLSII 2008**

<b>Ganja Use -</b>	<b>Males</b>	<b>Females</b>	<b>Totals</b>
Smoked Ganja -			
Ever	45.2	14.5	9.5
Past	22.3	10.0	16.0
Current	22.9	4.4	13.5
<b>Current Use-</b>			
Less than once per week	1.6(5.4)	1.0(22.6)	1.3(13.7)
1-3 per week	3.9(24.7)	1.0(27.8)	2.4(26.2)
4-6 per week	1.7(4.2)	0.4(10.0)	1.0(7.0)
Daily	17.4(65.8)	2.1(39.7)	9.6(53.2)
Ganja in Any form	48.1	17.6	32.5
Ever Used cocaine	0.1	0.1	0.1
Ever used any hard drug	0.2	0.3	0.2

Alcohol use is shown in Table 5.14. Overall two- thirds of Jamaicans report that they have consumed alcohol with males more frequently than females (84% vs. 53%) and more than half also report current use. Among current users, weekend-drinking is most frequently reported and this is more so among males than females but up to 10% of men and 2% of women report that they drink alcohol daily. Fifteen per cent of men and 3% of women report drinking more than five drinks per day and brewed liquor (beer and stout) is the most frequently consumed alcoholic beverage among both males and females. A very small proportion of the population reported that they have discontinued alcohol consumption in the last five years and only marginally more have ever done this.

**Table 5.14: History of Alcohol Use (%) Among Jamaicans 15-74 years, JHLSII 2008**

<b>History of alcohol use</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Ever drank	84.1	53.0	68.2
Past Drinker	4.0	3.9	3.9
Current drinker	80.1	49.2	64.3
Drinking Frequency -			
daily	10.2	2.3	6.2
on weekends	42.3	15.1	28.4
occasionally	18.6	13.6	16.1
seldom	3.4	2.1	2.7
Had five or more drink in single day	14.8	3.2	8.9
Stopped drinking			
in past year	0.4	0.6	0.5
2-5 years ago	1.5	1.1	1.3
more than 5 years ago	2.0	1.8	1.9
Reason stopped drinking -			
health	2.0	2.2	2.1
religious	0.5	0.5	0.5
other	1.2	0.7	1.0
<b>Preferred Type of Alcohol</b>			
Premixed alcoholic coolers	8.3	8.3	8.3
Beer or stout	44.1	15.8	29.6
Wine	11.1	8.0	9.6
Liquor	15.6	6.3	10.9

We examined the association between education and various lifestyle habits (Table 5.15). The proportion of the population who report having time for leisure did not vary with educational attainment. Current alcohol consumption is more frequently reported among the more educated in both males and females (87.4 vs. 78.5 and 56.9% vs. 38.6% respectively). There is a decline in the prevalence of current smoking as the education level increases; among men this falls from 30.6% to 6.1% in the lowest and highest education groups respectively while among women the decline is less sharp, 8.3 to 5.5% across the same categories. Marijuana smoking patterns by educational achievement is similar in both sexes as the lowest prevalence is among males and females with the highest level of education (post-secondary). The trend across educational groups is not always linear however and the highest prevalence is in the middle group with secondary education. The use of any illegal drug (marijuana, cocaine, and crack) appears to be lowest among the most educated and is similar among those with secondary education and those with primary education or lower.



**Table 5.15: Proportion (%) of Persons with Reported Lifestyle History by Educational Attainment, JHLSII 2008**

Lifestyle		Highest Level of Education								
		Primary or Lower			Secondary			Post Secondary		
		M	F	T	M	F	T	M	F	T
Time for Leisure	No	28.5	30.2	29.3	22.5	32.3	27.8	30.1	33.4	31.6
	Yes	71.5	69.8	70.7	77.5	67.7	72.2	69.9	66.6	68.4
Alcohol Use***	Never	14.0	56.7	34.6	17.9	43.1	31.5	12.0	41.3	24.9
	Past	7.5	4.7	6.2	2.7	1.8	3.3	0.6	1.8	1.2
	Current	78.5	38.6	59.3	79.5	56.9	65.2	87.4	56.9	74.0
Cigarette smoking*	Never	43.4	77.9	59.9	59.6	83.1	72.3	63.9	87.5	74.3
	Past	26.0	13.8	20.2	18.0	9.4	13.3	30.0	7.0	20.0
	Current	30.6	8.3	19.9	22.4	7.5	14.3	6.1	5.5	5.8
Marijuana Smoking*	Never	51.2	87.9	68.9	53.2	83.4	69.5	69.8	91.9	79.5
	Past	25.6	9.4	17.8	20.9	10.8	15.4	20.2	7.1	14.4
	Current	23.1	2.8	13.3	25.9	5.8	15.1	10.0	1.0	6.0
Illegal Drug Use#	No	76.9	96.8	86.5	73.9	94.0	84.7	89.4	98.2	93.2
	Yes	23.1	3.2	13.6	26.1	6.0	15.3	10.6	4.8	6.8

# Including marijuana, cocaine, crack \*p<, 0.05; \*\*\*p<0.001

Table 5.16 shows the associations between socioeconomic status (SES) as estimated by household possessions and lifestyle behaviour. All three categories report similar frequencies of having time for leisure and this was also consistent between males and females. Current alcohol consumption is reported at similar frequencies by females in all categories but there is an increase in frequency among males of high SES compared to those of middle and low SES. Both males and females report lower frequencies of cigarette smoking in the higher SES groups compared to the middle and lower groups. The differences are more striking among males (33.9%; 22.8% and 12.4%) compared to females (8.1%; 7.7% and 6.7%) for low, middle and high SES respectively. The pattern of marijuana smoking and combined illegal drug use among SES groups is similar to that of cigarette smoking especially for males but the difference between SES groups among females is even less consistent than for cigarette.

**Table 5.16: Proportion (%) of Persons with Reported Lifestyle History by Educational Attainment, JHLSII 2008**

Lifestyle	Socioeconomic Status								
	Low			Middle			High		
	M	F	T	M	F	T	M	F	T
Time for Leisure									
No	29.1	33.0	31.3	23.0	32.1	27.6	24.1	29.3	26.4
Yes	71.0	67.0	68.7	77.0	67.9	72.4	75.9	70.7	73.6
Alcohol Use*									
Never	18.0	49.5	35.9	17.7	47.5	32.9	12.4	42.8	25.9
Past	5.8	4.5	5.1	2.9	3.8	3.4	3.3	3.8	3.2
Current	76.1	46.0	59.1	79.4	48.7	63.7	84.3	48.7	71.0
Cigarette smoking***									
Never	48.7	80.5	66.7	54.9	82.8	69.1	60.9	83.2	70.8
Past	17.4	11.4	14.0	22.3	9.5	15.8	26.7	10.1	19.3
Current	33.9	8.1	19.3	22.8	7.7	15.1	12.4	6.7	9.8
Marijuana Smoking*									
Never	51.7	85.9	71.0	50.6	82.6	66.9	61.6	88.7	73.6
Past	20.0	9.2	13.9	25.8	11.7	18.6	21.5	9.1	16.0
Current	28.4	4.9	15.1	23.7	5.7	14.5	16.9	2.2	10.4
Illegal Drug Use#									
No	71.6	94.0	84.7	75.9	94.0	85.2	82.9	97.3	89.3
Yes	28.4	5.3	15.3	24.1	6.0	14.8	17.1	2.7	10.7

# Including marijuana, cocaine, crack \*p<0.05; \*\*\*p<0.001

# CHAPTER 6

## Health and Healthcare

### Section 6.1: Family Medical History

There is a high frequency of chronic diseases among family members of the Jamaican population (Table 6.1).

Almost half of 15-74 year-olds had a parent or grandparent with high blood pressure (M 41.0%, F 53.0%, T 47.0%) and a third had a parent or grandparent with diabetes (M 26.9%; F 35.0%; T 31.0%). Approximately 16% had a parent or grandparent with stroke or cancer (16.0% and 15.4% respectively). Less than ten percent had siblings with any of the cited chronic diseases and diabetes and hypertension being reported most frequently (6.5 and 6.1 % respectively) and less than one percent reported offspring with chronic diseases. More females ( $P < 0.05$ ) reported having any relative with a cited chronic disease.

**Table 6.1: Sex-Specific Percentages (%) of 15-74 Year-old Jamaicans who have Family Members with History of Named Chronic Diseases, JHLSII 2008**

Chronic Diseases	Parent/Grandparent			Sibling			Offspring		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Heart Attack	5.0	8.0	6.5	0.9	0.8	0.9	0.2	0.2	0.2
High blood pressure	41.0	53.0	47.0	3.3	10.2	6.8	0.4	0.2	0.1
Stroke	15.6	18.5	17.1	0.8	1.1	0.9	0.0	7.0	3.6
Diabetes	26.9	35.0	31.1	4.3	7.0	5.7	0.3	0.9	0.6
Cancer	14.0	17.4	15.7	1.8	3.7	2.8	0	2.6	1.3
Epilepsy/Fits	1.3	1.2	1.3	1.7	3.1	2.4	0.1	1.2	0.7

Table 6.2 shows the results of the examination for associations between socio-demographic characteristics and awareness of family medical history. With the exception of epilepsy, persons with higher education reported a higher prevalence of the chronic diseases among their relatives. Employment status (employed, unemployed and student) did not appear to have any impact on awareness of family health history. The SES characteristic which shows the greatest tendency to higher proportions at higher levels is income levels where high income persons consistently report higher frequencies of all the health conditions in their families compared to lower income persons. SES as estimated by household possessions shows similar pattern to income levels but this is less consistent and the differences are smaller.

**Table 6.2: Proportion (%) of Jamaicans Aged 15-74 Years of Different Socioeconomic Status who Reported Knowledge of Family Disease History, JHLSII, 2008**

Knowledge of Family History	Education									Employment								
	Primary or Lower			Secondary			Post Secondary			Employed			Unemployed			Student		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Heart Attack	5.7	8.0	6.8	3.5	8.7	6.3	15.1	13.8	14.5	4.5	8.1	6.0	10.0	9.7	9.8	7.3	10.2	8.7
Hypertension	39.5	55.1	46.9	40.7	56.3	49.1	66.2	69.3	67.6	43.6	57.7	49.4	43.7	56.8	53.0	42.2	54.6	48.0
Stroke	17.7	18.1	17.4	17.5	19.4	15.2	20.4	23.1	18.3	16.4	19.1	17.5	17.1	20.4	19.4	15.1	16.9	15.9
Diabetes	29.5	36.8	33.0	27.0	40.1	34.1	38.1	45.0	41.2	28.3	40.8	33.4	28.6	38.4	35.5	37.8	36.3	37.1
Cancer	12.8	21.7	17.1	15.0	19.8	17.6	22.6	22.0	22.3	13.5	20.3	16.3	14.0	21.6	19.4	27.6	15.5	21.8
Epilepsy	4.1	4.3	4.2	2.4	5.7	4.2	3.6	4.0	3.8	3.0	3.6	3.3	2.4	7.5	6.0	4.7	2.4	3.6
Knowledge of Family History	Income Levels									Socioeconomic status (possessions)								
	Low			Middle			High			Low			Middle			High		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Heart Attack	2.2	7.9	5.2	5.7	7.8	6.7	13.3	7.8	10.5	4.0	6.9	5.7	3.9	9.9	6.8	15.3	12.3	13.9
Hypertension	38.4	53.4	46.5	41.4	54.7	48.0	54.5	70.8	62.7	35.4	53.1	45.5	45.6	59.9	52.6	52.8	60.2	56.1
Stroke	13.2	21.7	17.8	13.8	17.7	15.7	20.1	30.5	25.4	14.8	17.0	16.1	18.0	20.2	19.1	14.1	24.8	18.9
Diabetes	31.0	34.0	32.6	24.9	39.2	32.0	38.0	53.8	45.8	27.8	34.9	31.8	28.4	42.6	35.4	34.9	42.7	38.4
Cancer	12.2	20.3	16.5	16.4	18.2	17.3	17.3	29.8	23.6	13.3	17.8	15.8	16.3	20.3	18.2	15.8	30.5	22.5
Epilepsy	3.1	5.6	4.4	3.6	5.7	4.6	7.2	5.5	6.3	3.1	5.9	4.7	2.6	4.8	3.7	5.0	3.8	4.4

Table 6.3 shows the frequency of self-reported illnesses among Jamaicans. Hypertension and diabetes were most frequently reported and in almost all cases the frequency reported by females was greater than that reported by males. This is most marked in the case of hypertension where 29% of women and 11% of men reported having these conditions and the reported estimates for the prevalence of obesity, diabetes mellitus and high cholesterol having notable females excess. The reported frequency of heart disease (2.4% vs. 1.0% respectively) is noteworthy for the excess among males compared to females.

**Table 6.3: Self Reported Prevalence (%) of Specified Disease Conditions by Sex, JHLSII 2008**

<b>Disease Condition</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Heart Disease	2.4	1.0	1.7
Diabetes Mellitus	6.1	9.1	7.6
Glaucoma	1.0	1.1	1.0
Hypertension	10.7	29.3	20.2
High Cholesterol	2.6	4.9	3.8
Stroke	1.1	1.3	1.2
Kidney Disease	0.5	0.7	0.6
Obesity/Overweight	2.7	8.5	5.6
Circulation	1.7	5.0	3.4
Enlarged Prostate	1.1	-	0.6
Rheumatic Fever	0.7	0.7	0.7
Sickle Cell Disease	0.3	1.0	0.7
Sickle Cell trait	0.8	3.2	2.1
Arthritis	2.1	7.9	5.0
Asthma	5.7	8.3	7.0
Bronchitis	2.0	3.6	2.8
Cancer	0.3	0.8	0.5
Broken Bones	6.8	3.4	5.1
Epilepsy	0.5	0.9	0.7
Mental health Problems*	2.4	3.7	3.1

*\*Includes conditions such as major depression, anxiety, psychosis*

## **Section 6.2: Personal Medical History**

Table 6.4 shows the prevalence of varying chronic diseases based on self-report by 10-age groups. The most commonly reported chronic diseases were hypertension (20.2%), diabetes mellitus (7.6%), asthma (7%) and obesity (5.6%). These self reported chronic diseases appeared to be more prevalent among older persons and showed the greatest frequency in the age band 65-74 years. Approximately 5% of 15-74 year-old Jamaicans reported diagnosis of high cholesterol, overweight /obesity, arthritis, and broken bones. Prevalence of high cholesterol and arthritis increased with age being more prevalent in the age band 65-74 years while the reverse was seen for asthma. Reports of overweight and obesity were most prevalent in the 35-54 year-olds. Less than 4% of Jamaicans reported any form of mental health problems with major depression and anxiety affecting mainly the younger age groups. (Data not shown) Rheumatic fever was infrequent and showed no distinct age pattern.

**Table 6.4: Age-Specific Prevalence (%) of Specified Disease Conditions Based on Self Report by 10-year Age Categories, JHLSII 2008**

<b>Disease Condition</b>	<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>	<b>Total</b>
Heart Disease	1.4	0.5	0.8	1.3	5.5	6.1	1.7
Diabetes Mellitus	0.6	1.6	7.1	15.4	17.9	28.7	7.6
Glaucoma	0	0.9	0.9	0.7	3.2	6.7	1.0
Hypertension	6.5	11.8	18.3	33.2	42.6	54.1	20.2
High Cholesterol	0.5	1.2	3.9	5.7	8.7	15.4	3.8
Stroke	0.2	0.5	0.4	1.9	3.1	6.1	1.1
Kidney Disease	0.5	0.6	0.2	0.9	0.9	1.2	0.6
Obesity/Overweight	1.5	5.2	7.8	7.8	8.8	7.3	5.6
Circulation	0.6	1.6	2.8	5.6	7.3	13.0	3.4
Rheumatic Fever	1.2	0.8	0.7	0.1	1.8	0.2	0.7
Sickle Cell Disease	0.9	1.0	0.5	0.3	0	0.7	0.7
Sickle Cell trait	2.8	1.7	1.5	2.9	0.8	2.3	2.1
Arthritis	0.1	1.0	3.0	5.5	16.6	29.3	5.0
Asthma/Wheezing	9.8	6.8	6.8	5.8	4.9	2.6	7.0
Bronchitis	2.6	2.7	2.1	4.7	2.5	2.6	2.8
Cancer	0	0.1	0.3	1.7	0.6	2.1	0.5
Broken Bones	5.9	5.5	3.9	6.1	4.0	3.8	5.1
Epilepsy	0.2	1.8	0.6	0.4	0.6	0	0.7
Mental health Problems*	2.9	3.1	3.4	2.8	3.7	1.8	3.1

*\*Includes conditions such as major depression, anxiety, psychosis*

The majority of the participants who have a chronic disease had taken prescribed medication excepting those who had a stroke, where only half of that population reported adhering to pharmaceutical therapy. More than half of the Jamaicans who have diabetes, hypertension or dyslipidaemia reported that they practised weight management, did exercise and /or changed diet but the frequency was lower among persons with heart attack and stroke. (Table 6.5) More males than females appeared to have made these lifestyle changes for all the reported chronic diseases.

**Table 6.5: Proportion (%) of Jamaicans Reporting Adherence in the Management of Chronic Diseases, JHLSII 2008**

	Diabetes			Hypertension			Dyslipidaemia			Heart Attack			Stroke		
<b>Ever Adhered to Recommendation*</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>
Taken prescribed Medicine	92.1	85.7	88.2	77.8	77.0	77.2	74.9	70.0	71.7	55.4	75.6	62.4	42.6	55.6	50.1
Controlled or lost weight exercised/reduced salt intake	63.0	61.4	62.0	73.7	69.2	70.4	74.9	70.0	71.7	60.3	28.5	49.3	58.5	40.1	47.9
Reduced/eliminated alcohol/cigarettes	56.7	36.3	46.2	63.2	29.9	40.1	84.7	60.8	69.2	67.9	28.7	56.9	74.4	34.4	53.3
Done anything else <sup>1</sup>	2.4	3.6	3.1	0.0	2.7	2.0	11.8	4.9	7.4	7.3	34.0	16.0	0.0	0.0	0.0

<sup>1</sup>Lifestyle change for diabetics included special diet; \*Not necessarily adherent at time of survey

The reasons for non-adherence to medications were examined (Table 6.6 [a & b]). The rates reported were expressed as a percentage of the persons taking medications for the respective illnesses. Only in the case of heart attack among males and cancer among females did a significant majority of respondents report that they always take their medications. Common conditions such as hypertension, diabetes mellitus and hyperlipidaemia were never consistently adhered by a majority and the reasons for non-adherence were varied and included 7% who could not be bothered. Frequently reported reasons for non-adherence to medications include, forgetfulness, inability to afford medications, “running out of medications” and “feeling better”. Persons who had suffered from a heart attack frequently cited cost as the main deterrent to adherence while “feeling better” was frequently reported by persons with stroke.

**Table 6.6a: Proportions (%) of Individuals Aged 15-74 Years who Stated Given Reasons for Failure to Take Medication, JHLSII 2008**

	HTN			DM			Heart Attack			Stroke		
Reason	M	F	T	M	F	T	M	F	T	M	F	T
Always take medication	56.3	47.5	50.3	31.3	46.0	40.0	88.0	0	51.0	0	13.0	8.2
Cannot Afford Rx	7.9	6.0	6.5	11.0	4.1	7.0	12.3	13.4	13.0	0	4.0	2.3
Feeling Better	8.2	8.8	8.6	0.9	5.0	3.3	0	0	0	13.4	57.0	42.0
Side Effects	1.3	4.9	4.0	2.2	3.0	3.0	0	0	0	13.4	57.0	42.0
Hear there are side effects	0	1.2	0.9	3.0	0.5	1.4	0	0	0	0.0	16.1	11.0
Forget to take Rx	12.3	16.4	15.3	11.0	11.0	11.0	0	0	0	0.0	7.0	5.0
Run out before next appointment	15.0	11.0	12.0	5.4	11.0	9.0	0	0	0	0.0	5.4	4.0
Cannot be bothered	0.7	7.1	6.0	7.0	7.0	7.0	-	-	-	0.0	6.0	4.0
Alternate therapy	0	0.3	0.2	-	-	-	-	-	-	-	-	-



**Table 6.6b: Proportions (%) of Individuals Aged 15-74 Years who Stated Given Reasons for Failure to Take Medication, JHLSII, 2008**

	<b>Asthma</b>			<b>Epilepsy</b>			<b>Cancer</b>			<b>Dyslipidaemia</b>		
<b>Reason</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>	<b>M</b>	<b>F</b>	<b>T</b>
Always take Rx	33.0	44.0	40.0	0	14.2	14.2	0	81.9	81.9	29.8	30.0	29.9
Cannot Afford Rx	0	6.0	4.1	0	0	0	0	0	0	12.0	2.2	5.8
Feeling Better	53.0	41.0	45.0	0	30.6	30.6	0	0	0	4.8	0	1.7
Side Effects	0	0	0	0	0	0	0	0	0	0	0.6	0.4
Hear there are side effects	14.2	0	5.0	0	0	0	0	0	0	0	8.1	5.1
Forget to take Rx	0	2.4	2.0	0	0	0	0	8.6	8.6	12.0	11.0	11.2
Run out before next appointment	0	3.0	2.0	0	0	0	0	0	0	8.4	8.0	8.0
Cannot be bothered	0	2.0	1.2	0	0	0	0	3.9	3.9	0	0	0
Alternate Therapy	0	2.0	1.0	0	0	0	0	0	0	0	0	0

Table 6.7 shows that approximately 10% of 15-74 year-old Jamaicans have never had their blood pressure checked (14.9% M; 4.2 % F). Forty-seven percent of Jamaicans and nearly twice as many females as males (34.0% M; 58.8% F) reported that they had their blood pressure checked within the six months prior to the interview. Twenty-seven percent of Jamaican 15-74 year-olds were sick in the past year and 40% reported self-medication in the same period. Less than one third of Jamaicans reported taking vitamins or iron supplement with more females than males reporting the use of these supplements.

**Table 6.7: Percentages (%) of 15-74 Year-Old Jamaicans with Given Health Seeking Behaviours, JHLSII 2008**

<b>Health Seeking Behaviour</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Last time blood pressure measured</b>			
Never	14.9	4.2	9.4
Less than 6 months	34.0	58.8	46.6
Six months to less than a year	15.7	16.6	16.1
One to two years ago	18.5	12.8	15.6
Over 2 years ago	16.9	7.6	12.2
<b>Been sick in the past year</b>	24.0	30.2	27.0
<b>Self medicated in past year</b>	45.1	34.2	40.0
<b>Vitamin Supplements</b>	19.0	24.0	21.5
<b>Iron Supplements</b>	8.9	17.4	13.2

Health-seeking behaviour as estimated by time to last blood pressure measurement varied somewhat by social groups as estimated by income or household possessions. A greater proportion of persons with high income and those with more household possessions had their blood pressure measured in the last six months. However a similar proportion of approximately 10% across all the other groups have never had their blood pressure measured. (Table 6.8) Persons with health insurance were more likely to have had their blood pressure measured in the last six months compared to those without insurance (58.5% vs. 43.8%). Reports of episodes of illness, self-medications and the use of vitamin and iron supplements were most frequent in the high SES group (household possessions) and the difference was most marked in the use of vitamin supplements. Variations in these features were less marked across income categories while the use of vitamin and iron supplements was more frequent among persons with health insurance. Students were most likely to have never had their blood pressure measured (31.9%) compared to 12% or less in all other employment and education groups. Persons in the highest education category reported more episodes of illness and were more likely to self-medicate and also used more vitamin supplements than other groups but the use of iron supplements did not show similar variation (Table 6.9).

**Table 6.8: Percentages (%) of 15-74 year-old Jamaicans with Given Health Seeking Behaviours from Varying Demographic Indices, JHLSII, 2008**

Health Seeking Behaviour	SES (Possessions)			Income			Health Insurance	
	Low	Middle	High	Low	Middle	High	Yes	No
<b>Last time blood pressure measured</b>								
Never	9.6	9.6	8.6	8.9	9.6	2.6	7.4	9.9
Less than 6 months	43.1	48.3	50.5	44.2	46.7	55.2	58.5	43.8
Six months to less than a year	17.4	15.4	15.5	15.9	15.8	19.5	15.9	16.2
One to two years ago	15.0	16.4	14.1	16.9	15.3	15.3	12.2	16.4
Over 2 years ago	14.9	10.4	11.2	14.1	12.6	7.5	6.0	13.7
<b>Been sick in the past year</b>	27.5	24.8	33.7	26.5	27.3	32.6	32.6	25.7
<b>Self medicated in past year</b>	11.4	8.8	14.8	11.9	9.6	8.5	12.2	10.2
<b>Vitamin Supplements</b>	14.7	21.4	39.5	13.7	22.7	38.1	38.2	17.4
<b>Iron Supplements</b>	10.9	14.3	15.7	10.1	14.9	12.6	16.5	12.4

**Table 6.9: Percentages (%) of 15-74 year-old Jamaicans with Given Health Seeking Behaviours from Varying Demographic Indices, JHLSII, 2008**

Health Seeking Behaviour	Education			Employment		
	Primary or Lower	Secondary	Post Secondary	Employed	Unemployed	Student
<b>Last time blood pressure measured</b>						
Never	5.7	12.0	6.5	7.4	6.0	31.9
Less than 6 months	50.2	44.2	50.0	47.2	51.3	28.1
Six months to less than a year	15.1	16.7	16.7	16.8	15.4	15.2
One to two years ago	13.8	16.4	15.8	15.6	16.1	13.6
Over 2 years ago	15.3	10.8	11.0	12.9	11.3	11.3
<b>Been sick in the past year</b>	26.1	26.5	33.0	25.8	29.5	25.9
<b>Self medicated in past year</b>	9.1	10.0	18.0	10.2	10.6	11.8
<b>Vitamin Supplements</b>	16.8	20.1	41.1	23.9	18.9	14.8
<b>Iron Supplements</b>	10.6	13.6	18.5	14.3	12.8	8.4

Persons with illnesses were more likely to seek healthcare than those without and were unlikely not to have blood pressure measured in the last two years except for persons with a heart attack where almost a quarter of persons with this history did not have their blood pressure measured in the last two years. Persons with diabetes, heart attack, stroke and high cholesterol, reported illness episodes more frequently than their unaffected counterparts, while the reverse was seen between persons with and without hypertension (Table 6.10).

**Table 6.10: Percentages (%) of 15-74 Year-Old Jamaicans with Given Health Seeking Behaviours who had Varying Cardiovascular Diseases, JHLSII 2008**

Health Seeking Behaviour	Cardiovascular Disease									
	Diabetes		HTN		Heart Attack		Stroke		High Cholesterol	
<b>Last time blood pressure measured</b>	Y	N	Y	N	Y	N	Y	N	Y	N
Never	2.3	10.0	4.7	11.0	0.0	10.3	0.0	10.4	4.7	10.2
Less than 6 months	78.6	43.9	60.6	41.9	58.4	47.4	79.7	46.9	58.3	44.6
Six months to less than a year	12.0	16.5	13.3	17.1	13.7	15.8	3.5	16.0	15.3	16.2
One to two years ago	4.7	16.5	11.2	17.1	4.5	15.0	12.7	15.0	13.7	16.1
Over 2 years ago	2.5	13.0	10.2	12.9	23.5	11.5	4.1	11.8	8.0	12.9
<b>Been sick in the past year</b>	35.4	26.3	23.8	28.1	35.6	27.0	42.7	26.9	31.2	26.9
<b>Self medicated in past year</b>	9.9	10.6	7.9	11.5	13.2	10.2	20.1	10.1	9.0	11.1
<b>Vitamin Supplements</b>	21.5	21.2	22.0	21.3	24.3	20.7	19.6	17.9	27.3	20.5
<b>Iron Supplements</b>	13.2	13.2	12.3	13.6	21.3	12.4	0.0	7.9	14.5	12.9

### Section 6.3: Health Insurance

These data show that among Jamaicans 15-74 years old, 18.9% reported having private health insurance (Of which 14.0% purchased by employer) and more men than women having this facility (22.4% vs. 15.8%;  $p \leq 0.01$ ) (Table 6.11). In persons with private insurance, young adults and middle aged persons were more likely to have private health insurance; with 25-34 year olds having the highest frequency. (Table 6.12).

Health insurance as an employee benefit was more frequent than individual purchase of health insurance in all age categories except in the 55-64 year-old age group where males had similar frequencies of employer-purchased and individual-purchased health insurance policies.

**Table 6.11: Proportion (%) of 15-74 Year-Old Jamaicans with Private Health Insurance, JHLSII 2008**

	Male	Female	Total
Private Health Insurance	22.4	15.8	18.9
-Subscriber	11.8	7.9	9.8
- Dependent	8.4	6.7	7.4
- Both	2.2	1.2	1.7
Private Insurance Purchase by			
- Employer	17.2	11.0	14.0
- Individual	3.5	3.7	3.6
Employer & Individual	0.9	0.3	0.6

**Table 6.12: Proportion (%) of 15-74 year-old Jamaicans by Age Group and Sex with Private Health Insurance, JHLSII 2008**

Age groups	Subscriber			Dependent			Subscriber & Dependent		
	M	F	T	M	F	T	M	F	T
15-24	5.4	5.1	5.3	14.2	9.5	11.7	1.5	1.0	1.3
25-34	18.8	9.4	13.9	5.6	5.7	5.5	4.2	1.4	2.7
35-44	12.1	7.0	9.5	6.9	5.7	6.2	3.5	2.0	2.7
45-54	10.2	9.2	9.7	7.3	4.8	5.7	0	0.9	0.4
55-64	13.7	9.6	11.7	4.8	6.2	5.5	0	0.3	0.1
65-74	12.7	11.0	11.8	7.5	6.6	6.9	0.9	0	0.4
<b>Totals</b>	11.8	7.9	9.8	8.4	6.7	7.4	2.2	1.2	1.7
	Employee- Benefit			Individual Purchase			Both		
Age groups	M	F	T	M	F	T	M	F	T
15-24	16.2	9.7	12.9	1.8	4.6	3.2	0.6	0.3	0.5
25-34	21.1	13.5	17.1	6.0	2.5	4.2	1.6	0.2	0.9
35-44	20.5	11.4	15.8	1.1	2.5	1.8	0.0	0.2	0.1
45-54	14.9	10.2	12.6	2.6	3.3	2.9	0.0	0.6	0.3
55-64	7.1	10.6	8.8	8.5	4.1	6.4	2.9	0.6	1.8
65-74	14.2	6.9	10.4	4.8	8.5	6.8	1.6	0.0	0.8
<b>Totals</b>	17.2	11.0	14.0	3.5	3.7	3.6	0.9	0.3	0.6

#### Section 6.4: National Health Fund Programmes

The National Health Fund Programme (NHF) provides subsidies for the purchase of medications for a selected list of illnesses to all eligible Jamaicans while the Jamaica Drugs for the Elderly Programme (JADEP) provides subsidies on a similar range of illnesses but only to persons 60 years and older.

Seventy-seven percent (74% men and 80% women) of the population had heard of the NHF Programme. A higher proportion of women had heard of the NHF in all age categories and while the proportion of men who had heard of the NHF did not vary significantly with age, older women were more aware of the service than younger women. A total of 9.5% (7.1% men and 11.9% women) of the population were enrolled in the National Health Fund Programme. Enrolment was greater in females compared to males in all age groups and increased with age in both sexes but the sex difference widened in older age groups, such that among 65-74 year old persons, enrolment among females was almost twice that among males (54.5% vs. 28.5%). (Table 6.13)

**Table 6.13: Percentage (%) Enrolment in NHF Programme by Age Group and Sex, JHLSII 2008**

Age groups	Ever Heard of NHF			Enrolled with NHF*		
	M	F	T	M	F	T
15-24	69.1	72.3	70.7	2.5	2.9	2.7
25-34	72.6	77.9	75.4	1.3	2.4	1.8
35-44	74.4	79.5	77.0	4.5	8.7	6.6
45-54	79.3	87.3	83.3	13.0	19.2	16.0
55-64	76.7	89.8	83.1	17.3	29.7	23.4
65-74	74.2	87.9	81.4	28.5	54.5	42.0
<b>Totals</b>	73.5	79.7	76.7	7.1	11.9	9.5

*\*Of the total population of 15-74 year olds*

Approximately 36% (33% men and 40% women) of Jamaicans reported having heard of the JADEP programme. Awareness was lowest in the 15-24 year old age group and highest in those over 65 years old ( 52%). Within each age group there was greater awareness of the programme among female compared to male respondents. Among females, there was a steady increase in awareness among older persons while the change with age among males was inconsistent, appearing to peak in middle age (45-54 year old) but falling off thereafter (Table 6.14) Of the entire population 2.5% (1.9% men and 3.0% women) were enrolled in the JADEP programme while 23.7% (28.5% women and 18.4% men) of the population over age 60 had enrolled.

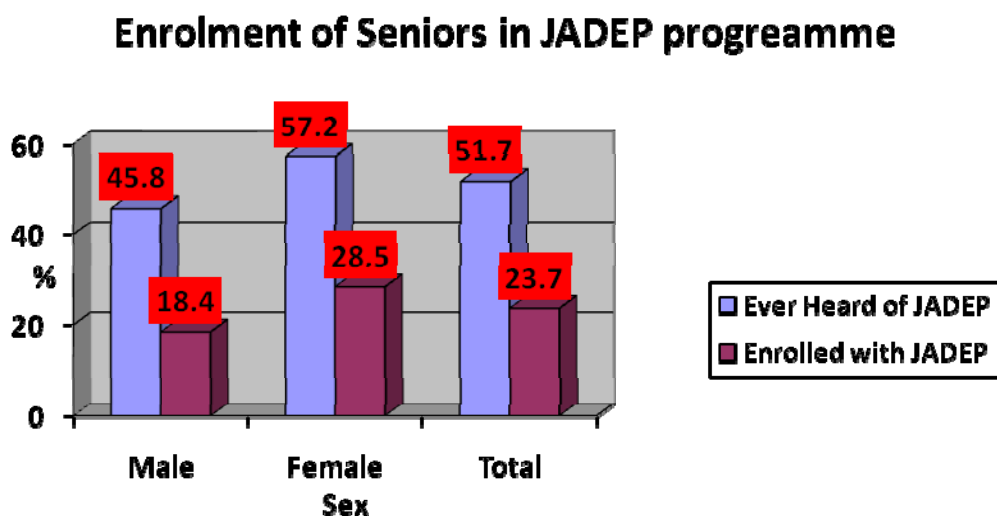
**Table 6.14: Percentage (%) Enrolment in JADEP Programme by Age Group and Sex, JHLSII 2008**

Age groups	Ever Heard of JADEP			Enrolled with JADEP*		
	M	F	T	M	F	T
15-24	14.4	24.3	19.4	0	0	0.0
25-34	21.9	35.7	29.2	0	0	0.0
35-44	44.9	41.0	42.9	0	0.0	0.0
45-54	53.0	54.0	53.5	0	0.0	0.0
55-64	44.8	56.7	50.7	5.1	8.3	6.7
65-74	45.4	57.5	51.7	22.3	34.3	28.6
Totals	32.9	39.6	36.3	1.9	3.0	2.5

*\*Of the total population of 15-74 year olds*

Half of the persons recruited in the over 60 age category reported they had heard of the Jamaica Drugs for the Elderly programme; only twenty-four percent are enrolled. (Figure 6.1) and these proportions were greater in females than males.

**Figure 6.1: Proportion (%) of Jamaicans Over Sixty Years who are Enrolled in the JADEP Programme, JHLSII 2008**



Of those persons who had ever heard of the programmes, enrolment was 12% and 7% in NHF and JADEP, respectively, with twice as many females as males enrolled in the programmes. (Table 6.15). Small differences exist between urban and rural dwellers in the awareness of and enrolment in the NHF. Higher proportions of urban compared to rural males are aware of the NHF while among females, the reverse is true. There are no urban/rural differences in the awareness of the JADEP programme but as for the NHF programme, more urban males and rural females are enrolled compared to their counterparts.

**Table 6.15: Percentage (%) Enrolment in NHF/JADEP Programme by Geographical Distribution JHLSII 2008**

	Urban			Rural			Total		
	M	F	T	M	F	T	M	F	T
Heard of NHF	74.6	78.3	76.5	71.4	82.4	77.1	73.5	79.8	76.7
Enrolled with NHF*	10.6	14.3	12.5	7.9	16.0	12.3	9.6	14.9	12.5
Ever Heard of JADEP	33.0	39.7	36.4	32.5	39.6	36.2	32.9	39.6	36.3
Enrolled with JADEP*	6.6	6.8	6.7	4.2	9.2	7.0	5.8	7.7	6.8

*\*Of those who have ever heard of the programmes*

Table 6.16 gives percentages of males and females who obtained information on the NHF and JADEP programmes. The major sources of information were the media (58% and 62%) and family/friend (25% and 24%) for the NHF and JADEP respectively. More women than men had heard about the NHF from their health care provider (20% vs. 8% respectively). The proportion of women who had received their information about the NHF from health care providers increased with age while those women who learned about the NHF from the media was lower in the older participants. (*Data not shown*) Very few persons had learned of the NHF through health fairs and other sources.

**Table 6.16: Sex-Specific Percentages (%) of 15-74 Year-Old Jamaicans who Indicated Given Sources of Information on NHF/JADEP Programmes <sup>1</sup>, JHLSII 2008**

Sources		NHF	JADEP
Media	Male	65.9	69.4
	Female	51.6	55.4
	Total	58.3	61.6
Health Professional	Male	8.3	8.5
	Female	20.1	15.5
	Total	14.5	12.4
Family friend	Male	24.6	20.6
	Female	25.2	26.1
	Total	24.9	23.7
Heath Fair	Male	0.6	1.4
	Female	2.4	2.4
	Total	1.5	2.0
Other	Male	0.6	0.0
	Female	0.8	0.6
	Total	0.7	0.3

<sup>1</sup>Of those who have heard of the programmes

Of the persons enrolled in both the NHF & JADEP programmes just over a third used the NHF card regularly and a quarter never used at all while a little less than half reported using the JADEP card on a regular basis and almost one fifth of those with cards reported never utilizing them at all. There were no significant sex differences in regular utilization of the cards. (Table 6.17)

**Table 6.17: Card Usage Pattern (%) among Persons who were enrolled with the NHF/ JADEP Programme by Sex, JHLSII 2008**

<b>NHF n=392</b>	<b>Male</b>	<b>Female</b>	<b>Totals</b>
Never	23.5	23.9	23.8
Seldom	24.8	19.5	21.4
Occasionally	20.2	16.9	18.1
Regular	31.6	39.6	36.7
<b>JADEP n=117</b>	<b>Male</b>	<b>Female</b>	
Never	24.6	14.3	18.1
Seldom	5.1	9.3	7.7
Occasionally	24.6	28.0	26.7
Regular	45.6	48.4	47.4

Table 6.18 shows numbers of persons stating different reasons for non-enrolment expressed as a percentage of those who had heard of the respective programmes. When the reasons for not enrolling in the NHF programme were explored not having any of the required health conditions was the most common reason.(56.5%) Many reported having difficulty with the process or not wanting to make the effort to get this benefit. Lack of qualifying information such as a Taxpayer Registration Number (TRN) or birth certificate only prohibited very few persons from enrolling. A smaller proportion of those who did not enrol in the JADEP programme had none of the health conditions that were covered but most stated the reason for non-enrolment as not meeting the age criteria. (47.7%)



**Table 6.18: Sex-Specific Percentages of Reasons for Non-enrolment in the NHF/JADEP Programmes, JHLSII**

Reason		NHF	JADEP
No health condition	Male	56.5	29.5
	Female	47.1	29.4
	Total	51.5	29.5
No TRN	Male	0.7	0.5
	Female	1.0	0.3
	Total	0.9	0.4
No birth certificate	Male	0.3	0.5
	Female	0.6	0.3
	Total	0.4	0.4
Drugs not covered	Male	0.5	1.2
	Female	0.7	0.4
	Total	0.6	0.7
Subsidies too low	Male	1.7	-
	Female	1.8	-
	Total	1.7	-
Not yet sixty	Male	-	47.7
	Female	-	54.0
	Total	-	51.1
Other: - Don't know how to	Male	9.6	2.2
	Female	11.0	2.0
	Total	10.3	2.0
Other Health Insurance	Male	1.6	0.23
	Female	2.2	0.40
	Total	2.0	0.32
No effort/ Cannot be bothered	Male	14.7	14.5
	Female	12.5	9.9
	Total	13.9	11.9
Application Pending	Male	0.5	-
	Female	0.2	-
	Total	0.3	-
Process too Costly	Male	0.1	-
	Female	0.2	-
	Total	0.2	-

The desire to save, (88.3% and 85.4% respectively) and encouragement from a healthcare professional (11.0% and 17.6% respectively) were the more common reasons for use of the NHF/JADEP cards. (Tables 6.19 and 6.20) Of the 24% of persons who are enrolled but do not use the card; non-acceptance of cards at pharmacies was reported by 3.9% of NHF and 5.5% of JADEP beneficiaries. Other reasons for persons who were enrolled in the NHF and not utilizing the card included, lack of availability of their specified drug on the programme (3.4%), and using other health cards (1.0%). A high proportion of persons especially males had no given reason for non use of the NHF card. (M 20%, F6%, T 13%)

**Table 6.19: Percentages of Persons Enrolled (n=392) with the NHF Who State Given Reasons for Using Card, JHLSII 2008**

<b>Reasons for use of NHF Card</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Save	51.3	55.6	54.1
Encouraged by healthcare professional	9.4	7.9	8.4
Encouraged by friends/family	0	0.9	0.
Reason not stated	16.0	12.1	13.5
Enrolled card not used	23.4	23.5	23.5
<b>Reasons for non use of NHF Card</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Benefits too small	0	2.0	1.2
Pharmacy does not accept card	0	4.9	3.9
Prescribed drug not on list	0	5.3	3.4
Cannot afford co-payment	0	0.7	0.5
Have other health insurance	2.6	1.3	1.0
Have other means of getting prescription	0	0.8	0.5
Reason not stated	20.1	6.1	13.0

Those with JADEP cards that were not being used stated that their drug not being covered by the programme (19.6%), there was a lot of tedium and difficulty with the process (11.9%) and pharmacies tended not to take the card (5.5%). There were some differences between males and females in the explanations provided with more males than females reporting that prescribed drug was not on the list or failure of card to arrive after application while more women complained about the tedium of the process (Table 6.20).

**Table 6.20: Percentages of Persons Enrolled (n=117) with the JADEP who Stated Given Reasons for Using Card, JHLSII 2008**

<b>Reasons for use of JADEP Card</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Save	89.1	83.5	85.4
Encouraged by healthcare professional	25.9	12.8	17.6
Encouraged by friends/family	0	7.3	4.8
<b>Reasons for non use of JADEP Card</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Condition not covered	5.0	0	2.5
Pharmacy does not accept card	0	11.3	5.5
Prescribed drug not on list	26.6	12.5	19.6
Applied but no card received	41.3	27.4	34.4
Tedious to fill Rx	0.0	24.2	11.9
Other Insurance	9.5	0	4.8

The majority of the persons enrolled in the NHF programme accessed the medication subsidy benefit from the programme, while a minority of cardholders' ~2.6% accessed other benefits including glucometers and strips. (Table 6.21)

**Table 6.21: Percentage of Persons Enrolled who Accessed Given Benefits through the NHF Programme, JHLSII, 2008**

Benefits accessed with NHF Card	Male	Female	Total
Medication	96.8	97.7	96.6
Glucometer	0.0	1.8	1.2
Glucometer strips	3.1	0.0	1.4

Table 6.22 shows the extent to which persons with diabetes mellitus accessed benefits from the NHF programme. No one reported accessing the recently introduced Glycosylated Haemoglobin (HbA1c) testing. Of note is that no male reported obtaining a Glucometer however only men obtained strips through the programme. Over seventy percent of the diabetics enrolled reported accessing their medication from the programme.

**Table 6.22: Percentage of Diabetics Enrolled who Accessed Diabetic Benefits through the NHF Programme, JHLSII, 2008**

Benefits accessed with NHF Card	Male	Female	Total
Medication	60.7	77.8	70.8
Glucometer	0.0	2.5	1.6
Glucometer strips	7.8	0.0	3.3
Glyco Hb testing	0.0	0.0	0.0
Enrolled don't use card	31.3	19.8	24.5

Table 6.23 shows the proportion of persons with given conditions who access the NHF benefits. Of the listed conditions which are eligible for benefits use of the benefit was reported in less than 50% of cases overall. Only among females in the cases of glaucoma (57%), diabetes mellitus (52%), high cholesterol (51%) and among males in the case of stroke (59%) were the benefits used in more than 50% of cases. Diabetes mellitus 50%), glaucoma (49%) and high cholesterol (47%) show the highest usage rates. Conditions with the lowest uptake of the benefits include Asthma (12%), mental health problems (16%) and enlarged prostate (26%).

**Table 6.23: Sex- specific Enrolment (%) in the NHF programme by Self-Reported Disease Conditions, JHLSII 2008**

<b>Disease Condition</b>	<b>Male(n)</b>	<b>Female(n)</b>	<b>Total(n)</b>
Heart Disease	33.3 (6)	33.5(21)	33.4 (27)
Diabetes Mellitus	47.1(37)	51.6(130)	49.8(167)
Glaucoma	41.5(7)	56.9(18)	49.4(25)
Hypertension	33.0(44)	27.8(220)	29.2(264)
High Cholesterol	38.9(13)	51.4(71)	47.1(84)
Stroke	58.7(9)	28.6(10)	42.1(19)
Kidney Disease	11.0(1)	15.1(4)	13.4(5)
Overweight/Obese	6.8(3)	18.9(42)	16.1(45)
Circulation	40.3(13)	38.0(52)	38.6(65)
Enlarged Prostate	26.1(6)	N/A	26.1(6)
Arthritis	30.9(10)	42.0(92)	39.7(102)
Sickle Cell Disease	0.0(0)	11.6(2)	8.7(2)
Asthma	10.1(6)	12.8(22)	11.7(28)
Cancer	43.1(2)	48.5(12)	47.1(14)
Mental health Problems*	8.2 (2)	21.6 (19)	16.3(21)
Epilepsy	0.0(0)	10.5(4)	7.0(4)

Table 6.24 highlights the enrolment in the JADEP programme of persons with the cited disease conditions. For all conditions reported less than a half of persons with the disease are enrolled in the programme. Only ten percents of the persons who stated they were hypertensive are enrolled in JADEP. The highest uptake of these JADEP benefits is for cancer (men - 100%; women – 47%) while there was moderate uptake by both sexes for diabetes mellitus, high cholesterol, glaucoma, circulation, asthma (among females), arthritis (among females) and enlarged prostate among males.

**Table 6.24: Sex- specific Enrolment (%) in the JADEP programme by Self-Reported Disease Conditions, JHLSII 2008**

<b>Disease Condition</b>	<b>Male(n)</b>	<b>Female(n)</b>	<b>Total(n)</b>
Heart Disease	13.0 (2)	52.4(12)	39.1(14)
Diabetes Mellitus	45.6(17)	37.0(34)	40.7(51)
Glaucoma	39.1(2)	37.2(10)	37.8(12)
Hypertension	12.6(21)	9.1(73)	10.0(94)
High Cholesterol	36.7(6)	49.1(30)	45.6(36)
Stroke	17.8(2)	19.3(3)	18.5(5)
Kidney Disease	0.0(0)	100.0(1)	25.0(1)*
Overweight/Obese	22.6(1)	36.6(14)	34.8(15)
Circulation	48.0(5)	33.1(14)	37.6(19)
Enlarged Prostate	45.6(5)	N/A	45.6(5)
Arthritis	25.3(6)	41.5(45)	37.2(51)
Asthma	0.0	54.6(8)	28.0(8)
Cancer	100(1)	47.1(5)	51.2(6)
Mental health Problems*	0.0 (0)	25.4(2)	17.0(2)
Epilepsy	0.0	37.5(1)	37.5(1)

\*unweighted estimates

## Section 6.5: Sources of Information

We examined the sources from which Jamaicans received information on their general and dental health. (Table 6.25)

The majority of the population (97%) reported that they received health information from at least one source. Television was a source of information for more than half of the population and was the source most frequently mentioned by both sexes, followed by radio in over 40% of Jamaicans. The print media and friends/parents/family members were reported by 1 in 5 persons. More females (45%) than males (30%) reported receiving health information from doctors or nurses and more males (16 %) than females (12%) reported receiving information from magazines/newspapers. Of note is that newspaper as the source of print media was more frequently reported than brochures and pamphlets as a source of information. The other sources of information were reported by similar proportions of males and females. A very small proportion of the population (<2%), listed the other health professionals (nutritionists/dietitians) or non-government organizations (NGOs), as providing a source of information on health.

**Table 6.25: Sources of Information (%) on Health as Reported by Jamaicans 15-75 Years by Sex, JHLSII 2008**

Sources	Males	Females	Totals
None	3.1	2.3	2.7
Doctor/Nurse	30.1	44.8	37.6
Dietitian/Nutritionist	1.5	1.4	1.4
Television	56.3	60.2	58.3
Radio	46.6	42.0	44.3
Brochures/ Pamphlets	7.9	8.9	8.4
Magazines/Newspaper	15.5	11.7	13.6
NGOs* e.g. DAJ**Churches	1.4	1.4	1.4
Friend /Family Member /Parent	19.4	14.9	17.1

*\*Non-governmental organizations; \*\*Diabetes Association of Jamaica*

Table 6.26 shows the proportion of the population that report receiving no health information is similar across age groups. The frequency with which health workers are reported as a source of information is higher among older persons while television and friend/ family member/ parent are reported less frequently in this group and more frequently among the younger persons. A higher proportion of the younger age group 15-24 years (21%) report newspaper/magazines as a source of information than the other age groups. Dietitian/Nutritionist and NGOs were infrequently mentioned by all age groups as a source of information on health.

**Table 6.26: Sources of Information (%) on Health by Ten Year Age Bands as Reported by Jamaicans 15-74 years, JHLSII 2008**

Sources	15-24	25-34	35-44	45-54	55-64	65-74
None	2.3	2.5	2.4	3.0	4.0	4.1
Health Worker	34.9	34.4	37.3	39.8	40.5	50.4
Dietitian/Nutritionist	1.1	2.3	1.0	2.0	0.2	1.5
NGOs* e.g. DAJ**	0.9	0.8	0.7	0.8	2.1	0.4
Television	64.3	60.1	60.7	58.3	44.5	39.0
Radio	37.1	43.4	48.3	52.0	49.0	40.2
Brochures/Pamphlets	9.4	8.0	8.7	9.4	6.1	6.0
Magazines/Newspapers	21.3	11.9	14.3	16.8	16.3	5.9
Friend /Family Member /Parent	19.1	18.7	17.9	11.5	15.4	14.7

*\*Non-governmental organizations; \*\*Diabetes Association of Jamaica*

Television is the reported medium of choice for information on nutrition with one third of the population reporting that source; this is followed by the doctor/nurse with one in four persons stating this source and females reporting it more frequently than males. The nutritionist/ dietician were the most infrequent source of information on nutrition. (Table 6.27)

**Table 6.27: Sources of Information (%) on Nutrition as Reported by Jamaicans 15-75 Years by Sex, JHLSII 2008**

Sources	Males	Females	Totals
None	4.8	4.8	4.8
Doctor/Nurse	21.0	31.9	26.6
Dietitian/Nutritionist	1.6	1.8	1.7
Television	33.7	32.5	33.1
Radio	17.7	13.2	15.4
Brochures/ Pamphlets	3.4	3.4	3.4
Magazines/Newspaper	4.8	4.3	4.5
NGOs* e.g. DAJ**Churches	2.0	2.6	2.3
Friend /Family Member /Parent	10.9	5.5	8.1

*\*Non-governmental organizations; \*\*Diabetes Association of Jamaica*

There is great disparity in the reported proportions of Jamaicans who cite the health worker as a source of information on nutrition across the ages. The proportions trend steadily upward with age from 18.8% in the 15-24 year age band to 42.1% in the 65-74 year age band. The converse is true however for the persons who reported television as their source of information, falling from 38% among youth to 18% among the elderly (Table 6.28). In general lower proportions of persons report sources of nutrition information compared to general health information.

**Table 6.28: Sources of Information (%) on Nutrition by Ten Year Age Bands as Reported by Jamaicans 15-74 years, JHLSII 2008**

Sources	15-24	25-34	35-44	45-54	55-64	65-74
None	5.3	5.3	4.2	4.1	4.2	5.6
Health Worker	18.8	24.1	28.6	30.8	32.5	42.1
Dietitian/Nutritionist	1.7	2.2	1.4	1.6	1.8	1.0
NGOs* e.g. DAJ**	5.5	0.7	0.9	1.7	3.5	2.6
Television	38.2	37.2	33.5	31.8	18.9	17.9
Radio	9.8	14.7	17.6	17.7	23.6	17.6
Brochures/Pamphlets	3.8	3.1	4.4	2.9	2.9	1.6
Magazines/Newspapers	6.3	3.9	3.8	5.0	3.8	2.9
Friend /Family Member /Parent	10.7	8.9	5.9	4.4	9.0	9.8

*\*Non-governmental organizations; \*\*Diabetes Association of Jamaica*

All persons appear to have a source of information on dental health. Dentist or school nurse and parent or family member were the most frequently reported sources of dental health information and both were reported by similar proportions of Jamaicans approximately 40%. All other sources were mentioned by a small minority of the population (<15% in all cases) of which the public communication media (television, radio and internet) were the most frequently mentioned at just over 10% (Table 6.29).

**Table 6.29: Sources of Information (%) on Dental Care as Reported by Jamaicans 15-74 Years, by Sex JHLSII 2008**

Sources	Males	Females	Totals
No Source	0.0	0.0	0.0
Dentist/School Nurse	32.9	40.0	36.5
Other healthcare provider	2.0	2.9	2.4
School Talks	4.8	4.4	4.6
Television/ Radio/Internet	12.7	10.9	11.7
Print Media	1.4	1.4	1.4
Parent/family Member	41.7	35.2	38.4

The dentist or family member is the major source of information on dental care for all age groups and there is little variation in the proportions reporting on these sources by age category. Public communication media (television, radio and internet) were consistently the next in line at all ages the source of dental health information (Table 6.30).

**Table 6.30: Sources of Information (%) on Dental Care as Reported by Jamaicans 15-74 Years by Age JHLSII 2008**

Sources	15-24	25-34	35-44	45-54	55-64	65-74
Dentist	31.7	36.0	44.7	35.9	32.9	35.0
Other Healthcare	1.9	2.5	3.5	1.6	3.3	0.9
School Talks	7.1	3.4	3.5	5.9	3.0	2.6
Television/ Radio/Internet	10.8	13.2	9.6	13.4	13.4	9.5
Print Media	1.4	1.5	1.6	1.3	1.2	0.6
Parent/family Member	44.6	36.9	32.5	38.4	37.9	40.5

There were no dramatic differences in the sources of health information across socio-demographic groups. Health workers, television and radio were the most frequently reported sources across education and employment categories and whether persons had health insurance or not. The proportions varied little between the groups except that television as a source was more frequently mentioned by the more educated groups (60% vs. 49%). Brochures and newspapers were also more frequently mentioned by the more educated groups (12% vs. 6% and 28% vs. 9%) respectively. These differences were not seen between groups with or without health insurance or across employment categories. More persons at the higher levels of all categories reported the dietitian/nutritionist as a source of information on health. (Table 6.31).

**Table 6.31: Sources of Information on Health (%) as Reported by Jamaicans 15-74 Years by Varying Demographic Indices, JHLSII 2008**

Sources	Education			Health Insurance		Employment		
	Primary or Lower	Secondary	Post Secondary	Yes	None	Employed	Unemployed	Student
None	4.4	2.3	0.5	1.2	3.1	3.1	5.1	0.0
Health Worker	42.8	36.0	32.5	40.8	36.8	34.5	42.0	41.5
Dietitian/Nutritionist	0.6	1.1	5.5	3.5	1.5	1.9	0.7	1.2
NGOs* e.g. DAJ**	1.5	1.0	3.1	2.0	0.6	1.5	1.2	1.6
Television	49.1	63.0	60.3	59.1	58.1	57.4	60.2	58.0
Radio	46.3	45.6	31.9	38.2	45.7	46.4	42.8	36.7
Brochures	5.8	9.1	12.3	12.4	7.5	9.6	6.6	6.7
Newspapers	8.7	13.5	27.6	20.9	13.9	14.1	11.9	15.9
Friends/Relatives	18.4	16.9	14.6	15.9	17.5	17.2	15.5	22.2

Table 6.32 shows the sources of health information by categories of income and household possessions. The most frequently mentioned sources of information remain the health worker, television and radio with friends/relatives next in line. Variation in the reported frequency of these sources across income and household possessions groups was not dramatic but newspapers were mentioned more often by higher income groups (20% vs. 15% vs. 11%) and by groups with more household possessions (18% vs. 12% vs. 11%). On the contrary, dependence on friends/relatives seems to decrease from lower to higher income groups (22% vs. 16% vs. 10%). The dietitian/nutritionist as a source of information on health increased across income groups and household possession categories.



**Table 6.32: Sources of Information (%) on Health by Socioeconomic Indices, JHLSII 2008**

Socioeconomic Marker	Income			Household Possessions		
Sources	Low	Middle	High	Low	Middle	High
None	3.7	2.7	1.4	4.2	2.8	1.0
Health Worker	37.2	37.4	40.7	39.1	37.6	35.8
Dietitian/Nutritionist	1.1	1.2	2.6	0.6	1.4	2.4
NGOs* e.g. DAJ**	1.6	1.3	3.1	0.8	1.6	1.8
Television	52.8	60.2	67.6	53.7	58.8	63.6
Radio	43.0	44.3	31.3	45.5	47.7	39.6
Brochures	7.4	9.6	7.7	6.6	9.4	9.6
Newspapers	11.4	14.8	19.6	10.7	11.8	18.7
Friends/Relatives	21.9	16.0	9.8	19.8	13.0	18.2

# CHAPTER 7

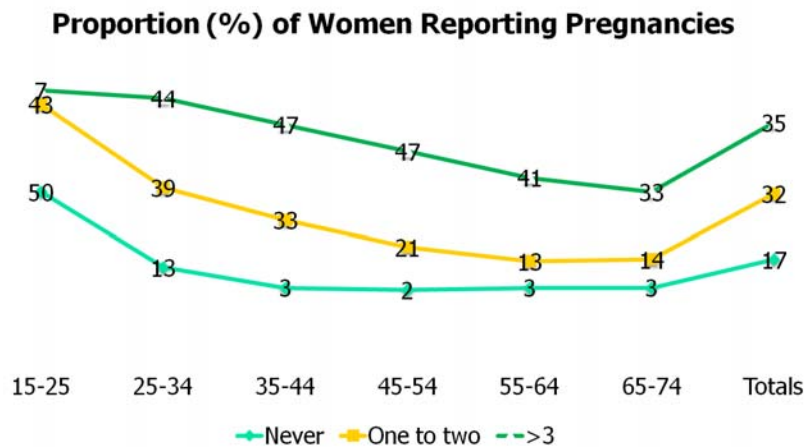
## Sexual and Reproductive Health

We explored various facets of reproductive health of Jamaicans aged 15-74 years including the male and female reproductive health history and sexual practices.

### Section 7.1: Female Reproductive Health

Half of all women within the 15-24 age bands reported never being pregnant but by age 44 years only 8.0% of women had never been pregnant and among the 65-74 year olds only 2.5% of women reported that they had never been pregnant. Approximately 40% of women within all age bands excepting 15-24 and 65-74 years reported having 3-5 pregnancies (Table 7.1, Figure 7.1). As expected, the number of pregnancies increased with age. The average period of lactation exceeded 12 months within and across all age bands among women who had at least one live birth. One in twenty pregnant women reported hypertension during pregnancy and this was most frequently reported in the prime reproductive age group of 25-44 years olds where in each of the 10-year age bands across this range, approximately a quarter of women reported this condition. The reported prevalence among the youngest mothers, 15-24 years old, was 10% and in the oldest age groups, 55-64 and 65-74 years it was 15% and 6% respectively. This low prevalence in the older age groups raises possible issues of recall errors. The prevalence of diabetes mellitus in pregnancy was lower in all age groups ranging from 1.6% in 65-74 year olds to 3.9% in women 45-64 year old.

Figure 7.1: Number of Pregnancies (%) as Reported by Jamaican Females 15-74 Years, JHLSII 2008



**Table 7.1: Proportion (%) of Women with Given Reproductive Characteristics Within and Across Ten Year Age bands. JHLSII 2008**

<b>Frequency of Menstruation</b>	<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>	<b>Totals</b>
Had a period in past 6 months							
Yes	88.5	86.7	88.5	67.8	5.0	1.3	72.7
No	11.5	13.3	11.5	32.2	95.0	98.7	27.3
Reasons no period							
Never had a period	0.2	0.0	0.0	1.0	0.0	0.0	0.2
Natural Menopause	0.0	0.0	0.6	20.4	86.9	89.7	15.9
Surgery	0.0	0.5	1.0	7.9	7.9	8.0	2.6
Pregnant/Post-partum	5.0	4.2	4.2	0.0	0.0	0.0	3.2
Contraceptives/ Prescribed Medications /Ill-Health	5.7	8.3	5.4	1.3	0.0	0.9	4.9
<b>Duration of Menstrual Cycle</b>							
No recent period	13.9	14.9	13.4	13.4	34.6	96.8	29.2
Less than 21 days	2.3	3.0	3.5	5.0	0.0	1.3	2.8
21-31days	83.9	82.1	83.1	60.3	3.2	0.0	67.9
<b>Number of pregnancies</b>							
Never	50.1	12.7	3.4	2.3	3.3	2.5	17.1
1-2	42.6	38.5	32.5	21.2	13.1	14.2	32.2
3-5	7.4	43.8	47.1	46.9	40.7	32.9	34.9
6 or more	0	5.0	17.1	29.6	42.9	50.4	15.8
<b>Number of births</b>							
None	12.9	5.1	2.4	2.7	1.2	3.0	5.7
1-2	79.8	48.7	37.4	27.4	18.6	15.7	46.4
3-5	7.3	43.1	48.2	44.9	44.6	35.2	35.1
6 or more	0	3.2	12.0	25.1	35.7	46.1	12.8
<b>Lactation</b>							
Average lactation period (Months)	12.0	12.2	12.7	12.1	13.8	12.8	12.5
(CI)	(8.9-15.2)	(10.813.6)	(10.9-14.4)	(11.7-14.5)	11.7-15.9	(9.6-14.5)	(11.5-12.5)
<b>Chronic Disease in Pregnancy</b>							
Hypertension during pregnancy	10.3	26.6	25.8	25.7	14.7	6.3	21.9
Diabetes during pregnancy	2.0	2.6	3.1	3.9	2.9	1.6	2.7

Approximately one third of women have never done a Pap smear or breast exam either by self or doctor (Table 7.2). Forty percent of women did self-examination of their breasts monthly and 28% had examination by a doctor at least once within the previous year but 38.0% of women have never had their breasts examined by a doctor. Hysterectomy was reported in less than 1% of women and therefore was not a likely reason for the low Pap smear screening.

**Table 7.2: Percentage (%) of Females with Given Features of Health Seeking Behaviours, JHLSII 2008**

<b>Health-seeking behaviour</b>	<b>Percentage (%)</b>
Last Pap smear	
Never	34.3
Less than 1 year	18.0
1-2 years	18.0
Three or more	29.2
Had hysterectomy	0.83
Breast Exam (self)	
Never	37.0
Yearly	4.0
3-6 months	17.0
Monthly	42.2
Last Breast Exam (doctor)	
Never	38.0
More than 1 year	35.0
Less than one year	28.0

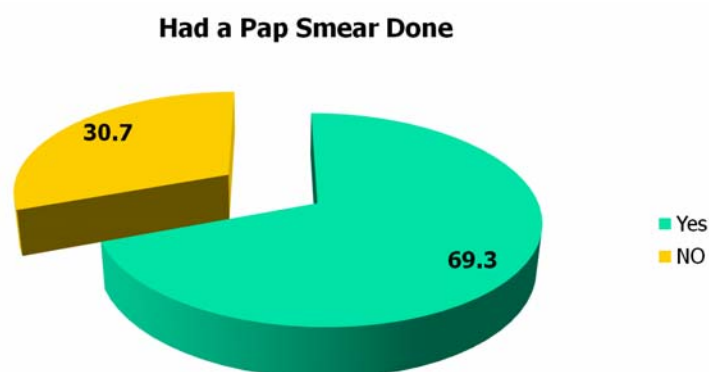
The majority (71.3%) young women (15-24years) reported never doing a pap smear with approximately 20% of middle age Jamaican women (25-54 years) had a pap smear in the last year. Less than 10% of older women, (65-74) had a Pap smear in the last year. Almost a half of the women 55 years and older; reported having their last pap smear done three or more years prior to this interview. More than a third of women reported doing a self breast exam monthly and more than one quarter have a breast exam done by a doctor yearly (Table 7.3). Young women 15-24 years old had the highest frequency of never having breast self-examination at 50% while in the other age groups this frequency is approximately 30%. Women 45-54 had the highest frequency of monthly breast-self examination at just over 50%. The proportion of women who had breast examination by a doctor in the last year did not vary with age group.

**Table 7.3: Percentage (%) of Females with Given Features of Health Seeking Behaviours by Age, JHLSII 2008**

<b>Women's Health</b>	<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-64</b>	<b>55-64</b>	<b>65-74</b>	<b>Total</b>
Last Pap smear							
Never	71.3	30.3	15.2	14.0	23.2	29.0	34.3
Less than 1 year	14.4	21.4	20.0	21.5	13.0	9.0	18.0
1-2 years	8.0	21.0	28.0	21.0	15.0	11.0	18.0
Three or more years	7.0	27.4	37.0	43.0	46.0	47.3	29.1
Had hysterectomy	0	0	0.27	1.81	3.2	4.07	.83
Breast Exam (self)							
Never	50.0	35.0	31.0	29.0	32.0	36.3	37.0
Yearly	3.3	4.0	5.0	4.0	4.0	6.0	4.0
3-6 months	10.5	20.5	21.3	15.0	15.1	21.2	17.0
Monthly	36.2	41.0	43.3	53.0	49.0	37.0	42.2
Breast Exam (doctor)							
Never	55.2	33.2	34.0	27.4	28.4	33.0	38.0
More than 1 year	19.1	37.5	42.2	41.0	41.0	39.2	35.0
Less than one year	26.0	29.3	24.0	32.0	31.0	28.0	28.0

The frequency of women having done a pap smear did vary somewhat within and across groups by socioeconomic status, income levels and whether health insurance was available (Table 7.4). Over a third of women of all social classes have never had a pap smear and less than 20% had the procedure in the last year. However women who had health insurance were more likely than those who did not, to have had a pap smear in the last year (24.8% vs. 16.4%) and women with high SES and income and those with health insurance were less likely not have done a pap smear for three or more years. A history of hysterectomy was infrequent and seemed to vary little by SES but women with high income and those with health insurance were three times more likely to have had a hysterectomy than their counterparts. The frequency of monthly self breast exam and yearly breast exam by a doctor increased with higher socioeconomic status (as measured by household possessions and income levels (47% vs. 40-41% and 59% vs. 40-43% respectively). Similarly, more women with health insurance compared to those without had monthly recommended self breast exam (51% vs. 40%) and doctor administered breast exam in the last year (32.7% vs. 26.7%). Amongst the sexually active females sixty-nine percent reported having done a pap smear in the past year. (Figure 7.2)

**Figure 7.2: Frequency (%) of Pap smear amongst Sexually Active Females, JHLSII**



**Table 7.4: Percentage (%) of Females with Given Features of Health Seeking Behaviours by Varying Socio-demographic Indices, JHLSII 2008**

Women's Health	Socioeconomic Status (Household Possessions)			Socioeconomic Status Income			Health Insurance	
	Low	Middle	High	Low	Middle	High	No	Yes
<b>Last Pap smear</b>								
Never	34.2	34.4	36.8	34.6	30.7	38.8	35.0	30.2
0-1 year	16.4	19.2	18.1	15.8	18.9	16.7	16.4	24.8
1-2 years	16.6	16.3	22.1	13.8	19.9	17.9	17.6	19.6
3 or more	32.3	31.0	22.1	35.1	30.0	25.0	30.3	23.5
Had hysterectomy	0.5	1.1	0.8	0.6	0.5	1.6	0.6	1.9
<b>Breast Exam (self)</b>								
Never	39.8	38.4	29.8	40.4	34.2	21.4	39.0	25.4
Yearly	2.9	5.3	4.5	3.9	6.2	1.4	3.6	6.5
3-6 months	17.2	15.4	18.6	15.4	16.6	17.9	17.0	17.1
> Monthly	40.1	41.0	47.1	40.4	43.1	59.3	40.5	51.1
<b>Breast Exam (doctor)</b>								
Never	39.5	39.3	32.8	34.5	38.1	24.6	38.7	32.1
Three or more years	18.3	18.4	13.3	18.9	17.2	18.7	17.7	13.0
One to two years	18.2	13.9	22.2	17.0	17.9	29.6	17.0	22.2
Less than one year	24.0	28.4	31.8	29.6	26.9	27.1	26.7	32.7

Women's health behaviours by education and employment status are shown in Table 7.5.

The frequencies of recommended Pap smear was higher among women in the post secondary education level than secondary and primary or lower (23% vs. 19% vs. 14%) and similarly higher among employed (21%) compared to unemployed (17.2%) and student (4.8%) females. Women with post-secondary education were less likely not to have had a Pap smear for three or more years (22%)

compared to with primary or lower education (40%). A comparable trend was seen for self and doctor administered breast exam across education and employment categories with more highly educated and employed women more likely to adhere to monthly breast self examination, however while more educated women had breast examination by a doctor in the last year (35% vs. 27%) there was no difference between employed and unemployed women in this screening activity (29.2% vs. 28.9%). The majority (> 75%) of students reported not having a pap smear or doctor administered breast exam but a third (32%) reported doing a monthly self breast exam.

**Table 7.5: Percentage (%) of Females with Given Features of Health Seeking Behaviours by Varying Demographic Indices, JHLSII 2008**

<b>Women's Health</b>	<b>Education</b>			<b>Employment</b>		
Last Pap smear	Primary or Lower	Secondary	Post Secondary	Employed	Unemployed	Student
Never	23.0	37.7	34.5	22.4	35.5	87.5
0-1 year	14.2	18.7	22.9	21.0	17.2	4.8
1-2 years	17.0	18.0	19.7	22.4	15.7	5.7
3 or more years	40.2	25.1	22.0	33.6	30.4	2.0
Had hysterectomy	1.6	0.4	0.9	0.6	1.2	0
Breast Exam (self)						
Never	38.2	38.5	20.2	30.8	39.5	54.3
Yearly	4.1	3.6	7.0	4.9	3.6	2.6
3-6 months	15.9	16.7	23.1	17.0	18.2	11.4
Monthly	41.7	41.3	49.8	47.3	38.7	31.7
Breast Exam (doctor)						
Never	36.0	39.4	31.3	32.6	34.7	76.1
Three or more years	21.4	15.6	11.3	18.1	18.7	3.1
One to two years	16.2	18.1	22.2	20.1	17.7	7.0
Less than one year	26.5	26.9	35.2	29.2	28.9	13.8

## Section 7.2: Men's Health

The majority (79.2%) of males reported that they have never had a rectal examination but this decreased from 94% among 15-24 year olds to 58% among those 65-74 years old (Table 7.6). The proportion of men who had digital rectal examinations (DREs) in the past two years increased sharply at age 45 years (25%) but did not increase further in the older age groups . Thirteen percent (13%) reported having done a rectal exam in the last two years of this number 11.3% was diagnosed with an enlarged prostate. Two per cent (2.0 %) of all males interviewed were diagnosed as having an enlarged prostate.

**Table 7.6: Percentage (%) of Males with Given Features of Prostate Health by Age, JHLSII 2008**

<b>Men's Health</b>	<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>	<b>Total</b>
Had rectal exam							
Never	94.0	87.0	76.3	65.0	62.3	58.0	79.2
Less than one year	3.0	3.0	3.1	12.0	13.0	18.0	6.0
1-2 years ago	0	7.1	8.3	13.0	9.3	9.0	7.0
3 or more years ago	3.0	3.3	12.3	11.3	16.0	16.0	8.2
Diagnosed with Enlarged prostate (Had rectal exam)	26.0	0	10.3	4.0	6.0	21.3	11.3
Diagnosed with Enlarged prostate (Total male pop)	1.1	0	2.2	2.2	2.3	9.0	2.0

Approximately 20% of men at high SES reported having a rectal exam in the past two years compared to (10% and 7%) of men at middle and lower SES respectively. Similarly more men in the high income category reported having done a rectal exam in the past two years. A higher a proportion of men who have health insurance reported having done a rectal at least once compared to those without health insurance (30% vs. 18%).

There is a higher prevalence of enlarged prostate in men in the higher SES categories (9%) compared with men at the lower or middle levels. A higher proportion of (8.7%) of men in the high income category compared to (2.4% and 1.3%) men in the middle and low income categories respectively were diagnosed with enlarged prostate. There was a 2% difference in the prevalence of men diagnosed with enlarged prostate among those with health insurance compared to those without (Table 7.7)

**Table 7.7: Percentage (%) of Males with Given Features of Prostate Health by Varying Demographic Indices, JHLSII 2008**

<b>Men's Health</b>	<b>Socioeconomic Status</b>			<b>Income</b>			<b>Health Insurance</b>	
Had rectal exam	Low	Middle	High	Low	Middle	High	No	Yes
Never	85.4	81.1	71.6	80.2	79.6	74.4	81.8	70.3
Less than one year	4.6	4.9	8.3	5.4	4.1	14.0	5.0	9.3
1-2 years ago	2.8	5.2	11.4	3.2	7.2	8.8	5.4	10.5
3 or more years ago	7.1	8.9	8.7	11.3	9.1	2.8	7.7	9.9
Diagnosed with Enlarged prostate								
No	98.6	96.6	99.1	98.7	97.6	91.3	98.8	96.1
Yes	1.4	3.4	9.0	1.3	2.4	8.7	1.2	3.9

A higher proportion (~ 21%) of men whose highest level of education was post secondary had a rectal exam done in the last two years compared to (10.8% and 12.1%) men whose highest level of education was secondary and primary or lower respectively. Similarly, men with the highest education were least



likely to have never had a rectal examination (73%) and also least likely to have had a rectal examination three or more years ago (5%). Employment status did not appear to be strongly associated with a history of rectal examination except that students had lower proportions than those in the employed/unemployed categories and that employed men were less likely than the unemployed to have had a rectal examination three or more years ago (8% vs. 12%). The proportion of men diagnosed with an enlarged prostate did not vary across education or employment category and even though a seemingly higher proportion of men who were either students or unemployed compared to those employed were diagnosed with an enlarged prostate; the actual numbers reflect no difference between the groups. (Table 7.8)

**Table 7.8: Percentage (%) of Males with Given Features of Prostate Health by Varying Demographic Indices, JHLSII 2008**

Men's Health	Education			Employment		
Had rectal exam	Primary or Lower	Secondary	Post Secondary	Employed	Unemployed	Student
Never	75.8	82.7	73.1	79.1	75.2	89.0
Less than one year	5.8	5.7	7.6	5.7	7.8	3.3
1-2 years ago	6.3	5.1	14.1	7.0	5.5	4.9
3 or more years ago	12.1	6.5	5.2	8.2	11.5	2.9
Diagnosed with Enlarged prostate#						
No	98.0	98.5	96.9	98.5	97.8	97.8
Yes	2.1	1.5	3.1	1.5	2.2	2.2

# Of the total male population

### Section 7.3: Sexual Practices

The results of the exploration of the sexual practices of Jamaicans are shown in Table 7.9. Life time abstainers from sexual intercourse were few and more frequently reported by females (7% vs. 4%). The vast majority of women (92%) reported no partner or a single partner in the last year compared to less than 59% of men. Reports of multiple sexual partners (>5) in the last year was extremely rare among women but was reported by 7% of men. Males reported more frequent sexual activity than females with almost 60% of the men reporting sexual activity more than once weekly compared to 41% of women. On the contrary, the absence of sexual activity in the past year was reported by twice as many women as men (33% vs. 16%). Lifetime episodes of reported sexually transmitted diseases were more frequent in males (M 18.2%; F 11.0%; T 14.5 %) but twice as many women reported STI episodes in the past year (M 1.3%, F 3.4%).

**Table 7.9: Sexual Behaviours (%) of Jamaicans Age 15-74 Years by Sex, JHLSII 2008**

<b>Ever had sex</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
No	3.8	6.7	5.3
Yes	96.2	93.3	94.7
Number of sexual partners in last year			
None/Not in past year	14.9	31.5	23.4
One (1) person	44.1	60.1	52.2
Two(2) persons	15.5	6.8	11.1
Three (3)- five (5) persons	18.4	1.5	9.8
Six (6) – ten (10) persons	3.2	0	1.6
More than ten (10) persons	3.8	0.1	1.9
Frequency			
Never had sex/Not in past year	15.6	32.9	34.4
> once per week	56.2	40.9	48.4
1-3 times per month	21.7	18.6	20.1
< once per month	6.5	7.5	7.0
STI			
Ever	18.2	11.0	14.5
In past year	1.3	3.4	2.4

Among persons age 25 years and over the majority of Jamaicans (98.4%) had ever had sex. (Table 7.10) There were no differences between the sexes. More persons (>63%) in the 35-54 year age bands report having only one stable partner than the other age groups. Multiple sexual partners (>5) in the last year was most frequently reported by 15-24 year old males, 8% of whom reported having six to ten partners and 5% reported more than ten partners in the past year. The 25-44 year age bands report the highest frequency of sexual activity, (> 60%) have intercourse more than once per week. Among 15-24 year olds males and females report similar proportions at the various levels of frequency of sexual intercourse while among older persons there is variation between the sexes in the reported frequency of sexual intercourse with higher proportion of males in the higher frequencies and more females reporting the lower frequencies. Sexually transmitted infections (STIs) were more frequently reported in the younger age groups (15-44 years old) and consistently more frequently in females across age group.

**Table 7.10: Sexual Practices (%) of Jamaicans Aged 15-74 Years by Age and Sex, JHLSII 2008**

<b>Ever had sex</b>		<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>
	M	87.6	97.9	100.0	99.2	100.0	99.5
	F	76.4	98.8	99.3	98.4	99.5	98.0
	T	82.0	98.4	99.6	98.8	99.8	94.7
<b>Number of sexual partners in last year</b>							
None/Not in past year							
	M	23.6	6.5	1.8	13.9	20.3	50.0
	F	32.2	14.2	20.0	35.4	62.0	85.2
	T	28.9	10.5	11.2	24.5	40.8	68.4
One (1) person	M	27.7	35.6	56.7	63.4	56.2	38.9
	F	52.6	74.7	73.4	62.0	37.0	14.8
	T	40.2	56.2	65.3	62.7	46.7	26.3
Two(2) persons	M	12.5	26.6	15.9	8.2	13.8	4.4
	F	11.2	9.9	5.8	1.7	1.1	0.0
	T	11.8	17.8	10.7	5.0	7.5	2.1
Three (3)- five (5)	M	23.4	24.9	18.8	9.6	9.7	5.1
	F	3.9	0.9	1.0	0.9	0.0	0.0
	T	13.7	12.3	9.6	5.3	4.9	2.4
Six (6) – ten (10)	M	8.2	0.6	1.7	3.6	0.0	1.7
	F	0.0	0.0	0.0	0.0	0.0	0.0
	T	4.0	0.3	0.8	1.8	0.0	0.8
More than ten (10)	M	4.6	5.9	5.0	1.3	0.0	0.0
	F	0.2	0.3	0.0	0.0	0.0	0.0
	T	2.3	2.9	2.4	0.7	0.0	0.0
<b>Frequency</b>							
Never had sex/Not in past year							
	M	24.3	6.5	1.8	14.9	21.6	53.1
	F	24.6	1.3	0.8	1.7	0.5	2.2
	T	19.0	1.7	0.4	1.3	0.2	1.4
> once per week	M	42.4	72.4	79.0	44.8	39.6	23.0
	F	40.6	57.0	48.2	35.4	12.1	4.8
	T	41.5	64.3	63.1	40.2	26.0	13.5
1-3 times per month	M	23.5	15.1	17.1	33.4	30.9	16.6
	F	19.4	19.9	21.4	21.0	14.9	2.4
	T	21.4	17.6	19.3	27.3	23.0	9.2
< once per month	M	23.5	4.3	1.8	14.0	21.6	52.5
	F	19.4	8.1	9.2	6.8	6.9	4.2
	T	21.4	7.2	5.8	6.9	7.5	5.7
STI Infection- In past year	M	0.9	2.4	2.0	0.0	0.0	1.0
	F	4.2	5.5	3.9	1.1	0.0	0.0
	T	2.6	4.0	3.0	0.5	0.0	0.5

The most popular form of family planning used by Jamaicans 15-74 years at last sexual intercourse was the condom (M 63%, F 41.2%, T 53.1%). More males used a condom than females; When asked if at last sex the condom was used with the main, other or both partners; the frequency of condom use with the main or both partners was the same; males report using condom with both partners in 55% of cases compared to 23% among females. For the majority of females the condom used at last sex was with the main partner. (70%) A small proportion used other forms of contraception including IUD, douches and Norplant and a quarter of the population did not use any form of contraception at last sexual intercourse (Table 7.11).

**Table 7.11: Proportion (%) of Different Types of Family Planning Methods Used by Jamaicans by Sex, JHLSII 2008**

<b>Family Planning Method</b>	<b>Males</b>	<b>Females</b>	<b>Totals</b>
None	26.0	25.0	25.0
Withdrawal	4.0	5.0	4.3
Condom	63.0	41.2	53.1
Main Partner	29.6	70.3	43.1
Other Partner	15.7	7.1	12.8
Both	54.8	22.6	44.1
Injection	.5	7.0	4.0
Birth control pill	2.14	9.4	6.0
Other	0.8	1.9	1.4

Contraceptive use by age is shown in Table 7.12.

Condom use was more frequently reported by the younger age groups more than 50% of the 15-34 year olds used a condom at last sex, compared to a third of the 35-54 year olds and 6% of the 65-74 year olds. Approximately 40% of older persons (35-64 years) reported using no form of family planning at last sexual intercourse compared with 11 % of the younger age group. The most frequent use of the oral contraceptive pill was among 25-34 year olds. Withdrawal was most frequently practised by 15-24 years olds (6%) with twice as many females reporting this practice. (7.9% vs. 4%).

**Table 7.12: Different Types of Family Planning Methods Used at Last Sex in Jamaicans 15-74 Years by Age and Sex, JHLSII 2008**

Family Planning Method		15-24	25-34	35-44	45-54	55-64	65-74
None	M	8.4	17.9	39.5	33.7	44.7	32.3
	F	13.5	22.5	34.6	35.2	29.2	14.1
	T	10.9	20.3	37.0	34.5	37.1	22.8
Withdrawal	M	4.0	4.6	3.9	2.4	3.3	2.2
	F	7.9	5.5	4.7	2.6	1.3	0.0
	T	6.0	5.1	4.3	2.5	2.3	1.1
Condom	M	65.8	69.1	50.5	42.4	31.4	11.5
	F	37.4	33.2	25.2	18.7	6.4	0.0
	T	51.5	50.2	37.4	30.7	19.1	5.5
Injection	M	0.0	0.0	1.0	2.0	0.0	0.0
	F	7.6	13.7	5.7	1.3	0.0	0.0
	T	3.8	7.2	3.4	1.7	0	0.0
Birth control pill	M	0.0	2.7	4.1	4.3	0.0	0.0
	F	10.0	15.6	11.4	3.6	0.0	0.0
	T	5.0	9.5	7.9	3.9	0.0	0.0
Other	M	0.7	1.0	1.0	0.0	1.9	0.0
	F	1.0	2.4	3.2	2.6	0.0	0.0
	T	0.9	1.7	2.1	1.3	1.0	0.0

Table 7.13 shows sexual practices by socio-demographic characteristics among Jamaicans. Lifetime abstinence was rare but was less common among the less educated (primary education or lower) where only 1.5% reported this practice, compared to 6.1% among those with post-secondary education. There was a smaller difference between the employed and unemployed but a much higher prevalence among students. The highest proportion of persons reporting no sexual partners in the last year was among the persons with the lowest level of education (32%) compared to 20% and 17% among the middle and highest levels respectively. The frequency of multiple partners did not differ greatly by education and tended to increase with educational level and in the employed more than the unemployed (28% vs. 17%). The frequency of sex was consistent with the reported number of partners as the highest proportion of persons reporting no sexual activity in the last year was among those with the lowest education (33%) compared to 21% and 18% in the other groups. The occurrence of STIs did not vary by educational level or employment.

**Table 7.13: Sexual Practices of Jamaicans by Varying Sociodemographic Indices, JHLSII 2008**

Sexual Practices	Education Level			Occupational Level		
	Primary or Lower	Secondary	Post Secondary	Employed	Unemployed	Student
<b>Ever had sex</b>						
No	1.5	7.2	6.1	1.2	2.0	40.5
Yes	98.5	92.8	93.9	98.8	98.0	60.0
<b>Number of sexual partners in last year</b>						
None/Not in past year	31.6	20.4	16.9	26.0	10.6	52.7
One (1) person	50.6	53.1	53.2	55.6	55.2	22.7
Two(2) persons	8.0	11.9	14.7	12.4	8.6	11.2
Three (3)- five (5) persons	7.8	10.4	12.5	11.1	7.1	10.9
Six (6) – ten (10) persons	0.9	1.9	1.4	1.9	0.7	2.5
More than ten (10) persons	1.2	2.5	1.3	3.0	0.6	0
<b>Frequency</b>						
Never had sex/Not in past year	32.9	21.1	18.0	16.7	29.2	54.4
> once per week	11.2	14.6	12.9	18.0	8.6	0.8
1-3 times per week	30.7	37.0	37.0	39.4	32.7	16.3
1-3 times per month	18.6	21.0	21.0	19.6	22.0	17.6
< once per month	6.7	6.4	11.0	6.2	27.1	11.2
<b>STI Infection in past Year</b>	2.6	2.2	2.7	2.3	3.2	0.5

Sexual practices as reported by Jamaicans 15-74 years were similar whether the socioeconomic status was categorized by income or household possessions. More persons in the lower bracket reported not having sex in the past year. More persons in the higher socioeconomic level report having a larger number of sexual partners and increased frequency of sex in the past year. Less than three percent of persons at all levels reported having an STI in the past year. (Table 7.14)

**Table 7.14: Sexual Practices of Jamaicans by Socioeconomic Status, JHLS II 2008**

Sexual Practices	Household Possessions			Income Levels		
	Low	Middle	High	Low	Middle	High
<b>Ever had sex</b>						
No	4.4	4.6	7.1	3.4	4.4	5.5
Yes	95.6	95.4	92.9	96.7	95.6	94.9
<b>Number of sexual partners in last year</b>						
None/Not in past year	28.0	20.5	18.4	24.8	19.8	18.9
One (1) person	50.3	52.1	54.9	52.5	54.1	52.6
Two(2) persons	9.8	12.3	11.4	11.3	10.4	11.2
Three (3)- five (5) persons	8.3	10.1	11.4	9.2	10.8	10.7
Six (6) – ten (10) persons	1.1	2.7	1.1	1.2	2.2	5.6
More than ten (10) persons	1.5	1.6	2.8	1.0	2.9	1.0
<b>Frequency</b>						
Never had sex/Not in past year	29.1	22.2	19.4	25.5	20.1	20.1
> once per week	10.9	14.6	15.1	11.0	16.8	15.0
1-3 times per week	31.4	36.5	38.2	32.6	37.8	37.8
1-3 times per month	19.5	20.9	20.2	20.7	18.4	22.2
< once per month	8.1	5.7	7.1	10.3	6.9	5.0
<b>STI Infection in past year</b>	2.8	2.1	2.1	3.1	1.7	2.2

Table 7.15 shows that approximately one third of the persons who were categorized at the higher socioeconomic level did not use any form of family planning at last sexual intercourse. More persons in this category also used a condom at last sexual intercourse. Less than five percent of Jamaicans used other methods of family planning; whether the birth control pill or withdrawal regardless of socioeconomic status.

**Table 7.15: Family Planning Methods Used by Jamaicans of Varying Socioeconomic Status, JHLSII 2008**

<b>Sociodemographic Index</b>	<b>Household Possessions</b>			<b>Income</b>		
Family Planning Method	Low	Middle	High	Low	Middle	High
None	23.8	24.1	27.9	25.9	25.1	30.4
Withdrawal	4.1	4.4	4.5	3.7	5.7	2.8
Condom	37.0	41.2	45.8	36.9	37.4	40.7
Injection	4.7	4.4	1.7	5.9	3.4	0.0
Birth control pill	5.4	7.4	4.7	5.3	6.7	7.2
Other	1.2	1.6	1.3	1.4	1.4	1.5

Educational levels are associated with family planning used by Jamaicans (Table 7.16). Less than 2% of persons with primary or lower education report no use of a family planning method at the last sexual intercourse compared 6-7% of the more educated groups. A higher proportion of persons who had attained a secondary (45%) or post-secondary (51%) level of education used a condom at last sexual intercourse compared to 29% among those with primary or lower education. Students and employed persons reported higher condom use than unemployed persons. Only a small proportion of students (6.1%) did not use any form of family planning or practised withdrawal.

**Table 7.16: Family Planning Methods Used by Jamaicans by Varying Sociodemographic Indices, JHLS II 2008**

<b>Sociodemographic Index</b>	<b>Educational Level</b>			<b>Occupation</b>		
Family Planning Method	Primary or Lower	Secondary	Post Secondary	Employed	Unemployed	Student
None	1.5	7.2	6.1	28.5	25.1	4.6
Withdrawal	3.9	4.2	5.2	5.3	3.3	1.5
Condom	29.4	45.2	51.1	44.2	35.1	41.5
Injection	2.8	4.8	0.7	3.0	5.9	0.5
Birth control pill	3.4	6.5	9.1	5.8	6.9	2.9
Other	1.0	1.5	1.9	1.0	2.4	0.4

# CHAPTER 8

## Emotions and Mental Health

### Section 8.1: Mental Health

Mental health was assessed by enquiring about levels of satisfaction with life, involvement in activities for relaxation and the presence of symptoms of depression. Depression was then characterized in the presence of five or more depressive symptoms and or expressions of suicidal ideations. (DSM-V criteria).

Table 8.1 shows the sex-specific prevalence estimates for symptoms of depression that 15-74 year-old Jamaicans often experienced in the past month prior to the interview. The most frequently reported symptoms were ‘feeling down or depressed’ (33%) or “feeling sad or lonely” (32%). Little pleasure in usual activities, change in appetite and change sleeping pattern were each experienced by more than 20% of the population. All symptoms were reported more frequently in females than in males. Suicidal ideation was twice as common among females. There were significant gender differences observed for all the depressive symptoms.

**Table 8.1: Frequency (%) of Depression Symptoms by Sex, JHLSII 2008**

<b>Mental Health Symptoms</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Little Interest/pleasure in usual Activities***	21.2	31.5	26.5
Feeling Down/Depressed /Hopeless***	25.1	40.9	33.2
Feeling sad or lonely***	25.5	38.4	32.1
Feeling Guilty/Worthless *	8.6	11.4	10.0
Change in Appetite**	21.7	30.0	26.0
Change in Sleeping Pattern**	16.6	23.1	19.9
Considered Suicide ***			
Ever	3.8	8.2	6.1
In past year	1.1	3.7	2.5
One to five years ago	0.4	2.3	1.4
More than five years ago	1.9	2.0	2.0
Planned Suicide***	1.8	3.8	2.8
Attempted Suicide**	1.3	2.0	1.6
Depression	14.8	25.6	20.3

\*\*\* p<0.001; \*\*p<0.01; \*p<0.05

Table 8.2 shows age specific frequencies of depressive symptoms among Jamaicans. The differences in frequencies between age groups are not large but persons in the 25-34 year old age group report a



higher frequency of most depressive symptoms compared to the other age groups. In contrast the highest frequency of considering suicide in the past year (4%) was reported among 15-24 year olds, with the frequency in the other age groups ranging from a low of 0.4% in the 65-74 year olds to 2.7% in the 25-34 year olds. Reported suicidal ideation more than five years ago was 1.6% in the youngest age group (15-24 years) and appeared to peak in the 35-44 year old group at 3.5% and declined thereafter to 0.5% among persons 65-74 years old.

The frequency of reported planning and attempting suicide also appears to peak in this 35-44 year old age group and declined among older persons.

**Table 8.2: Prevalence (%) of Depressive Symptoms by Ten Year Age Bands, JHLSII 2008**

Indicator	15-24	25-34	35-44	45-54	55-64	65-74	Total
Little Interest/pleasure in usual Activities*	23.6	28.3	30.0	23.2	23.9	28.7	26.5
Feeling Down/Depressed /Hopeless*	29.5	34.5	37.9	33.0	32.9	27.3	33.2
Feeling sad or lonely	30.7	34.9	34.3	27.9	31.1	29.6	32.1
Feeling Guilty/Worthless	8.6	12.2	9.4	11.2	10.8	6.1	10.0
Change in Appetite***	28.5	31.8	24.2	17.1	25.4	20.3	26.0
Change in Sleeping Pattern	17.8	21.4	20.6	18.0	23.6	19.9	19.9
Considered Suicide							
Ever	7.0	6.1	8.6	4.4	2.9	0.8	6.1
In past year	4.0	2.7	2.0	1.3	1.6	0.4	2.5
One to five years ago	1.2	1.7	2.7	0.6	0.4	0.0	1.4
More than five years ago	1.6	1.7	3.5	1.7	0.9	0.5	2.0
Planned Suicide	3.3	3.0	4.1	1.8	1.0	0.6	2.8
Attempted Suicide	1.8	1.0	4.7	1.0	3.7	0.0	2.2

\*\*\*p<0.001; \*p<0.05

## Section 8.2: Quality of Life

Approximately one fifth of the Jamaican population reported that they sleep less than 7 hours per day, with men reporting this more frequently than women (26% vs. 17.2%). Fair to good quality sleep is less frequently reported among females however (52% vs. 67%). A third of the Jamaican population classify their health as very good or excellent while the largest proportion (61%) regard their health as fair to good and a minority (4%) regard their health as poor (Table 8.3). More men than women classify their health as excellent (41% vs. 30%) while higher proportions of females report fair to good health (65% vs. 56%) and poor health (5% vs. 3%).

**Table 8.3: Reported Quality of Health and Sleep of Jamaicans 15-74 Years, JHLSII 2008**

	Male	Female	Totals
Duration of sleep			
>8 hrs	35.3	50.6	43.1
7-8 hrs	38.7	32.2	35.4
Less than 7 hrs	26.0	17.2	21.5
Quality of sleep			
Fair – Good	66.9	52.2	59.4
Poor	33.1	47.8	40.6
Health Status			
Very good/excellent	40.5	30.4	35.4
Fair – good	56.3	64.6	60.5
Poor	3.2	5.0	4.1

Table 8.4 gives the prevalence of leisure time activities and satisfaction rates as reported by Jamaicans 15-74 years old. At the time they were interviewed, one fifth of the population were either very dissatisfied or not satisfied with their lives, whereas 19% of persons were very satisfied and 38.1% satisfied or 'somewhat satisfied' (22.4 %) and these proportions were similar among men and women. The majority of the population (71.4%) reported engaging in some form of relaxation activity during the week with a small difference between the sexes. The most frequently reported relaxation activities were either resting or watching movies or television or listening to music, each reported by over 40% of the population. One tenth of the population read books or went to church to relax. A small proportion of persons reported smoking, alcohol drinking and sex as forms of relaxation. The frequency of the various methods as a form of relaxation varied little by sex with church attendance (more among females) and smoking, drinking (more among males) being the exceptions. The other forms of relaxation reported in small proportions included sex, massages, cooking and eating. (1.2%)

**Table 8.4: Sex-Specific Prevalence (%) of the Leisure Status of 15-74 Year-Old Jamaicans, JHLSII 2008**

	Male	Female	Total
General Satisfaction			
Very dissatisfied	5.2	5.1	5.1
Not satisfied	13.4	17.2	15.3
Somewhat satisfied	23.2	21.6	22.4
Satisfied	38.1	38.6	38.3
Very satisfied	20.1	17.6	18.9
Relaxed in past week	74.7	68.3	71.4
Activity for relaxation			
Rest	42.1(56.4)	41.1(60.3)	41.6(58.3)
Read books/Meditate	9.4(12.5)	5.6(8.0)	7.5 (10.3)
TV/Movies/Music	42.0(56.2)	41.1(60.2)	41.5(58.2)
Go out to social functions	6.3 (8.4)	4.3 (5.9)	5.3(7.2)
Go to church	4.8(6.5)	10.8(15.8)	7.9(11.0)
Smoke/Drink	2.0(2.7)	0.4(0.6)	1.2(1.7)
Other	1.8(2.4)	0.5(0.7)	1.2(1.6)

( ) Proportion of those who reported relaxing activities

Table 8.5 shows that a similar proportion (23%) of Jamaicans of a low socioeconomic status and low educational background were classified as depressed. All depressive symptoms were most frequently reported in persons with lower educational achievement and those from households with fewer possessions and the frequency was lower as educational achievement and household possession increased. Conversely suicidal Ideations were more frequent in persons at the post secondary education and higher socioeconomic levels as estimated by household possessions; where twice as many persons who reported secondary to post-secondary and middle to high socioeconomic levels reported attempting suicide compared to persons at the lower levels. (1.9% vs. 1.0%)

**Table 8.5: Prevalence (%) of Depressive Symptoms in Jamaicans by Varying Sociodemographic Indices, JHLS II 2008**

Depressive Symptoms	Educational Levels			Socioeconomic Status (Household Possessions)		
	Primary or Lower	Secondary	Post Secondary	Low	Middle	High
Anhedonia	28.4	26.0	24.0	29.7	24.6	24.5
Feeling Down	39.7	31.7	22.3	40.5	34.5	23.1
Feeling Sad	36.7	31.4	22.9	39.2	29.4	26.4
Feeling Guilty	11.4	10.1	5.7	12.7	9.4	7.4
Change in Appetite	26.3	26.2	23.8	27.4	28.1	22.1
Change in Sleep	23.2	18.8	16.7	22.4	19.2	17.8
Depression	22.9	19.9	15.3	23.3	21.0	14.8
Suicidal Ideation						
Considered Suicide	5.0	6.4	7.7	5.6	5.8	6.9
Planned Suicide	2.8	2.8	3.1	2.7	2.3	3.5
Attempted Suicide	1.0	2.0	1.8	1.1	1.8	2.1

We examined the prevalence of depression/depressive symptoms in persons with varying chronic diseases. Depressive symptoms were consistently more frequent among persons with diabetes mellitus compared to those without but the pattern was less consistent in the other chronic diseases (obesity, hypertension and hypercholesterolemia) where some symptoms were more frequent among those with chronic disease while others were more frequent in persons not suffering from the chronic disease. The differences in the frequency of depressive symptoms between persons with and without the chronic disease were least in persons with hypercholesterolemia. Depression was more frequent in persons with disease versus those without in all four conditions but the difference was least in the case of obesity (Table 8.6, Figure 8.1). Suicidal ideation was more frequent among persons with high total cholesterol and obesity compared to unaffected counterparts.

**Table 8.6: Prevalence (%) of Depressive Symptoms in Jamaicans with Varying Chronic Diseases, JHLS II 2008**

Depressive Symptoms	Chronic Disease							
	Diabetes		Hypertension		High TC		Obesity	
	Y	N	Y	N	Y	N	Y	N
Anhedonia	32.5	26.0	29.9	25.3	25.8	26.7	28.3	25.3
Feeling down	39.1	32.7	34.5	32.7	35.6	32.6	35.0	32.4
Feeling Sad/Lonely	37.0	31.7	35.4	31.0	33.6	32.1	32.5	31.9
Feeling Guilty/Worthless	11.8	9.9	8.5	10.5	6.2	9.0	9.7	9.9
Change in Appetite	28.4	25.8	19.4	22.5	27.9	25.8	20.8	27.8
Change in Sleep Pattern	26.9	19.3	22.8	19.0	23.4	19.4	19.6	19.8
Depression	25.5	19.9	22.5	19.6	23.3	19.9	20.2	20.1
Suicidal Ideation								
Considered Suicide	3.7	6.3	3.3	7.0	5.9	6.1	7.6	5.6
Planned Suicide	1.8	2.9	1.5	3.3	3.7	2.6	3.3	2.8
Attempted Suicide	0.7	1.7	0.6	2.0	1.7	0.8	1.7	1.7

**Figure 8.1: Prevalence (%) of Depressive Symptoms in Jamaicans with Varying Chronic Diseases, JHLSII 2008**

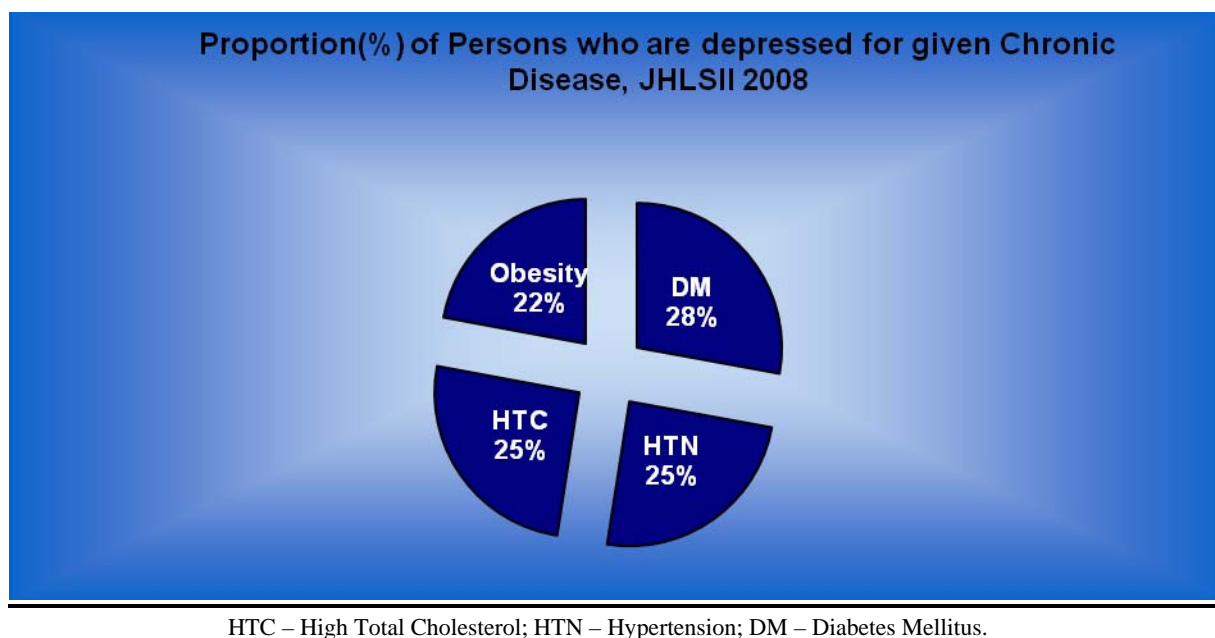


Table 8.7 shows that all depressive symptoms were most prevalent among persons who were underweight and were lowest among persons with normal body mass index, except in the case of ‘feeling guilty or worthless’ and ‘change in appetite’ where the frequency was reported to be lower in the overweight and obese categories. Persons with normal body mass index have the lowest prevalence of depression, 18.5% and underweight persons had the highest prevalence of 30%. Similar proportions of underweight and obese persons have considered suicide (8.0%) with normal and overweight persons reporting approximately 5% prevalence. However more obese persons have attempted suicide; 6.0% compared to 3.4% in the other groups.

**Table 8.7: Prevalence (%) of Depressive Symptoms in Jamaicans with Varying Nutritional Status, JHLSII 2008**

Depressive Symptoms	BMI			
	Under weight	Normal	Overweight	Obese
Anhedonia	40.0	22.6	27.4	28.1
Feeling down	39.5	31.2	33.4	34.9
Feeling Sad/Lonely	42.1	30.7	32.1	32.4
Feeling Guilty/Worthless	20.4	10.0	7.9	9.8
Change in Appetite	38.2	26.8	26.6	20.9
Change in Sleep Pattern	27.2	18.3	20.8	19.6
<b>Depression</b>	29.9	18.5	21.0	20.3
<b>Suicidal Ideation</b>				
Considered Suicide	7.6	5.6	5.1	7.7
Planned Suicide	2.6	2.8	2.9	3.2
Attempted Suicide	3.9	3.4	3.9	5.8

One quarter of persons who reported an inactive or low physical activity level were classified as depressed compared to 16-18% among those with moderate to high physical activity. The prevalence of depressive symptoms was similar in those classified as inactive or of low physical activity and was higher than those with moderate to high physical activity. The prevalence in each of the latter two categories was also quite similar with small differences and inconsistent directional relationship. There was very little difference in the frequency of planning or considering suicide reported across the physical activity groups. However approximately twice as many persons who reported moderate to high physical activity levels had attempted suicide compared to persons who were either inactive or of low physical activity.

**Table 8.8: Prevalence (%) of Depressive Symptoms in Jamaicans with Different Physical Activity Levels, JHLSII 2008**

Depressive Symptoms	Physical Activity Level			
	Inactive	Low	Moderate	High
Anhedonia	29.7	30.7	23.5	23.2
Feeling down	38.4	36.4	30.3	28.8
Feeling Sad/Lonely	36.0	34.5	28.5	30.1
Feeling Guilty/Worthless	13.3	11.0	7.1	8.7
Change in Appetite	27.4	28.6	24.1	24.3
Change in Sleep Pattern	20.0	25.4	17.6	18.9
<b>Depression</b>	23.8	24.8	16.1	17.9
<b>Suicidal Ideation</b>				
Considered Suicide	6.0	6.4	5.1	6.6
Planned Suicide	2.9	3.5	2.5	2.7
Attempted Suicide	1.0	1.1	1.9	2.3

Table 8.9 shows that more than a third of persons who reported a history of heart attack or stroke were depressed. One in four persons who had cancer or asthma also met these criteria. Persons with these conditions reported consistently higher prevalence of depression than those without with smallest difference being reported by those with and without cancer. More persons who had a history of heart attack, stroke and asthma had considered or planned suicide than who did not have such a history but there was no difference between those with and without cancer. Attempted suicide was uncommon, with the highest reported frequency of 2.4% among those persons with a history of asthma, which exceeded the 1.6% reported by those without asthma. In the other three conditions there were reports of attempted suicide among the persons with disease and a 1.6-1.7% frequency among those not suffering from the condition.

**Table 8.9: Prevalence (%) of Mental Health Indices in Jamaicans with Varying Histories of Chronic Diseases, JHLS II 2008**

Mental Health Variable	History of							
	Heart Attack		Stroke		Cancer		Asthma	
	Y	N	Y	N	Y	N	Y	N
Depression	34.5	21.1	33.2	20.2	23.4	20.2	28.1	19.6
Suicidal Ideation								
Considered Suicide	16.0	6.1	6.8	6.1	1.8	6.1	9.4	5.8
Planned Suicide	5.5	2.9	3.5	2.8	0.0	2.9	4.7	2.7
Attempted suicide	0.0	1.6	0.0	1.7	0.0	1.7	2.4	1.6

### Section 8.3: Perception of Self

We sought to examine the body weight perception of Jamaican nationals aged 15-74 years. Almost sixty percent (55%) of Jamaicans across the age bands think they are the right weight. Less than ten percent of the population perceive themselves to be overweight and 24% a little overweight. There is a significant gender difference across the groups where twice more females think they are little overweight/overweight compared to males. (40.3% vs 22%) The proportions perceiving themselves as overweight or obese did not vary greatly across age groups among men but there is a suggestion that middle-aged women, 35-64 years old, were more likely to classify themselves as a little overweight (>30%) compared to the young and the elderly where the frequency was closer to 25% (Table 8.10).

**Table 8.10: Reported (%) Body Weight Perception of Jamaican Nationals by Age and Sex, JHLSII 2008**

Age groups	Underweight			Right Weight		
	M	F	T	M	F	T
15-24	9.9	14.5	12.2	70.5	56.3	63.4
25-34	7.9	7.4	7.6	70.5	51.4	60.5
35-44	4.3	7.5	6.0	72.0	40.8	55.8
45-54	7.6	5.3	6.4	65.4	53.3	59.4
55-64	8.4	11.2	9.8	67.8	44.2	56.2
65-74	6.2	6.3	6.3	79.4	60.8	69.7
Totals	7.5	9.1	8.3	70.5	50.5	60.3
Age groups	Little overweight			Overweight		
	M	F	T	M	F	T
15-24	16.3	23.8	20.1	3.3	5.4	4.3
25-34	19.5	27.5	23.7	2.1	13.7	8.2
35-44	23.0	36.2	29.8	0.8	15.6	8.4
45-54	21.3	29.4	25.3	5.7	12.1	8.9
55-64	18.5	30.8	24.6	5.4	13.7	9.5
65-74	10.9	22.9	17.2	3.5	9.9	6.9
Totals	19.1	28.7	24.0	3.0	11.6	7.4

The majority of Jamaicans, regardless of social background perceive themselves to be at their correct weight. The proportion of persons who think themselves to be a little overweight/overweight increases with educational level; from 26% of those of primary or lower education to 41% of persons at the post-secondary level. Fewer students perceive themselves to be a little overweight or overweight (24%) compared to the unemployed (33%) and employed (31%). (Table 8.11)

**Table 8.11: Reported (%) Self Perception of Body Weight by Jamaicans of Varying Sociodemographic Backgrounds, JHLSII 2008**

Reported Perception of Self	Education			Occupation		
	Primary or Lower	Secondary	Post Secondary	Employed	Unemployed	Student
Body Weight						
Underweight	8.9	8.2	7.7	7.4	9.0	10.8
Right Weight	65.0	59.6	51.4	61.1	57.6	64.7
A Little Overweight	19.5	24.7	32.6	23.5	25.6	21.1
Overweight	6.6	7.5	8.4	7.9	7.8	3.3

The majority of persons suffering from the chronic diseases hypertension, diabetes mellitus, hyperlipidaemia, obesity and depression, classify themselves as being at the right weight (Table 8.12). Twice as many persons with diabetes, hypertension, high total cholesterol and depression think themselves to be overweight compared to those who do not have the conditions. Similar proportions of persons who are depressed think they are little overweight as those who are not depressed. (25.4% vs. 23.6%) but more of them perceive themselves as overweight than their non-depressed counterparts (11% vs. 7%). Fifty percent of the persons who are obese perceive themselves to be a little overweight and 24% classify themselves as overweight. (Table 8.12)

**Table 8.12: Reported (%) Self Perception of Body Weight by Jamaicans with Stated Chronic Diseases, JHLSII 2008**

Reported Perception of Self	Chronic Disease									
	Diabetes		HTN		High TC		Obesity		Depression	
Body Weight	Y	N	Y	N	Y	N	Y	N	Y	N
Underweight	9.8	8.2	5.5	9.3	3.8	9.3	0.5	10.9	14.6	6.8
Right Weight	51.2	61.1	54.6	62.2	49.5	60.6	26.2	71.6	49.5	63.1
A Little Overweight	25.7	23.8	28.8	22.4	32.3	23.3	48.9	16.0	25.4	23.6
Overweight	13.4	6.9	11.1	6.1	14.4	6.7	24.4	1.4	10.6	6.6



# CHAPTER 9

## Physical Activity and Dietary Practices

### Section 9.1: Physical Activity Levels

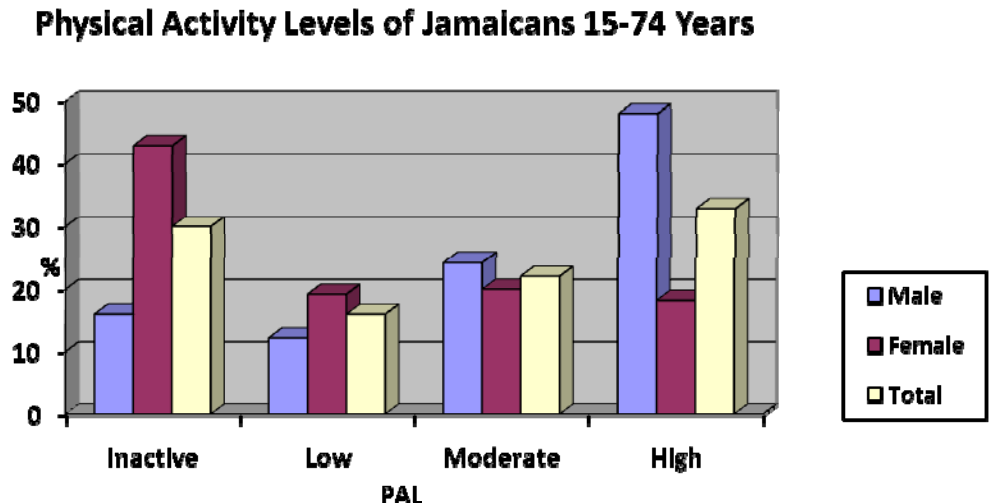
Physical activity among Jamaicans was examined by questionnaire to include both occupational and recreational involvement and in the mode of transportation to and from their place of work. A composite score was derived and a four-point scale of physical activity was derived. Table 9.1 and Figure 9.1 show the sex specific proportional distribution of Jamaicans across physical activity categories.

Men were more physically active than women with the distribution of men across the physical activity scale being almost a mirror-image of that seen among women. The largest proportion of women (43%) was categorized as inactive while the largest proportion of men (48%) fell into the high physical activity category. Approximately 1 in 5 women reported high levels of physical activity while 1 in 10 men reported low levels. While more than 70% of men were classified as engaging in moderate to high levels of physical activity, only 38% of women were similarly classified.

**Table 9.1: Physical Activity Levels by Sex, JHLSII 2008**

Physical Activity Categories	Male	Female	Total
Inactive	16.0	43.0	30.0
Low	12.2	19.2	16.0
Moderate	24.3	20.0	22.1
High	48.0	18.2	33.0

**Figure 9.1: Physical Activity Levels by Sex, JHLSII 2008**



Among men classified as being engaged in low physical activity there was little variation with age except for men age 55-64 years where the 5% reported was much lower than in the other age groups, while among women the proportions similarly classified ranged from 17-24% with no consistent pattern with age. The proportions of women in this low physical activity category exceeded that for men in all age groups. The proportion of men exceeded that of women in all age categories among those classified as moderate and high physical activity. In the moderate activity group there was little variation across the age groups in both men and women while in the high activity group both men and women have the lowest proportions at the extremes of the age groups with the highest proportions reporting high activity in the young adults and middle age categories (Table 9.2).

**Table 9.2: Physical Activity Levels of Jamaicans by Age and Sex, JHLSII 2008**

Age groups	Low		Moderate		High	
	M	F	M	F	M	F
15-24	12.0	22.0	28.0	19.3	47.0	12.0
25-34	12.1	17.1	22.4	21.1	54.0	21.0
35-44	16.0	17.1	22.2	21.0	46.0	22.0
45-54	11.2	24.0	20.1	16.1	55.4	24.4
55-64	5.0	17.0	31.0	23.0	41.4	30.0
65-74	16.1	19.0	23.1	20.0	31.3	8.0
Totals	12.2	19.2	24.3	20.0	48.0	18.2

Approximately 40% of Jamaicans reported the nature of their work as being sedentary and or mainly non- strenuous walking and there were negligible differences between sexes. A much higher proportion of males compared to females (37% vs. 8.5%) were involved in strenuous walking or heavy physical work and unemployment among women more than doubled that among men (41% vs. 18%). Similar proportions of men and women reported being students, retirees and engaging in non-strenuous walking (Table 9.3).

**Table 9.3: Proportions (%) of the Nature of Work of Jamaicans by Sex, JHLSII 2008**

Description	Male	Female	Total
Unemployed	18.4	41.4	30.1
Student	8.0	8.0	8.0
Retired	2.1	2.1	2.1
Mainly sitting/sedentary	18.0	22.1	20.0
Non –strenuous walking	18.0	18.4	18.2
Strenuous walking	17.0	6.1	11.2
Heavy Physical Work	20.0	2.4	11.0

The majority (90%) of Jamaicans (15-74years) were either sedentary or participated in light physical activity during their leisure time and this was different between men and women 82% and 96%

respectively approximately 20% of males compared to 5% of females described the nature of their leisure activity as medium or heavy. More than half of individuals participated in leisure time physical activity for four or more times per week and approximately 6% participated less than once per week or none at all. (Table 9.4)

**Table 9.4: Nature and Frequency of Leisure Time Physical Activity of Jamaican Nationals, JHLSII 2008**

<b>Nature of activity</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Sedentary	61.0	85.2	73.2
Light activity	21.0	11.0	16.0
Medium activity	14.0	4.0	9.0
Heavy activity	5.0	0.8	3.0
<b>Frequency of activity</b>			
Never	2.4	4.0	3.1
Less than once per week	3.0	4.0	3.2
One to three times per week	37.0	28.3	33.0
>= Four times per week	58.0	64.3	61.1

More than half of Jamaican men and two-thirds of the women have never attempted to increase their physical activity (Table 9.5) and while these proportions increase among older men (46% among the youngest to 69% among the oldest) they are fairly consistent across the age range among women. Generally small proportions (<10%) of persons report trying to increase their physical activity more than six months before the study and the proportions attempting increases one to six months prior to the study were also generally less than 20%. In both these categories the proportions of men exceed that among women. Attempts to increase physical activity in the last month were reported by men more frequently than women in all age groups but these differences were smaller among older age groups and the proportions reporting increased activity decreased among older age groups in both men and women.

**Table 9.5: Proportion (%) of Jamaicans Who Made Efforts to Increase Physical Activity by Age and Sex, JHLSII 2008**

<b>Age groups</b>	<b>In the last month</b>		<b>1-6 months</b>		<b>More than 6 months</b>		<b>Never</b>	
	<b>M</b>	<b>F</b>	<b>M</b>	<b>F</b>	<b>M</b>	<b>F</b>	<b>M</b>	<b>F</b>
15-24	29.4	15.0	16.0	8.0	9.0	5.3	46.0	72.4
25-34	23.0	17.0	17.4	18.0	13.0	7.3	47.2	58.0
35-44	18.2	14.0	16.0	12.0	6.0	11.0	60.5	64.0
45-54	22.1	16.0	21.0	13.1	8.4	6.0	49.0	66.0
55-64	16.2	16.0	14.0	10.0	3.4	6.2	67.0	68.4
65-74	10.2	11.3	9.0	6.0	12.0	9.2	69.4	74.0
Total	22.0	15.0	16.2	12.0	9.0	7.4	53.2	66.0

Table 9.6 shows the proportion of persons in the various fitness groups by age and sex. Among men the majority (74%) reported that they were either ‘very fit’ or ‘fit’ and this compares to 62% among women. The proportion of men classified as ‘very fit’ ranged from 30-39% across the age groups except in the 65-74 age group where only 18% of men were so classified. The proportions among males exceeded that among females in all age groups in the ‘very fit’ group but this male to female pattern by age group was not consistent in the ‘fit’ group. Only small proportions of both men and women reported being ‘not fit’, except in the oldest age group where 18% and 22% of men and women respectively were so classified. The proportion of females in the ‘not-fit’ category exceeded that of males in all age groups.

**Table 9.6: Proportion (%) of Jamaicans 15-74 Years Who Reported Perceived Fitness Levels by Age and Sex, JHLSII 2008**

Age groups	Very Fit		Fit		Partly Fit		Not Fit	
	M	F	M	F	M	F	M	F
15-24	39.0	30.4	44.0	37.0	14.2	26.0	3.3	7.1
25-34	34.0	27.0	39.3	37.0	21.4	28.0	5.4	9.0
35-44	30.3	20.1	47.0	41.0	20.1	30.0	3.0	9.4
45-54	32.0	20.2	38.0	46.1	24.0	28.0	7.2	6.2
55-64	30.0	15.0	29.4	39.0	36.2	34.5	5.0	12.2
65-74	18.0	8.0	40.0	30.4	25.0	40.2	18.2	22.0
Totals	33.0	23.0	41.1	39.0	21.0	29.0	5.3	9.4

A higher proportion of individuals (61.6% vs. 54.3% and 53.2%) with post secondary educational level were in the moderate to high physical activity category compared to those in secondary and primary or lower respectively (Table 9.7) A third of persons with primary or lower education were classified as inactive compared to 29% of those with secondary education and 24% of those with post secondary education. Approximately 60% or more individuals across occupational status were either classified in the low, or inactive physical activity category. More than 60% of individuals across educational levels perceived themselves to be fit or very fit and less than 10% of persons classified themselves being ‘not fit’ in all educational categories. Students reported the highest fitness levels with 46% being ‘fit’ or ‘very fit’ compared to 38% and 35% among employed and unemployed persons. Also, physical activity levels did not differ significantly among students approximately a quarter of them in each of the four categories compared to large difference in the employed (43% ‘not fit’ and 15% ‘fit’) and the unemployed (50% partially fit and 20% ‘very fit’).

**Table 9.7: Physical Activity and Perceived Fitness Levels (%) of Jamaicans 15-74 Years by Education and Occupation, JHLSII 2008**

	<b>Education</b>			<b>Occupation</b>		
<b>Physical Activity Categories</b>	Primary or Lower	Secondary	Post Secondary	Employed	Unemployed	Student
High	34.1	30.8	38.9	6.0	10.9	4.4
Moderate	19.1	23.5	22.7	30.2	20.5	36.1
Low	13.9	17.0	14.6	40.3	39.2	39.3
Inactive	32.9	28.7	23.8	23.5	29.3	20.3
<b>Perceived Physical Activity Level</b>						
Very Fit	27.2	28.9	23.6	22.5	19.5	26.0
Fit	37.9	41.3	41.3	15.0	15.9	20.4
Partly Fit	26.7	23.2	23.2	19.0	50.4	25.8
Not Fit	8.2	6.6	9.4	43.4	14.2	27.8

Except for hypertension with 53%, less than 50% of persons with the listed chronic diseases are classified as having moderate or high physical activity and between 30-40% of all persons with these conditions are classified as inactive. Persons with diabetes have the lowest proportion of persons classified as either 'fit' or 'very fit' with 43% compared to 58-59% in persons with hypertension, high cholesterol and obesity. More than 40% of all persons with these conditions considered themselves 'not fit' or 'partially fit' (Table 9.8).

**Table 9.8: Physical Activity and Perceived Fitness Levels (%) of Jamaicans 15-74 Years by Chronic Diseases, JHLSII 2008**

<b>Physical Activity Categories</b>	<b>Chronic Disease</b>			
	Diabetes	HTN	High TC	Obesity
High	25.1	30.9	23.4	21.4
Moderate	17.5	22.4	23.0	23.9
Low	16.9	15.3	16.5	17.9
Inactive	40.5	31.4	37.1	36.9
<b>Perceived Physical Activity Level</b>				
Very Fit	11.1	22.3	19.6	20.9
Fit	31.8	36.7	38.0	38.3
Partly Fit	41.3	30.6	32.2	29.9
Not Fit	15.8	10.5	10.3	10.8

## Section 9.2: Dietary Patterns

We investigated the dietary habits of the population to determine its characteristics in respect of the frequency of special diets, use of fats, preparation methods for proteins including the removal of visible fat and addition of salt at dining.

The majority of Jamaicans were not on any special diet. Being on a special diet was reported by no more than 2% of the population and among the small proportion of persons reporting special diets, more women were on all these special diets except the vegetarian diet which was reported more frequently by men (Table 9.9).

**Table 9.9: Proportion (%) of 15-74 Year Old Jamaicans on Special Diet by Sex, JHLSII 2008**

Special Diet	Males	Females	Total
Vegetarian	2.5	1.2	1.9
Weight management	0.5	1.7	1.2
Diabetic	1.0	1.7	1.4
Low salt	1.2	2.6	1.9
Low fat/cholesterol	0.9	1.4	1.1

Exploring the association between specific disease conditions by special diets showed that 97% of person who are obese were not on a weight management diet, 94% of persons with hypertension were not on a low salt diet and 95% of individuals who have hypercholesteremia were not on a low fat/cholesterol diet. Being on a diabetic diet was reported by only 16% of persons with diabetes (Table 9.10). Less than 5% of individuals across the various physical activity levels reported being on any special diet (Table 9.11).

**Table 9.10: Proportion (%) of Jamaicans 15- 74 Years with Cited Chronic Diseases who Used a Special Diet, JHLSII 2008**

Special Diet	Obesity	Diabetes	Hypertension	High Cholesterol
Vegetarian	2.0	3.3	2.2	1.7
Weight management	2.4	1.3	1.7	1.6
Diabetic	2.3	16.2	3.8	4.2
Low salt	4.0	5.8	5.7	4.8
Low fat/cholesterol	2.0	3.1	2.4	4.8

**Table 9.11: Proportion (%) of Jamaicans 15- 74 Years Using Special Diets by Physical Activity Levels, JHLSII 2008:**

Special Diet	Physical Activity Levels			
	High	Moderate	Low	Inactive
Vegetarian	2.2	1.5	2.7	1.3
Weight management	1.1	1.0	1.2	1.4
Diabetic	0.5	1.0	2.1	2.2
Low salt	1.2	1.5	3.9	2.0
Low fat/cholesterol	1.0	1.1	1.2	1.1

The majority of the Jamaican population (74%) report that vegetable oil was used for cooking, and more than a quarter of persons do not use any fat on bread however 60% of persons use soft margarine on bread (Table 9.12). More women reported using vegetable oil than men while more men reported using coconut oil and there were no large difference between the sexes in the use of other cooking oils. Almost 10% of persons, similar proportions of men and women, report that they use no oil in cooking and 28% report not using any fat on their bread but men exceeded women 32% to 25%.

**Table 9.12: Reported Usage (%) of Fats and Oils by Jamaicans 15-74 Years by Sex, JHLSII 2008**

Oil & Fat Usage	Males	Females	Total
Type of Oil for Cooking			
None	10.0	8.2	9.1
Vegetable	70.4	76.8	73.7
Coconut	13.9	11.1	12.5
Butter/Margarine	7.9	8.2	8.0
Oil from animals	0.2	0.8	0.5
Bulk	6.1	6.4	6.2
Type of fat on bread			
None	31.9	24.6	28.2
Soft margarine	55.6	64.0	60.4
Hard margarine	4.9	5.8	5.3
Butter	4.3	5.2	4.7
Other fats*	0.9	1.1	1.0

\*Bulk fat &condiments such as peanut butter and jellies

Table 9.13 shows that poultry (90%) was the most frequently consumed protein followed by fish/seafood (61%) and peas/beans (33%) and these were prepared most frequently by either stewing (41%) or frying (34%). Baking and steaming as methods of preparing proteins were reported by 10% of the population respectively. Six per cent of the population report that they add salt at the dining table. Most of the population (87.4%) reported that they removed most or all the visible fat from their protein and this did not differ by sex.

**Table 9.13: Protein Choice and Method of Preparation (%) of Jamaicans 15-74 Years by Sex, JHLSII 2008**

Protein Intake	Males	Females	Total
Type of Protein			
Poultry	85.8	93.0	89.5
Meat	35.9	38.0	37.0
Fish/Seafood	62.0	59.0	60.5
Milk Products	24.6	26.5	25.5
Soy products	7.8	6.0	6.9
Peas/Beans	32.8	32.9	32.9
Vegetables	0.4	0.1	0.2
Preparation of Protein			
Fry	31.7	35.9	33.9
Stew	41.4	41.0	41.2
Bake	8.2	11.9	10.1
Steam	18.7	11.2	14.9
Addition of salt to food			
Salt added at table	5.8	6.3	6.1
Fat Removal from Protein			
Does not remove fat	6.3	4.7	5.5
Remove small portion of fat	7.2	7	7.1
Remove most visible fat	34.9	31.5	33.2
Remove all visible fat	51.6	56.8	54.2

**Figure 9.2: Methods of Protein Preparation (%) as Reported by Jamaicans 15-74 Years, JHLSII 2008**

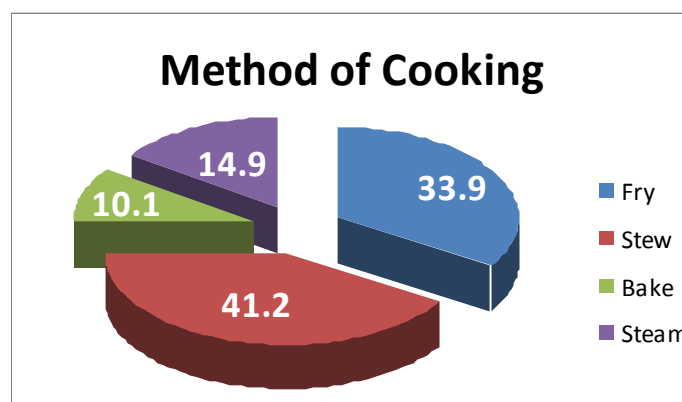


Table 9.14 shows that between 27% and 34% of persons with obesity, diabetes mellitus, hypertension and high cholesterol either bake or steam their food with those with diabetes mellitus doing it least frequently. Less than 10% of Jamaicans with high cholesterol fried their food compared to 30% of persons with obesity and 21-27% of persons with diabetes and hypertension. Stewing was the most frequently reported method of food preparation and was similar in persons with the various conditions at over 40%. Adding salt to food at the table was infrequent in all groups being consistently less than 5%. The majority of individuals with the aforementioned chronic diseases reported that they remove most or all visible fat from protein but persons with hyperlipidaemia were most likely not to remove fat from their protein (14%).



**Table 9.14: Food Preparation Methods (%) of Jamaicans 15-74 Years with Cited Chronic Diseases, JHLSII 2008**

<b>Protein Intake</b>	<b>Obesity</b>	<b>Diabetes</b>	<b>Hypertension</b>	<b>High Cholesterol</b>
Preparation of Protein				
Fry	30.4	20.5	26.5	9.1
Stew	42.9	45.9	43.8	41.6
Bake	13.3	10.9	12.1	12.4
Steam	13.3	22.7	17.6	16.9
Addition of salt to food				
No	95.4	97.2	95.3	95.9
Yes	4.6	2.8	4.7	4.1
<b>Fat Removal from Protein</b>				
Does not remove fat	5.0	3.7	6.0	5.6
Remove small portion of fat	6.4	4.0	5.1	8.3
Remove most visible fat	32.2	28.9	31.3	24.4
Remove all visible fat	54.6	63.4	57.7	61.6

There was little variation in food preparation across physical activity level groups in Jamaicans as consistently a third of persons fried and 40% stewed their protein and a quarter either baked or steamed their protein (Table 9.15). Almost 90% of persons regardless of physical activity level, removed most if not all fat from their protein during preparation.

**Table 9.15: Food Preparation Methods (%) of Jamaicans 15-74 Years with Given Physical Activity Levels, JHLSII 2008**

<b>Protein Intake</b>	<b>Physical Activity Levels</b>			
	<b>High</b>	<b>Moderate</b>	<b>Low</b>	<b>Inactive</b>
Preparation of Protein				
Fry	33.6	32.5	32.9	35.9
Stew	40.0	42.5	41.5	41.2
Bake	9.6	10.1	11.6	10.0
Steam	16.9	15.0	14.1	12.8
Addition of salt to food				
No	94.4	91.4	97.1	93.6
Yes	5.6	8.6	2.9	6.4
<b>Fat Removal from Protein</b>				
Does not remove fat	6.7	5.4	3.8	4.8
Remove small portion of fat	7.5	6.9	7.0	7.0
Remove most visible fat	30.1	32.3	36.3	35.6
Remove all visible fat	55.7	55.4	53.0	52.6

In excess of 60% of individuals reported that they consumed 6-12 servings (3-6times/day) of staples per day and a higher proportion of rural males and females than their urban counterparts consuming the

larger quantities of staples and legumes. Frequent fast-food consumption (> 2 times /week) was higher among urban residents compared to rural dwellers (14.1% vs. 7.4%), however, more than 80% of individuals reported consuming fast-food less than once per week or none at all. A higher proportion of rural males compared to urban males (13.2% vs. 9%) and urban women compared to rural women (15.2% vs. 13.1%) consumed pastry one or more times per day. Three quarters or more of Jamaicans ages 15-74 consumed one or more bottle/glass of sweetened beverage per day with more rural than urban dwellers consuming these amounts (Table 9.16).

**Table 9.16: Distribution (%) of Food Consumption by Sex and Place of Residence, JHLSII 2008**

Dietary Patterns	Male			Female			Total		
	U	R	T	U	R	T	U	R	T
*Staples									
< 3 times per day	33.7	26.5	31.1	39.0	28.3	35.2	36.4	27.4	33.2
3-6 times per day	64.3	69.5	66.1	58.7	70.0	62.7	61.5	69.8	64.4
>6 times per day	2.1	4.0	2.7	2.3	1.7	2.1	2.2	2.8	2.4
Legumes									
<2 times per week	60.7	51.6	57.5	56.7	48.8	53.9	58.7	50.2	56.7
2-3 times per week	37.4	46.7	40.7	41.5	49.5	44.3	39.5	48.1	42.6
>3 times per week	1.9	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.8
Fast-food Consumption									
None	54.4	73.1	61.0	58.5	65.4	61.0	56.4	69.2	61.0
< once per week	31.1	19.3	26.9	27.9	27.4	27.7	29.5	23.5	27.3
2-3 times per week	10.3	6.3	8.9	10.9	4.7	8.7	10.6	5.5	8.8
> 4 times per week	4.3	1.2	3.2	2.8	2.5	2.7	3.5	1.9	2.9
Pastry consumption									
<1 times per day	91.0	86.8	89.5	84.8	86.9	85.6	87.9	86.8	87.5
1-3 times per day	9.0	13.2	10.5	14.7	12.9	14.0	11.9	13.1	12.3
>3 times per day	0	0	0	0.5	0.2	0.4	0.2	0.1	0.2
Sweetened beverage consumption									
<1 bottle/glass per day	23.7	18.0	21.7	25.9	18.8	23.4	24.8	18.4	22.5
1 bottle/glass per day	26.9	22.8	25.5	20.6	20.3	20.5	23.7	21.5	22.9
>1 bottle/glass per day	49.4	59.2	52.9	53.5	60.9	56.2	51.5	60.1	54.5

\*One time per day is equated to a minimum of 2 servings of staples using 24 hr recall data

The vast majority 99% of Jamaicans are currently consuming below the daily recommended portion of vegetables and there were no differences by sex. The consumption pattern for fruits was similar to vegetables in that less than 2% of individuals were meeting the recommended daily intake which did not vary by sex. (Figures 9.3 and 9.4).

Figure 9.3: Vegetable Consumption of Jamaicans 15-74 Years, JHLSII 2008

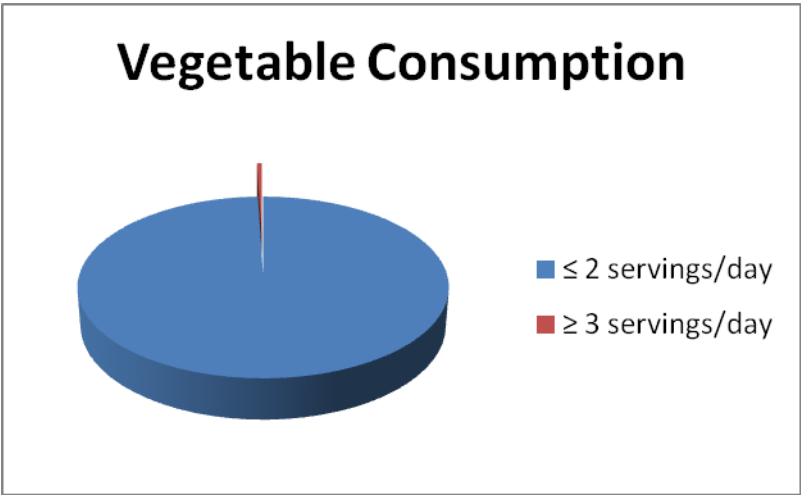
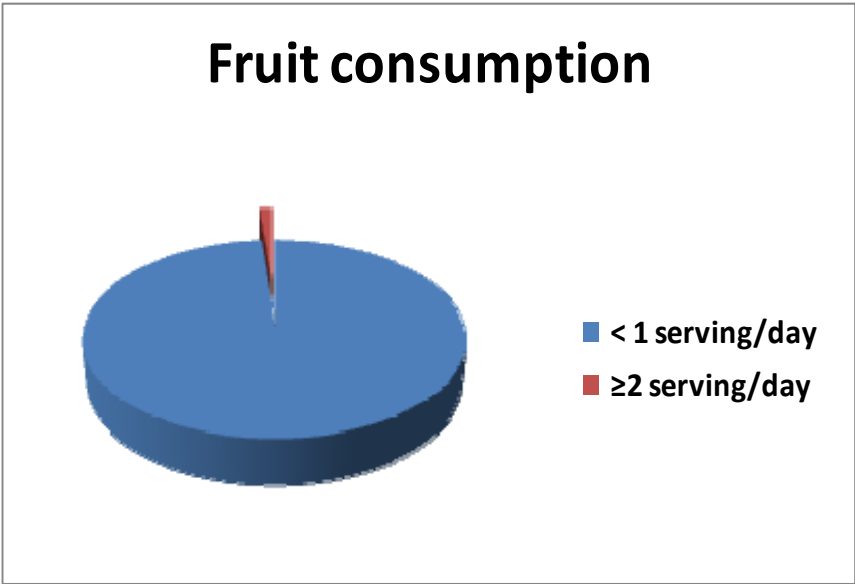


Figure 9.4: Fruit Consumption of Jamaicans 15-74 Years, JHLSII 2008



# CHAPTER 10

## Chronic Diseases

### Section 10.1 Biomedical and Anthropometric Measures

The means for all biomedical measures were within the conventional accepted normal range and small sex differences were seen among biomedical indicators except that males had a slightly higher mean systolic and diastolic blood pressure than females (Table 10.1).

**Table 10.1: Mean Biomedical Indices by Sex,(CI) JHLSII 2008**

Health Indicators	Male	Female	Total
Biomedical Results (CI)			
Mean Cholesterol (mmol)	4.3 (4.2-4.3)	4.5 (4.4-4.5)	4.4 (4.3-4.4)
Mean Glucose (mmol)	4.2 (4.0-4.4)	4.1 (4.0-4.3)	4.2 (4.1-4.3)
Glycosylated Hb%*	5.1 (5.0-5.2)	5.8 (5.7-5.9)	5.5 (5.4-5.5)
Mean Blood Pressure (mmHg)			
Diastolic	78.62 (77.6- 79.7)	76.42 (75.53-77.30)	77.49 (76.67-78.32)
Systolic	125.1 (123.8-126.4)	121.3 (120.1-122.6)	123.17 (122.14-124.21)

\* Glycosylated haemoglobin among persons with diabetes mellitus

Blood cholesterol levels increased from 4.1 mmol/l in 15-24 years old to 4.6 mmol/l in 65-74 year olds; with the highest level of 4.5 mmol/l in 55-64 year olds while glucose levels increased from 4.0 mmol/l in 15-24 year olds to 4.9 mmol/l in 65-74 year olds (Table 10.2). Glycosylated haemoglobin (Glyco Hb) levels tended to increase with age but the pattern was inconsistent when compared to the pattern in cholesterol and glucose levels in that while there was a net increase from 4.0% in 15-24 year olds to 7.4% among 65-74 year olds, the second highest level of 6.4% was among 45-54 year olds.

Diastolic blood pressure increased among older persons to middle age and then fell slightly thereafter resulting in a net increase of 7 mmHg across the age range. Systolic blood pressure (SBP) showed a net increase of 19 mmHg from the youngest to the oldest age groups but the highest SBP was among 55-64 year olds.

**Table 10.2: Means of Specified Biomedical Measures by Sex and Ten Year Age Bands, (95% Confidence Intervals) JHLSII 2008**

<b>Biomedical Marker</b>		<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>
Cholesterol (mmol)	M	4.0 (4.0-4.1)	4.2 (4.1-4.3)	4.4 (4.3-4.5)	4.4 (4.3-4.5)	4.5 (4.3-4.7)	4.4 (4.2-4.6)
	F	4.3 (4.2-4.3)	4.4 (4.3-4.4)	4.5 (4.4-4.6)	4.8 (4.7-4.9)	4.8 (4.7-5.0)	4.8 (4.7-4.9)
	T	4.1 (4.1-4.2)	4.3 (4.2-4.3)	4.4 (4.4-4.5)	4.6 (4.5-4.6)	4.7 (4.6-4.8)	4.6 (4.5-4.7)
Glucose (mmol)	M	4.0 ( 3.7-4.2)	4.0 (3.6-4.3)	4.2 (3.9-4.5)	4.5 (4.1-4.9)	4.5 (4.0-4.9)	4.9 (4.0-5.9)
	F	3.5 (3.4-3.7)	4.0 (3.8-4.2)	4.2 (4.0-4.4)	4.6 (4.3-4.8)	4.9 (4.5-5.3)	4.8 (4.5-5.1)
	T	3.8 (3.6-3.9)	4.0 (3.8-4.2)	4.2 (4.0-4.4)	4.5 (4.3-4.7)	4.7 (4.4-5.0)	4.9 (4.4-5.4)
Glyco Hb (%)	M	4.0 (3.7-4.3)	3.8 (3.5-4.1)	5.5 (4.8-6.3)	6.4 (5.6-7.3)	5.9 (5.4-6.3)	7.4 (6.2-8.5)
	F	3.7 (3.7-3.8)	6.5 (6.2-6.9)	6.4 (6.2-6.6)	6.3 (6.1-6.4)	6.6 (6.5-6.8)	6.2 (6.0-6.3)
	T	3.8 (3.8-3.9)	5.2 (5.0-5.4)	5.9 (5.7-6.2)	6.3 (6.2-6.5)	6.3 (6.1-6.4)	6.7 (6.5-6.9)
Diastolic Blood Pressure (mmHg)(CI)	M	72.9 (71.3-74.6)	77.0 (74.7-79.2)	79.7 (77.6-81.8)	85.5 (83.0-88.0)	85.4 (82.2-88.7)	79.8 (76.7-82.8)
	F	70.6 (69.2-72.0)	74.5 (73.2-75.8)	78.5 (77.1-79.8)	81.8 (79.9-83.6)	82.3 (80.5-84.2)	80.4 (78.1-82.7)
	T	71.8 (70.5-73.0)	75.7 (74.3-77.1)	79.1 (77.8-80.3)	83.7 (82.0-85.4)	83.9 (81.8-85.9)	80.1 (78.2-82.0)
Systolic Blood Pressure (mmHg) (CI)	M	118.9 (116.3-121.4)	119.3 (117.6-120.9)	123.4 (121.1-125.7)	133.8 (129.1-138.5)	139.6 (135.5-143.7)	138.2 (133.4-142.9)
	F	111.1 (109.6-112.5)	114.7 (113.0-116.4)	121.0 (119.3-122.6)	133.3 (130.6-135.9)	138.2 (133.5-142.9)	141.5 (136.5-146.4)
	T	115.0 (113.4-116.5)	116.9 (115.5-118.2)	122.1 (120.6-123.7)	133.5 (130.7-136.4)	138.9 (136.0-141.9)	139.9 (136.7-143.1)

There appears to be little or no differences in mean biomedical measures between urban and rural residence. Sex differences in blood pressure were similar in that both urban and rural males had marginally higher mean diastolic and systolic blood pressures than their female counterparts. (Table 10.3).

**Table 10.3: Mean Biomedical Results of Jamaicans Aged 15-74 Years by Geographical Distribution, JHLSII 2008**

	URBAN			RURAL		
<b>Biomedical Results</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Mean Cholesterol (mmol) (CI)	4.2 (4.17-4.29)	4.5 (4.43-4.52)	4.4 (4.31-4.39)	4.3 (4.24-4.36)	4.5 (4.44-4.57)	4.4 (4.36-4.46)
Mean Glucose (mmol)(CI)	4.1 (3.98-4.28)	4.1 (3.91-4.19)	4.1 (3.97-4.21)	4.3 (3.94-4.67)	4.3 (4.11-4.47)	4.3 (4.08-4.52)
Glyco HB % (CI)	5.3 (4.8-5.7)	5.7 (5.5-5.9)	5.5 (5.4-5.6)	4.8 (4.6-5.1)	5.9 (5.7-6.1)	5.4 (5.3-5.6)
Mean Blood Pressure						
Diastolic (CI)	78.3 (76.84-79.76)	76.1 (75.0-77.27)	77.2 (76.14-78.25)	79.2 (77.39-81.02)	76.9 (75.32-78.53)	78.0 (76.56-79.52)
Systolic (CI)	124.0 (121.9-126.2)	119.9 (118.27-121.59)	121.9 (120.48-123.42)	126.9 (125.10-128.84)	123.9 (121.70-126.11)	125.4 (123.66-127.12)

According to the WHO criteria(29) more than 50% of Jamaicans were overweight or obese. (BMI > 25 kg/m<sup>2</sup>) There were significant sex difference with estimates for obesity being higher (37.7 vs. 12.4%; p<0.001) in females compared to males. Using gender-specific internationally recognized cut-points (Hans; Lean et al) of waist circumference (WC) and waist-to-hip ratio (WHR) which are associated with increased cardiovascular risk, we found that a large proportion of women were at increased risk. Increased WC was present in 70% of females compared to 20% of males and WHR was increased in 70% of females and 9% of males (P<0.001 for both comparisons). (Table 10.4)

**Table 10.4: Prevalence of Nutritional Status among Jamaicans 15-74 Years by Sex, JHLSII 2008**

<b>Nutritional Status</b>	<b>Males</b>	<b>Females</b>	<b>Total</b>
Underweight(<18.5kg/m <sup>2</sup> )	4.7	4.7	4.7
Normal (18.5-24.99 kg/m <sup>2</sup> )	57.0	30.6	43.6
Overweight(25-29.99 kg/m <sup>2</sup> )	25.8	27.0	26.4
Obese (≥30 kg/m <sup>2</sup> )***	12.4	37.7	25.3
Increased WC***	19.6	69.8	45.2
Increased WHR***	8.8	70.4	40.2

\*\*\*p&lt;0.001

Mean body mass index (BMI) and waist circumference (WC) were significantly higher among females compared to males. Table 10.5 shows that across sex, urban residents appeared to have higher levels of underweight (5.6% vs. 3.2%) and while the proportion of overweight females exceed that of males in rural areas, urban males and females have similar proportions of overweight persons. Increased WC (21.3%) among urban males was more frequent than among their rural counterparts (16.5%) while the frequency among females was similar in both areas of residence.

**Table 10.5: Means and Prevalence (%) of Nutritional Status within and Across Geographical and Sex Categories, JHLSII 2008**

<b>Nutritional Status</b>	<b>Urban</b>			<b>Rural</b>		
	<b>Male</b>	<b>Female</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Mean BMI (CI)	24.8 (24.3-25.3)	28.2 (27.6-28.7)	26.5 (26.2-26.9)	25.1 (22.9-27.3)	28.8 (27.8-29.8)	27.0 (25.6-28.5)
Mean WC (CI)	83.3 (82.1-84.6)	88.0 (86.6-89.4)	85.7 (84.8-86.7)	82.5 (80.8-84.2)	89.0 (87.5-90.5)	85.9 (84.7-87.0)
<b>Prevalence of</b>						
Underweight (<18.0kg/m <sup>2</sup> )	5.5	5.6	5.6	3.2	3.1	3.2
Normal (18.5-24.99 kg/m <sup>2</sup> )	55.0	29.4	42.2	60.8	31.8	46.0
Overweight (25-29.99 kg/m <sup>2</sup> )	26.9	26.0	26.4	23.9	28.8	26.4
Obese (≥30 kg/m <sup>2</sup> )	12.7	38.4	25.8	12.1	36.4	24.5
Increased WC	21.3	69.9	46.0	16.5	69.6	43.7
Increased WHR	8.6	70.8	40.3	9.2	69.6	40.1

The highest frequency of overweight, obesity and increased WC and WHR were in the middle years mainly ages 35-54 years and sometimes also affecting the 55-64 year olds. The decline in the frequency of markers of obesity appears to be mainly influenced by males as the obesity among females seems to

persist into old age. More than 60% of women between the ages of 25-74 years old were overweight or obese, had an increased waist circumference and an increase waist hip ratio which is indicative of higher cardiovascular risk. Disproportionately more females were overweight, obese, had an increase WC and increased WHR across all age groups. Underweight was more prevalent at the extremes of ages approximating 10% in the 15-24 and 6% in 65-74 age groups. There was a difference in the sexes however with underweight females being more prevalent than males in youth (12.6% vs. 8.4%) and underweight males more prevalent in the elderly (9.3% vs. 2.6%) (Table 10.6).

**Table 10.6: Prevalence (%) of the Varying Nutritional Status of Jamaicans Aged 15-74 Years by Age and Sex, JHLSII 2008**

<b>Nutritional Status</b>	<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>
Underweight(<18.5kg/m <sup>2</sup> )						
M	8.4	3.4	2.1	2.0	4.8	9.3
F	12.6	2.4	2.4	1.4	1.3	2.6
T	10.5	2.9	2.3	1.7	3.1	5.8
Normal (18.5-24.99 kg/m <sup>2</sup> )						
M	70.0	65.8	47.0	43.6	47.7	49.6
F	49.5	35.5	19.3	17.2	17.5	22.9
T	59.7	49.9	32.6	30.6	32.8	35.7
Overweight(25-29.99 kg/m <sup>2</sup> )						
M	12.6	21.5	36.7	32.9	35.4	29.1
F	21.5	24.5	27.8	33.9	33.1	33.3
T	17.0	23.1	32.1	33.4	34.3	31.3
Obese (≥30 kg/m <sup>2</sup> )						
M	9.0	9.4	14.2	21.6	12.1	12.1
F	16.5	37.7	50.5	47.6	48.0	41.2
T	12.8	24.2	33.0	34.4	29.8	27.3
Increased WC						
M	8.5	11.1	25.0	36.7	29.6	26.0
F	38.9	67.3	86.0	85.3	88.0	86.8
T	23.7	40.6	56.5	60.6	58.4	57.7
Increased WHR						
M	3.0	2.3	5.1	20.6	18.4	29.3
F	40.6	67.4	82.7	87.0	90.7	93.7
T	21.9	36.5	45.2	53.4	54.0	62.9

## Section 10.2: Chronic Non communicable diseases

The prevalence of diabetes mellitus as defined by the WHO 2006 {2007 2109 /id} was 7.9 % of the population. This translates to almost 150,000 of Jamaican nationals in the age group 15-74. Twenty-five percent (25%) or more than 450,000 Jamaicans in this age band had hypertension and one third of the population - significantly more males than females (M41.8%, F 29.0%, T35.3% p<0.001) - were pre-hypertensive as defined by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) criteria (30). It is also of note that 1 in 10 persons in the population had high cholesterol and a more than 20% were depressed. Approximately 6% of 15-74 years



old Jamaican had the sickle cell trait (whether AC or AS allele) and only one person (female) was found with the probable SS genotype (sickle cell disease). The genotypic expression AS was more frequently found than the AC genotype within gender and across geographical distribution. Geographical comparisons of specified disease conditions showed that hypertension was more prevalent in rural dwellers (29% vs. 23%) while the difference in the prevalence of diabetes mellitus though in the same direction was much less (8.3% vs. 7.6%). The prevalence estimates of diabetes and impaired fasting glucose combined was higher among rural women compared to urban women (R 13.3% vs. U 10.7%) and hypertension and pre-hypertension was higher among rural dwellers across sex. Sex specific data also showed that a higher proportion of rural males were pre-hypertensive compared to males dwelling in urban residence (R 44.5% vs. U 40.3%) Depression was more common in females regardless of residence (Table 10.7).

**Table 10.7: Prevalence\* (%) of Specified Disease Conditions in Jamaicans 15-74 Years by Sex and Geographical Location**

	Total			Urban			Rural		
Disease Condition	Male	Female	Total	Male	Female	Total	Male	Female	Total
Diabetes Mellitus*	6.4	9.3	7.9	6.6	8.6	7.6	6.1	10.4	8.3
Impaired Fasting Glucose	3.3	2.4	2.8	3.2	2.1	2.6	3.6	2.9	3.2
Hypertension	25.0	25.5	25.2	23.3	23.5	23.4	27.9	29.2	28.6
Pre-hypertension	41.8	29.0	35.3	40.3	28.3	34.2	44.5	30.3	37.2
High Cholesterol	7.5	15.6	11.7	7.7	14.8	11.3	7.2	17.1	12.3
Overweight	26.0	27.1	26.6	26.9	26.1	26.5	24.4	29.0	26.8
Obesity	12.3	37.5	25.2	12.7	38.3	25.8	11.6	36.1	24.1
Depression	14.8	25.6	20.3	14.8	26.4	20.7	14.8	24.1	19.6
Sickle Cell Trait									
AC	2.2	1.3	1.8	2.4	0.8	1.6	1.8	2.2	2.0
AS	4.3	3.6	3.9	4.6	3.7	4.1	3.8	3.3	3.5
Sickle Cell Disease	0	0.1	0.04	0	0.1	0.1	0	0	0

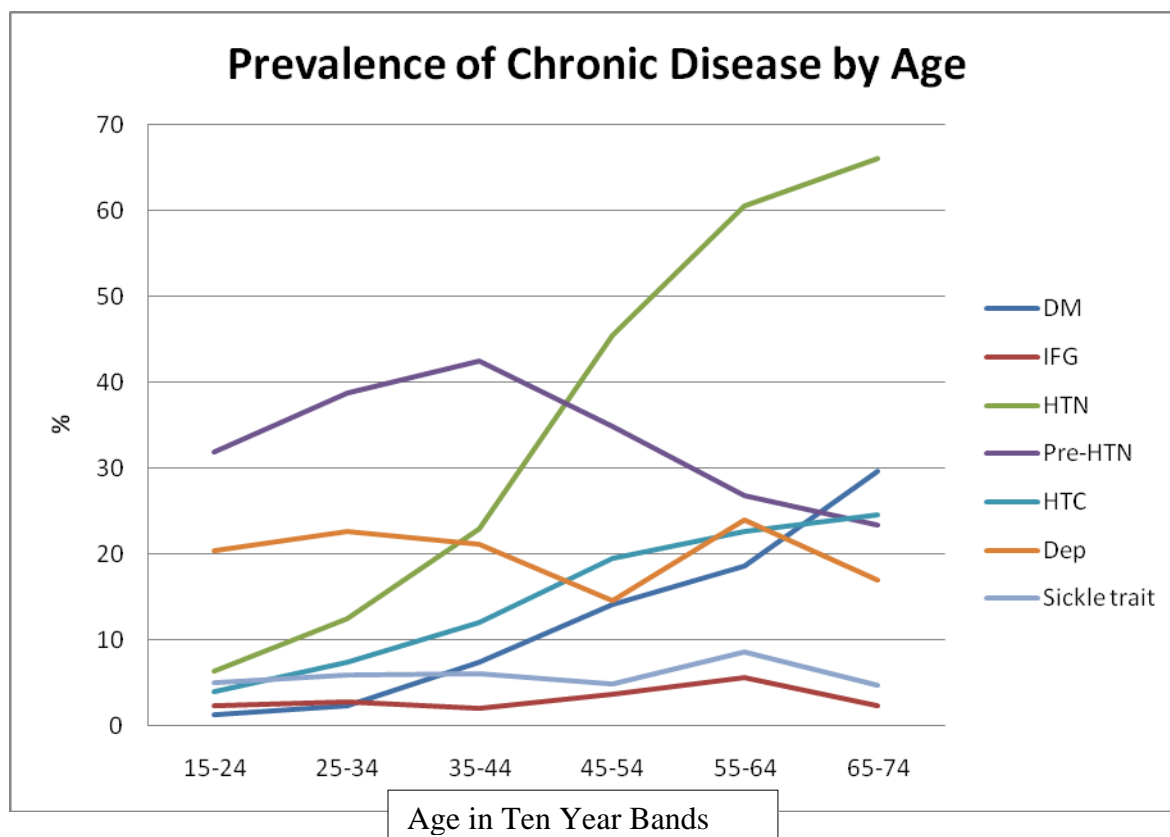
\*Including on medication and survey detected

Table 10.8 and Figure 10.1 shows that the burden of the specified disease conditions was found in the older age groups and the excess among females is maintained across all age groups. The exception to this pattern is pre-hypertension which had its highest prevalence in the 25-44 year old age group. Depression was lowest among the 45-54 years age group and a significantly higher proportion of females compared to males have depression except for the age group 55-64 years where the opposite was true. The prevalence of sickle cell trait varied across age bands with no distinct pattern in the small differences.

**Table 10.8: Prevalence (%) of Specified Disease Conditions by Sex and Ten Year Age Bands, JHLSII 2008**

<b>Disease Condition</b>		<b>15-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-54</b>	<b>55-64</b>	<b>65-74</b>
Diabetes Mellitus	M	1.4	0.9	5.1	13.6	12.4	3.4
	F	0.9	3.3	9.4	14.6	24.8	32.2
	T	1.2	2.2	7.3	14.1	18.5	29.6
Impaired Fasting Glucose	M	3.7	2.9	2.2	2.8	7.0	3.4
	F	1.1	2.8	1.8	4.6	4.1	1.2
	T	2.3	2.8	2.0	3.7	5.6	2.3
Hypertension	M	8.8	12.8	22.6	41.1	58.6	60.5
	F	3.7	12.2	23.1	49.8	62.6	71.3
	T	6.3	12.5	22.9	45.4	60.5	66.1
Pre-hypertension	M	38.4	49.2	49.2	39.7	28.1	27.1
	F	25.5	29.3	36.2	29.8	25.3	19.8
	T	31.9	38.7	42.5	34.8	26.7	23.3
High Total Cholesterol	M	1.0	6.3	8.4	11.8	13.4	17.7
	F	7.0	8.5	15.5	27.5	32.0	30.9
	T	4.0	7.5	12.1	19.5	22.6	24.6
Depression	M	12.6	16.6	15.2	9.1	24.8	14.8
	F	28.1	27.8	26.5	20.3	22.9	18.9
	T	20.4	22.5	21.1	14.6	23.9	16.9
Sickle Cell Trait	M	4.5	8.0	8.4	4.6	9.2	3.3
	F	5.4	4.0	3.8	5.3	7.7	6.0
	T	5.0	5.9	6.0	4.9	8.5	4.7

**Figure 10.1: Prevalence (%) of Specified Disease Conditions by Ten Year Age Bands, JHLSII 2008**



In Table 10.9 the proportions of persons on treatment for the respective diseases are expressed as a percentage of those classified with the conditions. Forty percent of persons with hypertension and 72% of the diabetics were on treatment for their condition compared with 11% of those with dyslipidaemia (high cholesterol). Of note is that almost eighty percent of the hypertensive males are not on treatment compared with their forty-two percent of females.

**Table 10.9: Proportion (%) of Persons Taking Medication\* For Specified Conditions in 15-74 Year-Old Jamaicans, JHLSII 2008**

On Treatment for		Male	Female	Total
Hypertension	Yes	21.0	57.8	40.0
	No	79.0	42.2	60.0
Diabetes	Yes	66.4	74.9	71.5
	No	33.6	25.1	28.5
High Cholesterol	Yes	13.8	9.9	11.2
	No	86.2	90.1	88.8

\*At time of survey

Table 10.10 shows the percentages of individuals classified as having the respective chronic diseases who are aware of their condition. Of the three conditions shown, the only condition of which males were more aware was high cholesterol status. Most persons with diabetes however are aware of their condition (M 73.2%, F 78.0% T 76.1%). In contrast more than eighty percent of Jamaicans with high cholesterol and half of those with hypertension are not aware of their condition. Control rates show the proportion of persons who had optimal biomedical measures expressed as a percentage of persons classified as having the respective conditions and being on treatment. Control rates exceed 70% in individuals with high cholesterol compared to 41% and 44% of hypertension and diabetes cases respectively. There is marked sexual dimorphism in control rates among persons with diabetes mellitus and high cholesterol levels a higher proportion of males compared to females are controlled while larger proportion of males with hypertension are not controlled.

**Table 10.10: Awareness (%) and Control Rates of Disease Status in 15-74 Year-Old Jamaicans, JHLSII 2008**

<b>Disease</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b><i>Hypertension</i></b>			
Aware	30.6	69.6	50.7
Controlled	31.2	44.9	41.4
Not Controlled	68.2	53.9	57.5
Control unknown	0.6	1.2	1.1
Unaware	69.4	30.5	49.3
<b><i>Diabetes</i></b>			
Aware	73.2	78.0	76.1
Controlled	46.8	42.1	43.9
Not Controlled	49.9	54.3	52.6
Control unknown	3.4	3.6	3.5
Unaware	26.8	22.0	23.9
<b><i>High Cholesterol</i></b>			
Aware	16.6	12.7	14.0
Controlled	88.4	68.5	76.3
Not Controlled	11.6	21.6	17.7
Control unknown	0.0	9.9	6.0
Unaware	83.4	87.3	86.0

The prevalence of chronic diseases varies with socioeconomic status and Table 10.11 shows that larger proportions of persons with lower levels of education and fewer household possessions have hypertension and diabetes mellitus. This pattern is also present with high cholesterol and educational levels but is not as obvious with categories of household possessions. Underweight is also more frequent among persons of lower levels of education but this pattern is not seen with categories of household possessions. Overweight and a high waist circumference are most frequent in the lowest educational category but the pattern of obesity across these groups is less consistent. The pattern of overweight and high waist circumference across categories of household possessions is less consistent.

**Table 10.11: Proportion (%) of Jamaicans Aged 15-74 Years Who Had a Chronic Disease at Given Sociodemographic Levels, JHLSII 2008**

<b>Chronic Disease</b>	<b>Educational Levels</b>			<b>Socioeconomic Status (Possessions)</b>		
	Primary or Lower	Secondary	Post Secondary	Low	Middle	High
Hypertension	43.4	17.3	16.6	27.2	27.0	21.1
Pre-hypertension	32.6	36.2	36.9	36.8	33.1	35.8
Diabetes	14.3	5.2	3.6	8.8	7.9	6.6
Impaired Glucose Tolerance	3.3	2.4	3.2	2.6	2.8	3.2
High Total Cholesterol	17.5	8.8	9.9	12.2	11.3	11.3
BMI- Underweight	5.2	5.4	0.9	5.0	5.1	4.1
Normal	53.3	60.8	51.7	44.1	44.7	41.6
Overweight	31.5	20.2	25.9	26.1	23.6	30.3
Obese	10.0	13.6	11.5	24.9	26.6	24.0
Increased WC	50.6	43.5	38.6	46.9	46.0	42.4
Increased WHR	46.3	38.5	30.6	46.2	39.2	34.0

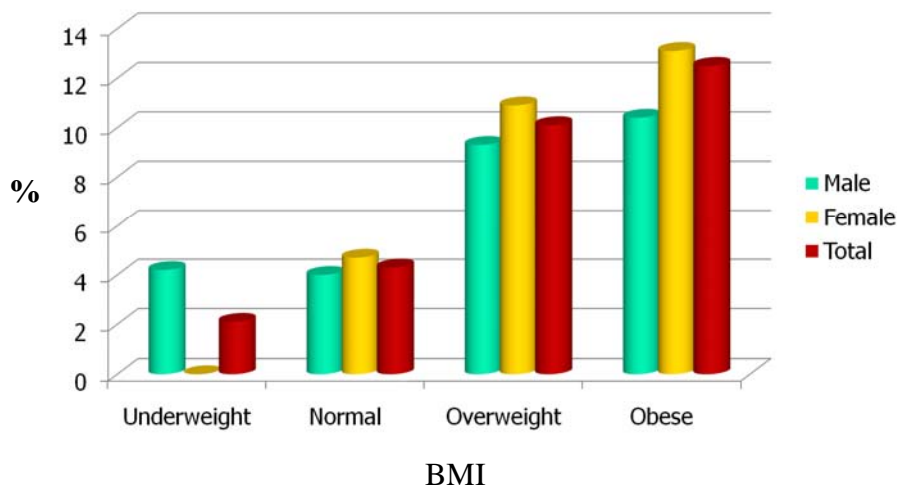
More persons who reported being inactive are diabetic, obese and have high total cholesterol. There were no differences in the proportion of persons who were classified as hypertensive across the spectrum of persons who reported varying levels of physical activity. Interestingly more persons who reported low or high physical activity levels were overweight, however as expected obesity decreased with increasing PAL. (Table 10.12)

**Table 10.12: Proportion (%) of Jamaicans Aged 15-74 Years Who Had a Chronic Disease with Given Physical Activity Levels, JHLSII 2008**

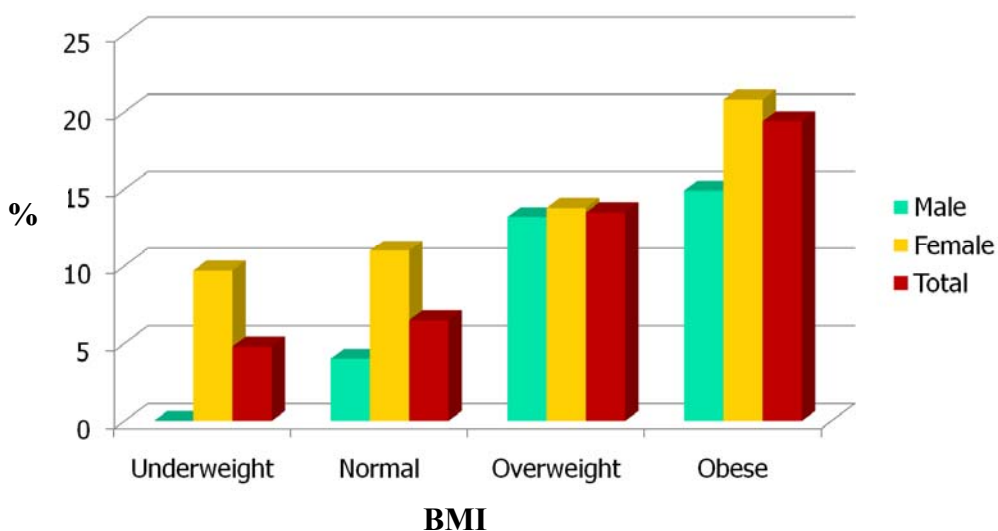
<b>Chronic Disease</b>	<b>Physical Activity Levels (PAL)</b>			
	<b>Inactive</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>
Hypertension	25.9	25.2	25.6	25.4
Pre-hypertension	27.9	28.5	30.4	31.3
Diabetes	10.8	8.4	6.2	6.0
Impaired Glucose Tolerance	2.9	2.2	3.2	2.9
High Total Cholesterol	14.7	11.9	12.3	8.2
BMI- Underweight	6.4	4.4	2.9	4.6
Normal	37.8	40.3	44.2	50.9
Overweight	25.3	27.4	25.5	28.0
Obese	31.5	28.0	27.4	16.5
Increased WC	58.4	49.2	45.1	31.6
Increased WHR	56.7	41.5	38.5	25.5

Figures 10.2, 10.3 and 10.4 show the distribution of diabetes mellitus, high cholesterol and hypertension by BMI category. The prevalence of all these conditions increase with increased BMI in both males and females.

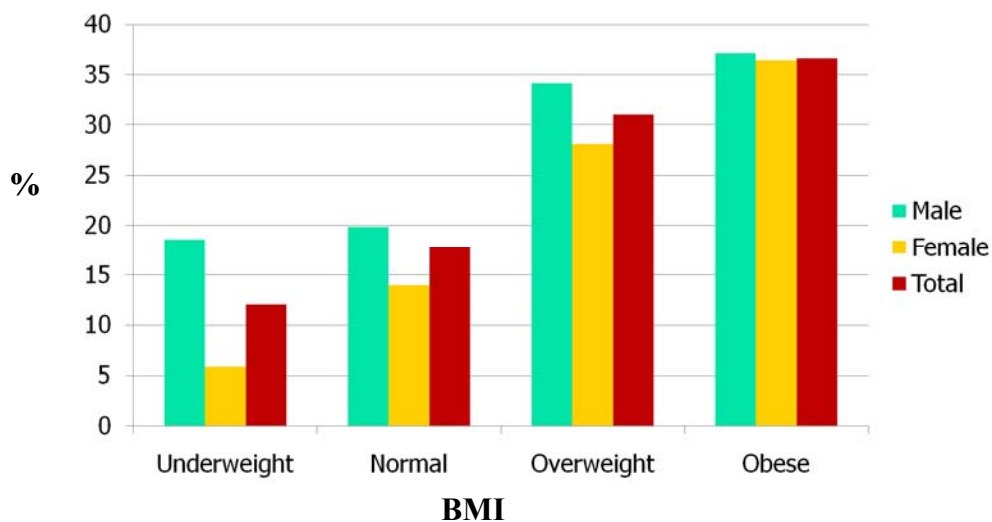
**Figure 10.2: Prevalence (%) of Diabetes by BMI**



**Figure 10.3: Prevalence (%) of High Cholesterol by BMI**



**Figure 10.4: Prevalence (%) of Hypertension by BMI**



Persons of a lower socioeconomic status have significantly higher mean systolic blood pressures and waist circumference when compared with those of high socioeconomic standing. There were no differences in the mean blood levels of glucose and cholesterol between the groups. Persons across all levels had similar mean body mass indices and the proportions with increased WC and WHR do not appear to differ significantly by SES as estimated by household possessions. (Table 10.13)

**Table 10.13: Mean Biomedical Values of Jamaican 15-74 Years of Varying Socioeconomic Levels, JHLSII 2008**

	<b>Socioeconomic Status (Possessions)</b>		
<b>Biomedical Marker Mean Values (mmol)</b>	<b>Low</b>	<b>Middle</b>	<b>High</b>
Fasting Blood Glucose (CI)	4.1 (4.0-4.3)	4.2 (4.0-4.4)	4.2 (4.0-4.3)
Cholesterol (CI)	4.4 (4.3-4.4)	4.4 (4.3-4.4)	4.4 (4.3-4.4)
Systolic Blood Pressure* (CI)	124.9 (123.3-126.5)	123.2 (121.6-124.8)	121.1 (119.8-122.5)
Diastolic Blood Pressure (CI)	77.6 (76.4-78.7)	77.9 (76.7-79.1)	77.0 (75.8-78.3)
BMI (CI)	26.5 (25.9-27.1)	26.5 (25.9-27.1)	26.8 (26.1-27.4)
Waist Circumference* (CI)	85.7 (84.7-86.8)	85.6 (84.5-86.6)	86.0 (84.6-87.5)
Waist Hip Ratio (CI)	0.86 (0.85-0.87)	0.85 (0.84-0.85)	0.85 (0.84-0.86)

\* p <0.05

Fasting blood glucose, blood cholesterol, systolic and diastolic blood pressure, waist circumference and waist-hip ratio all increased with increasing BMI categories (Table 10.14).

**Table 10.14: Mean Biomedical Values of Jamaican 15-74 Years with Nutritional Indices, JHLSII 2008**

	<b>Body Mass Index</b>			
<b>Biomedical Marker Mean Values (mmol)</b>	<b>Underweight</b>	<b>Normal</b>	<b>Overweight</b>	<b>Obese</b>
Fasting Blood Glucose*** (CI)	3.8 (3.4-4.1)	4.0 (3.8-4.2)	4.3 (4.2-4.5)	4.3 (4.2-4.5)
Cholesterol*** (CI)	4.2 (4.1-4.3)	4.2 (4.2-4.3)	4.5 (4.4-4.5)	4.6 (4.5-4.6)
Systolic Blood Pressure*** (CI)	116.8 (112.7-121.0)	119.8 (118.5-121.0)	126.3 (124.7-127.9)	127.1 (125.0-129.2)
Diastolic Blood Pressure*** (CI)	72.9 (70.3-75.4)	75.6 (74.6-76.5)	79.5 (78.4-80.7)	79.8 (78.4-81.3)
Waist Circumference*** (CI)	66.1 (64.2-68.1)	76.3 (75.7-76.9)	89.6 (89.0-90.3)	101.7 (100.3-103.1)
Waist Hip Ratio*** (CI)	0.79 (0.78-0.81)	0.82 (0.82-0.83)	0.87 (0.87-0.88)	0.89 (0.88-0.90)

\*\*\* p <0.001

Compared with persons who reported having high physical activity those who reported inactive to moderate levels had significantly higher mean cholesterol levels( $p<0.001$ ). Person who reported having a high physical activity also had a significantly lower mean BMI and waist circumference than those who reported a more sedentary lifestyle. ( $p<0.001$ ) Blood glucose and both systolic and diastolic blood pressures did not demonstrate any pattern of association with physical activity levels. (Table 10.15)

**Table 10.15: Mean Biomedical Values of Jamaican 15-74 Years in Persons with Given Physical Activity Levels, JHLSII 2008**

<b>Biomedical Marker Mean Values (mmol)</b>	<b>Physical Activity Levels</b>			
	Inactive	Low	Moderate	High
Fasting Blood Glucose (CI)	4.2 (4.1-4.3)	4.1 (3.9-4.3)	4.2 (4.0-4.4)	4.1 (3.9-4.3)
Cholesterol*** (CI)	4.5 (4.4-4.5)	4.4 (4.3-4.4)	4.4 (4.3-4.4)	4.3 (4.2-4.3)
Systolic Blood Pressure (CI)	123.7 (122.0-125.4)	121.7 (119.6-123.7)	122.3 (120.5-124.2)	124.1 (122.5-125.6)
Diastolic Blood Pressure (CI)	76.9 (75.8-78.1)	77.5 (76.1-78.9)	77.3 (75.7-78.9)	78.2 (76.9-79.4)
Waist Circumference* (CI)	87.9 (86.8-89.1)	85.9 (84.4-87.5)	85.9 (84.2-87.5)	83.6 (82.7-84.6)
Waist Hip Ratio (CI)	0.86 (0.85-0.86)	0.84 (0.83-0.85)	0.86 (0.85-0.87)	0.85 (0.84-0.86)
BMI(kg/m <sup>2</sup> )*** (CI)	27.3 (26.8-27.8)	26.8 (26.0-27.6)	26.8 (26.0-27.8)	25.7 (25.1-26.2)

\*\*\*  $p < 0.001$ ; \*  $p < 0.05$

Persons who classified as having diabetes, hypertension, and high total cholesterol had higher mean BMI, WHR and WC than those who were not thus classified. There were no differences in the means for those persons who were classified as depressed compared to those who were not. (Table 10.16)

**Table 10.16: Mean Nutritional Indices of Jamaicans 15-74 Years with Given Chronic Diseases, JHLSII 2008**

<b>Nutritional Index Mean Values</b>	<b>Chronic Disease</b>			
	Diabetes		Hypertension	
	Y	N	Y	N
BMI (CI)	29.2 (28.4-30.0)	26.4 (25.9-26.8)	28.4 (28.0-28.9)	25.9 (25.4-26.5)
Waist Hip Ratio (CI)	0.91 (0.90-0.92)	0.85 (0.84-0.85)	0.89 (0.88-0.89)	0.84 (0.84-0.84)
Waist Circumference (CI)	94.8 (92.8-96.8)	85.0 (84.3-85.7)	91.9 (90.7-93.1)	83.7 (82.9-84.5)
Nutritional Index Mean Values	High Total Cholesterol		Depression	
	Y	N	Y	N
BMI (CI)	29.2 (28.4-30.0)	26.2 (25.8-26.6)	26.6 (25.9-27.3)	26.6 (26.1-27.0)
Waist Hip Ratio (CI)	0.90 (0.88-0.91)	0.84 (0.84-0.85)	0.85 (0.84-0.86)	0.85 (0.85-0.86)
Waist Circumference (CI)	93.9 (91.8-96.1)	84.7 (84.1-85.4)	85.3 (83.5-87.2)	85.9 (85.2-86.5)



We examined the frequency of the occurrence of multiple cardiovascular risk factors in the population. The risk factors included in the analysis were: age >45 years, cigarette smoking, diabetes, central obesity (sex-specific increased WC) and high cholesterol. More than a quarter of the population had three or more cardiovascular risk factors and this was more frequent in women (31% vs. 25%). Less than 15% of the population were free of risk factors and this was similar between males and females. (Table 10.17) A larger proportion of women than men were in the highest risk group (>3 risk factors) whilst a larger proportion of men were in the low risk group (1 risk factor).

**Table 10.17: Number of Persons with Clustering Of Up To Six Cardiovascular Risk Factors among 15-74 Year-Olds by Sex, JHLSII 2008**

Number of Risk Factors	Male	Female	Total
None(Not at risk)	14.9	14.6	14.7
One (Low)	32.5	27.1	29.8
Two (Moderate)	27.7	27.6	27.7
More than Three (High)	24.9	30.7	27.9

**Risk factors:** age >45 years; hypertension/pre-hypertension; high cholesterol; diabetes mellitus; cigarette smoking; overweight (BMI  $\geq 25\text{kg/m}^2$ /high WC).

There were only small differences between urban and rural frequencies of the occurrence of multiple risk factors either overall or by sex group. More urban dwellers had low to moderate risk of cardiovascular disease; on the other hand more rural dwellers were at high risk. (Table 10.18)

**Table 10.18: Number of Persons with Clustering Of Up To Six Cardiovascular Risk Factors Among 15-74 Year-Olds by Geographical Distribution, JHLSII 2008**

Level of CVD Risk	Urban			Rural		
	M	F	T	M	F	T
None	17.0	14.9	15.9	10.8	14.1	12.5
One	33.0	28.4	30.7	31.6	24.8	28.1
Two	25.5	27.1	26.3	31.8	27.1	30.2
More than Three	24.5	29.6	27.1	25.8	29.6	29.3

**Risk factors:** age >45 years; hypertension/pre-hypertension; high cholesterol; diabetes mellitus; cigarette smoking; overweight (BMI  $\geq 25\text{kg/m}^2$ /high WC).

Table 10.19 shows the distribution of the presence of multiple risk factors by 10-year age groups. Overall risk factor burden appears to be very similar between men and women. Among younger persons age 15-44 years who can qualify for only five of the six risk factors, the proportion without risk factors falls sharply from 37% in the youngest to 7% in the oldest group. Multiple risk factors occur in similar proportions of both men and women in the youngest age group (15-24 years old) where over 20% of persons have two risk factors. The proportion of persons with two and three or more risk factors increases with age from 15-24 years to 35-44 years and by age 44 years over 40% of persons have two cardiovascular risk factors and 16% have three or more risk factors. Among older persons, age 45 years

and over, the proportion with two or less risk factors fall sharply and the vast majority of persons have three or more risk factors and this is highest in the oldest age group 65-74 years old.

**Table 10.19: Proportion (%) of Persons with Clustering of up to Six Cardiovascular Risk Factors Among 15-74 Year-Olds by Age in Ten Year age Bands, JHLSII 2008**

CVD Risk	15-24			25-34			35-44			45-54			55-64			65-74		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
None	37.5	37.8	37.1	14.3	17.8	16.1	8.5	4.6	6.5	-			-			-		
One	40.6	39.1	39.8	55.3	39.5	47.0	37.3	31.6	34.3	2.2	2.4	2.3	5.4	0.4	2.9	4.8	2.4	3.5
Two	20.0	22.3	21.1	25.7	33.6	29.8	40.3	45.8	43.2	27.4	16.0	21.8	30.2	10.6	20.5	20.4	7.4	13.6
Three or more	2.0	1.8	1.9	4.9	9.2	7.1	14.0	17.9	16.0	70.4	81.6	75.9	64.4	89.0	76.6	74.8	90.2	82.9

**Risk factors:** age >45 years; Risk factors: Risk factors: age >45 years; hypertension/pre-hypertension; high cholesterol; diabetes mellitus; cigarette smoking; obesity (BMI  $\geq 25\text{kg/m}^2$ /high WC).

Low = 1 CVD Risk Factor; Moderate = 2 CVD Risk Factors; High =  $\geq 3$  CVD Risk Factors

Almost 50% of persons with pre-hypertension were shown to have at least one other CVD risk factor and almost 20% had two other risk factors. Among persons with pre-hypertension females were more likely than males to have coexistent risk factors at all levels of risk. Multiple CVD risk factors were more common among persons with hypertension with over 85% having at least one other risk factor and 60% having two or more risk factors. The greater burden among females was only seen in those with two or more risk factors (Table 10.20)

**Table 10.20: Prevalence of Co Morbid Conditions amongst Persons with Pre-Hypertension and Hypertension, JHLSII 2008**

Co Morbid Diseases	Pre-Hypertension			Hypertension		
	M	F	T	M	F	T
None	50.4	18.4	36.8	23.7	4.5	13.9
One	32.2	47.2	38.6	27.0	25.5	26.2
Two	13.4	25.8	18.7	32.9	34.7	33.9
Three or more	4.0	8.6	5.9	16.4	35.2	26.1

**Risk factors:** age >45 years; high cholesterol; diabetes mellitus; cigarette smoking; overweight (BMI  $\geq 25\text{kg/m}^2$ /high WC).

Table 10.21 shows the proportions of overweight/obese persons and those with diabetes that have other CVD risk factors. Almost 80% of persons who are overweight or obese will have another CVD risk factor while over 95% of persons with diabetes mellitus will be similarly affected and over 60% of persons with diabetes will have three or more co-morbid conditions.

**Table 10.21: Prevalence of Co Morbid Conditions amongst Jamaicans 15-74 Years with Diabetes and who are Overweight/Obese, JHLSII 2008**

Co Morbid Diseases	Overweight/Obese			Diabetes		
	M	F	T	M	F	T
None	14.8	24.7	21.1	8.5	0.7	3.8
One	38.3	33.8	35.4	12.8	9.3	10.7
Two	29.0	25.1	26.5	23.9	21.1	22.3
Three or more	18.0	16.4	17.0	54.8	69.0	63.2

**Co-morbid conditions:** age >45 years; hypertension/pre-hypertension; high cholesterol; diabetes mellitus; cigarette smoking; overweight (BMI  $\geq 25$  kg/m<sup>2</sup>/high WC).

Tables 10.22 and 10.23 show the associations between overweight/obesity (BMI  $\geq 25$  kg/m<sup>2</sup>) and chronic non-communicable diseases. Overweight/obesity doubles the odds of having hypertension, diabetes mellitus and high cholesterol among males and these associations are statistically significant. The 60% increased odds associated with pre-hypertension is of borderline significance. The associations among females are similar except that overweight/obesity tripled the odds of having high cholesterol and hypertension.

**Table 10.22: Association of Overweight/Obesity with CNCDs: Males**

Chronic Disease	Adjusted Odds Ratio	Confidence Intervals
Hypertension		
Not Overweight/Obese	1	-
Overweight/Obese	2.36	1.47- 3.78
Pre-hypertension		
Not Overweight/Obese	1	-
Overweight/Obese	1.60	1.0- 2.56
Diabetes		
Not Overweight/Obese	1	-
Overweight/Obese	2.05	1.20- 3.49
High Cholesterol		
Not Overweight/Obese	1	-
Overweight/Obese	2.89	2.04 - 4.10

**Table 10.23: Association of Overweight/Obesity with CNCDs: Females**

<b>Chronic Disease</b>	<b>Adjusted Odds Ratio</b>	<b>Confidence Intervals</b>
Hypertension		
Not Overweight/Obese Overweight	1 2.76	- 1.85- 4.11
Pre-hypertension		
Not Overweight/Obese Overweight/Obese	1 1.71	- 1.27- 2.28
Diabetes		
Not Overweight/Obese Overweight/Obese	1 2.14	- 1.32- 3.47
High Cholesterol		
Not Overweight/Obese Overweight/Obese	1 3.57	- 1.91- 6.68

## PART THREE

# CHAPTER 11

## Secular Trends in Health and Lifestyle

### Section 11.1: Changes in Lifestyle 2000-2008

The demographic changes between the 2000 and 2008 surveys are shown in Table 11.1. Compared to 2000 the 2008 sample shows small declines in the proportions in the age groups 15-34 years compensated for by small increases in the 35-54 years age groups and no changes in the 55-74 year age groups. The proportion reporting employment has declined from 67% to 59% with the unemployed increasing from 24% to 31% and the proportion of students remaining stable. The proportion of unions described as married or common-law has declined while those classified as single and in visiting relationships have increased. Persons reporting primary or junior high school education have declined by 8% with increases in persons reporting secondary and tertiary education.

The changes in social amenities enjoyed by Jamaicans are shown in Table 11.2. There have been substantial changes in water supply to Jamaican households as the availability of piped water to households is now available to 56% of households while those relying on standpipes or piped water outside of the house have declined by 11% and 7% respectively. Unshared water closets are now available to 63% of households compared to 40% in the previous survey which compares to far fewer persons relying on pit latrines. The proportion of households earning more than J\$5000.00 per week has increased from less than 15% almost 40% and those earning more than J\$20,000.00 have quadrupled. Fewer persons reported earning less than the minimum wage however the effects of inflation have not been accounted for. There has been a small decline in the crowding index from 1.6 to 1.4 dwellers per habitable room in households

**Table 11.1: Changes (%) in Sociodemographic Indices of Jamaicans 15-74 Years in the Past Seven Years, JHLSII 2008**

Demographic index	JHLS-2000	JHLSII-2008
<b>Age (years)</b>		
15-24	28.2	25.4
25-34	25.9	23.8
35-44	19.7	22.4
45-54	11.9	13.3
55-64	8.1	8.4
65-74	6.3	6.7
<b>Employment Status</b>		
Employed	66.8(63.9-69.6)	58.8 (56.7-60.9)
Unemployed	24.2(21.4-27.1)	31.3(29.2-33.2)
Student	9.0(7.2-10.8)	10.0 (8.7- 11.1)
<b>Union status</b>		
Single	40.0(36.3-43.6)	43.2 (40.6-45.7)
Married /Common-law	43.5(40.5-46.4)	37.8 (35.7-40.0)
Divorced/Separated	3.0(2.2-3.8)	2.6 (1.7- 3.4)
Visiting	13.6(10.8-16.4)	16.5 (13.8- 19.1)
<b>Educational Level</b>		
None/Basic	0.6 (0.3-0.9)	0.7 (0.3- 1.0)
Primary/Junior High	42.9(37.6-48.2)	31.0 (27.3- 33.9)
Secondary	48.1(43.4-52.8)	57.5 (54.5- 60.5)
Tertiary	8.4(4.8-12.0)	11.3 (8.5- 14.0)

**Table 11.2: Changes (%) in Social Amenities Enjoyed by Jamaicans 15-74 Years in the Past Seven Years, JHLSII 2008**

Social Amenity	JHLS-2000	JHLSII-2008
<b>Water Source</b>		
River/Spring	5.3(1.3-9.4)	5.7 (2.5- 8.9)
Tank/Drum	11.4(4.1-18.7)	11.3 (7.5- 15.2)
Standpipe	15.1(9.1-21.1)	4.0 (2.3- 5.7)
Pipe Outside house	27.5(21.1-33.9)	20.6 (16.8- 24.4)
Piped into house	40.7(32.3-49.1)	56.1 (50.2- 3.1)
<b>Toilet facility</b>		
None	1.0(0.18-1.8)	0.3 (0.1- 0.6)
Hole in the earth	1.1(0.15-2.1)	0.3 (-0.03- 0.6)
Shared Pit latrine	18.0(14.2-21.8)	5.3 (3.7- 6.9)
Unshared pit latrine	28.0(22.8-33.3)	18.2 (14.4- 21.9)
Shared water closet	12.2(8.8-15.5)	13.2 (9.4- 17.0)
Unshared water closet	39.7 (32.5-46.9)	63.0 (57.8- 67.4)
<b>Weekly Household Income(JA \$)</b>		
≤ Minimum wage	34.2(28.5-40.4)	16.2 (13.6- 19.3)
Minimum wage - 5000	47.3(42.4-52.3)	20.3(17.6-23.4)
5001- 10,000	12.4(9.5-16.0)	37.6(33.9-41.4)
10,000-20,000	3.9 (2.4-6.3)	17.1(14.8-19.7)
> 20,000	2.2(0-4.0)	8.7 (6.2- 11.2)
<b>Crowding Index</b>	1.6(1.5-1.7)	1.4(1.37-1.49)

Changes in health and safety behaviours, shown in Table 11.3, reveal that serious injuries were reported by a similar proportion of persons and seat belt use by drivers has declined substantially with 51% reporting its use most times or always in this survey compared to 69% eight years ago and the proportion reporting that they never used seatbelts has almost doubled. Changes in seat belt use by front seat passengers and the use of helmets by motorcyclists have been much smaller and the latter remains low.

**Table 11.3: Injuries as Reported by Jamaicans 15-74 Years over the Past Seven Years, JHLSII 2008**

Characteristic	JHLS-2000	JHLSII-2008
<b>Serious Injury in past 5 years</b>	13.6(11.6-15.6)	12.2(10.4-14.2)
<b>Seat belt Use- Driver</b>		
Never	13.3(8.5-18.1)	22.1(17.6-27.2)
Hardly ever	3.4(1.4-5.4)	2.9 (1.7-4.8)
Sometimes	14.0(11.0-17.1)	24.4 (21.4-27.8)
Most Times	16.2(11.1-21.2)	10.8 (8.6-13.6)
Always	53.2(46.1-60.2)	39.8 (35.1-44.6)
<b>Seat belt Use- Front seat passenger</b>		
Never	8.3(6.3-10.4)	6.2 (4.9- 7.5)
Hardly ever	6.4(4.9-8.0)	3.9 (2.9- 4.9)
Sometimes	23.7(20.2-27.4)	36.1 (33.4- 38.7)
Most Times	19.7(16.5-22.9)	13.8 (11.9- 15.6)
Always	41.8(36.9-46.6)	40.1 (37.0- 43.2)
<b>Helmet Use on Motorcycles</b>		
Never	88.5(84.6-92.4)	85.6(82.3-88.9)
Hardly ever	2.0(0.5-3.5)	3.7 (1.9-5.5)
Sometimes	2.6(0.9-4.4)	4.8 (2.7-6.9)
Most Times	1.7(0.3-3.2)	1.9 (0.7-3.1)
Always	5.1(2.6-7.5)	4.0(2.5-5.4)

The proportion of persons reporting involvement in violence in the past month has increased albeit the difference is not statistically significant. There has been a statistically significant decrease in the proportion of persons carrying protective devices while current use of alcohol and marijuana has not changed and there is a small but non-significant decrease in the prevalence of current cigarette smoking (Table 11.4).

**Table 11.4: Risk Behaviours (%) as Reported by Jamaicans 15-74 Years over the Past Seven Years, JHLSII 2008**

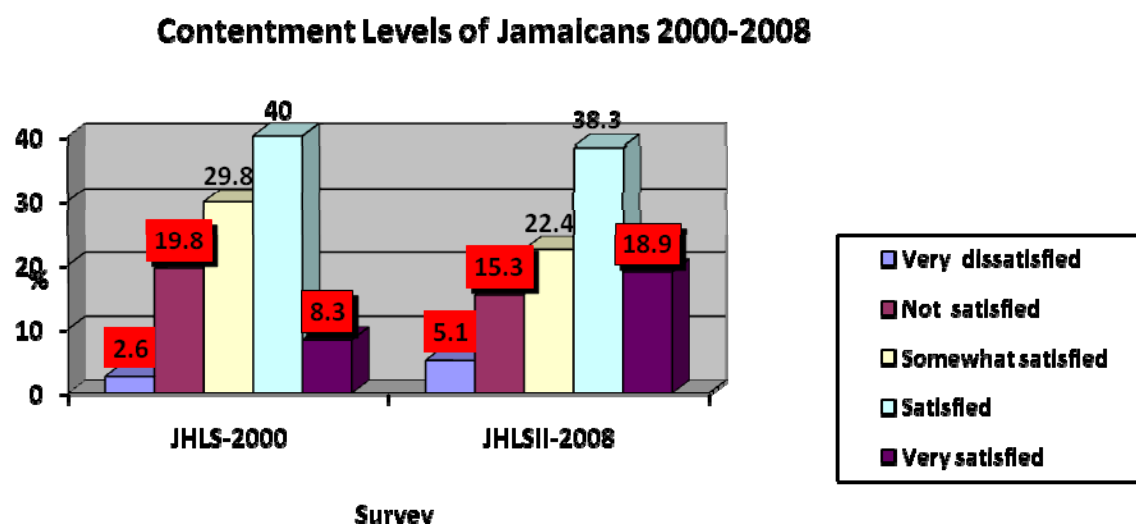
Risk Behaviour		JHLS-2000	JHLSII-2008
Involvement in violence in past month		7.5(5.6-9.4)	10.5(8.7-12.1)
Carrying a Protective Device		14.8(12.1-17.5)	10.0(8.3-11.1)
Alcohol Use	Current	61.5(57.2-65.8)	64.3(61.1- 67.5)
	Past	6.6 (5.0-8.2)	3.0 (2.9- 4.9)
Marijuana Use	Current	13.2(10.8-15.6)	13.5 (11.4- 15.6)
	Past	17.0(14.8-19.4)	16.0 (14.0- 18.1)
Cigarette Smoking	Current	18.5(16.2-20.8)	14.5 (12.8- 17.3)
	Past	22.2(19.7-24.8)	16.8 (14.2- 18.2)

There has been an increase in the proportion of persons who report being satisfied/very satisfied with their health from 48% to 57% over the period under review but the proportion who are very dissatisfied with their lives has doubled (Table 11.5; Figure 11.1).

**Table 11.5: Levels of Satisfaction Reported by Jamaicans, (95% Confidence Intervals) JHLSII, 2008**

General Satisfaction	JHLS-2000	JHLSII-2008
Very dissatisfied	2.6(1.8-3.8)	5.1(4.0-6.5)
Not satisfied	19.5(17.0-22.4)	15.3(13.7-17.1)
Somewhat satisfied	29.8(26.6-33.1)	22.4(20.2-24.8)
Satisfied	40.0(36.9-43.0)	38.3(35.6-41.5)
Very satisfied	8.3(6.4-10.4)	18.9(16.4-21.7)

**Figure 11.1: Levels of Satisfaction with Life as Reported by Jamaicans 15-74 Years, 2000-2008, JHLSII 2008**





The measures of sexual activity show no significant changes when compared to results of the 2000 survey. However the data show that there is a significant increase in condom use at last sexual intercourse and the prevalence of a history of STI appeared to fall but this was not statistically significant when the 2008 survey results are compared with those from 2000. (Table 11.6)

**Table 11.6: Changes (%) in Sexual Practices of Jamaicans 15-74 years, 2000-2008, JHLSII 2008**

Ever had sex	JHLS-2000	JHLSII-2008
No	6.5(5.2-7.8)	5.3 (4.2-6.4)
Yes	93.5(92.2-94.8)	94.7(93.6-95.8)
Number of sexual partners in last year		
None/ Never had sex	22.1(18.6-25.3)	23.4(19.9-25.5)
One (1) person	54.9(51.7-58.1)	52.2 (49.6-54.8)
Two(2) persons	10.4(8.9-11.9)	11.1 (9.5-12.7)
Three (3)- five (5) persons	9.2(7.1-11.3)	9.8 (8.1-11.5)
Six (6) – ten (10) persons	2.2(1.4-3.1)	1.6 (0.9-2.2)
More than ten (10) persons	1.2(0.5-1.9)	1.9(1.2-2.7)
Condom Use at last Sex	36.3 (33.8-38.9)	53.1(50.1-56.0)
Main Partner	78.3 (72.8-83.0)	43.1(39.1-47.3)
Other partner	21.7(17.0- 27.2)	12.8(9.8-16.7)
Both	Not asked	44.1(39.3-48.9)
STI		
Ever	17.8(15.3-20.2)	14.5(12.7-16.4)

## Section 11.2: Changes in Health Seeking Behaviours 2000-2008

Jamaicans have made little changes to their health seeking behaviours in the past seven years as estimated by the frequency with which persons had their blood pressure checked as the proportion reporting that they had a blood pressure check in the last six months remains just under 50%. The proportion reporting an illness in the last year is similar to the previous survey as are the proportions reporting self-medication and the taking of vitamin and iron supplements (Table 11.7).

**Table 11.7: Changes in Health Seeking Behaviour of Jamaicans, JHLSII 2008**

Health Seeking Behaviour	JHLS	JHLSII
Last time blood pressure measured		
Never	11.5( 8.7-14.3)	9.4 (7.7-11.1)
Less than 6 months	48.0 (44.9-51.2)	46.6 (44.1-49.1)
Six months to less than a year	14.2 (12.2-16.3)	16.1(14.1-18.2)
One to two years ago	9.4 (8.0-10.9)	15.6 (13.5-17.7)
Over 2 years ago	16.8 (14.7-18.9)	12.2(10.1-14.2)
Been sick in the past year	30.4 (26.4-34.4)	27.0 (24.2-29.7)
Self medicated in past year <sup>#</sup>	43.5(36.4-50.9)	39.2 (34.3-44.4)
Vitamin Supplements	19.1(15.7-22.4)	21.5(19.1-23.7)
Iron Supplements	15.7 (13.6-17.9)	13.2 (11.5-14.9)

<sup>#</sup> Out of those who have been sick in the past year.

Significantly fewer persons now report not using oil in their cooking (9% vs. 29%) and the variety of oils used in cooking has decreased remarkably. While vegetable oil remains the most frequently used in cooking, the use of coconut oil, butter/margarine and oil from animals has been drastically reduced (Table 11.8)

**Table 11.8: Changes in Types of Oil Used for Cooking by Jamaicans 15-74 Years 2000-2008, JHLSII 2008**

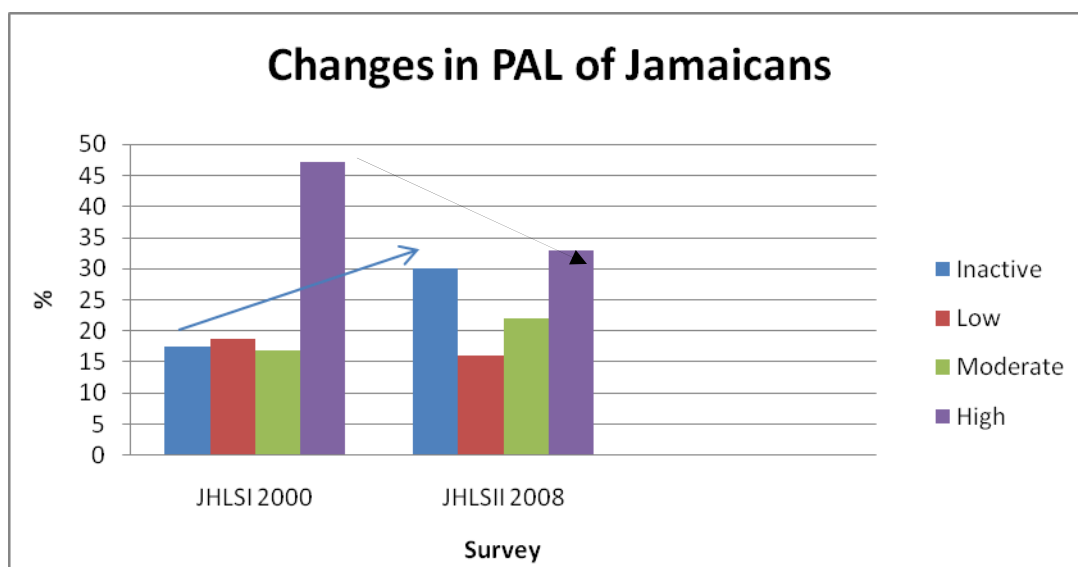
<b>Oil &amp; Fat Usage</b>	<b>JHLS-2000</b>	<b>JHLSII-2008</b>
Type of Oil for Cooking		
None	28.5(23.7-33.2)	9.1 (7.1-11.0)
Vegetable	71.6(66.8-76.2)	73.7 (70.1-77.2)
Coconut	36.1(30.7-41.4)	12.5 (10.6-14.3)
Butter/Margarine	40.7(34.1-47.4)	8.0 (5.7-10.3)
Oil from animals	3.5(2.4-4.6)	0.5(-0.1-1.1)
Bulk	4.3 (0.8-7.9)	6.2 (4.1-8.4)

Almost twice as many persons report being inactive in 2008 compared to 2000 (30% vs. 17%) and the proportion of persons engaging in high activity has decreased significantly with 33% report high activity in 2008 compared to 47% in 2000 while there has been no significant change in the proportions reporting low levels of activity and the proportion reporting moderate activity has increased (Table 11.9; Figure 11.2).

**Table 11.9: Changes in Physical Activity Levels of Jamaicans 15-74 Years 2000-2008, JHLSII 2008**

<b>Physical Activity Categories</b>	<b>JHLS-2000</b>	<b>JHLSII-2008</b>
Inactive	17.4(14.7-20.3)	29.5 (26.9-32.2)
Low	18.8(16.5-21.3)	15.8( 14.1-17.5)
Moderate	16.8( 14.9-18.9)	22.1 (19.9-24.2)
High	47.1(43.6-50.9)	32.7(29.7-35.6)

**Figure 11.2: Changes in Physical Activity Levels of Jamaicans 15-74 Years 2000-2008, JHLSII 2008**



### Section 11.3: Changes in Disease Frequencies 2000-2008

The proportion of the population which is underweight has remained stable over the period under review but the proportion of normal weight persons has declined and is accompanied by an increase in both overweight and obese persons with the latter showing significant increase of over 5%. Increased waist circumference and waist-hip ratio have also increased significantly in prevalence by 15% and 5% respectively (Table 11.10).

**Table 11.10: Changes in Nutritional Status of Jamaicans 15-74 years during 2000-2008, JHLSII 2008**

Nutritional Status	JHLS-2000	JHLSII-2008
Underweight(<18.5kg/m <sup>2</sup> )	4.9(3.4-6.4)	4.7(3.9- 5.6)
Normal (18.5-24.99 kg/m <sup>2</sup> )	49.4(46.2-52.5)	43.6 (40.8- 46.3)
Overweight(25-29.99 kg/m <sup>2</sup> )	26.1(23.5-28.7)	26.4 (24.5- 28.6)
Obese (≥30 kg/m <sup>2</sup> )	19.7(17.4-22.0)	25.3 (22.8- 27.4)
Increased WC	35.6 (32.8-38.5)	45.2(43.3-47.1)
Increased WHR	30.5(27.9-33.2)	40.2(38.6-41.9)

The prevalence of diabetes mellitus has remained stable over the period under review while there has been a significant increase in the prevalence of hypertension by over 4% and while pre-hypertension has increased by over 5%, the difference just fails to achieve conventional levels of statistical significance. The prevalence of persons with high cholesterol has decreased but the difference is not significant (Table 11.11).

**Table 11.11: Prevalence of Cardiovascular Diseases in Jamaican Nationals 15-74 Years, 2000-2008, JHLSII 2008**

<b>Disease Condition</b>	<b>JHLS-2000</b>	<b>JHLSII-2008</b>
Diabetes Mellitus*	7.2(6.0-8.3)	7.9(6.7-9.0)
Hypertension	20.9(18.4-23.2)	25.2(23.3-27.2)
Pre-hypertension	29.9(27.1-32.7)	35.3(32.6-37.9)
High Cholesterol	14.6 (12.7-16.5)	11.7(10.2-13.1)

Nominally higher proportions of persons with diabetes and hypertension are aware of their condition than in the earlier survey but these differences do not achieve statistical significance. There are small changes in the proportions who report treatment and who were found to be under control, with all showing slight increases except for treatment ratio for persons with hypertension, which showed a slight decrease during the period under review. However these changes did not achieve statistical significance (Table 11.12).

**Table 11.12: Changes in Awareness and Control Rate of Specified Cardiovascular Diseases in Seven Years, (95% Confidence Intervals) JHLSII 2008**

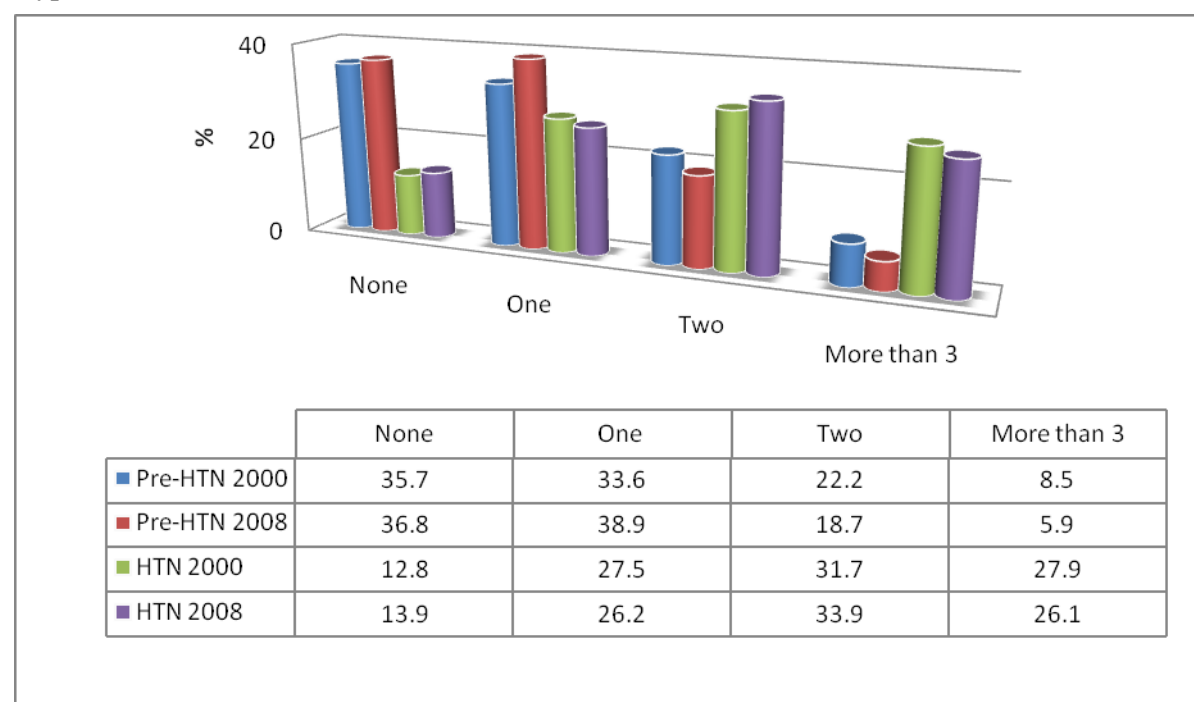
<b>Disease</b>	<b>JHLS-2000</b>	<b>JHLSII-2008</b>
Hypertension		
Aware Unaware	41.3(34.8-58.1)	50.7(46.3-55.2)
Treated	58.7(51.9-65.2)	49.3(44.9-53.8)
Not treated	42.0 (34.0-58.0)	40.0(35.7-44.5)
Controlled	58.0(52.0-65.0)	60.0(55.5-64.3)
Not Controlled	36.4(29.8-43.6)	41.4(35.2-47.9)
Control Not Known	60.2(53.5-66.6)	57.5(50.9-63.8)
	3.4(1.6-7.2)	1.1(0.5-2.5)
Diabetes		
Aware	66.8(59.0-73.8)	76.1(69.9-81.4)
Unaware	33.2(26.2-41.1)	23.9(18.6-30.1)
Treated	67.4(59.0-74.0)	71.5(63.8-78.1)
Not treated	22.6(15.6-28.0)	28.5(21.9-36.2)
Controlled	36.0(27.4-45.6)	43.0(35.2-51.0)
Not Controlled	54.5(45.1-63.4)	51.5(43.9-59.2)
Control Not Known	9.7(5.4-16.8)	3.4( 1.5-7.6)

We examined the changes in the prevalence estimates of cardiovascular risk factors in persons classified as having pre-hypertension or hypertension. Risk factors/ Co morbid conditions included diabetes, high cholesterol, smoking and being over the age of 45. The data show that there have been small increases in the proportion of persons with two co-morbid conditions among persons with pre-hypertension and hypertension when compared to the 2000 survey but the proportions with three co-morbid conditions have declined marginally (Table 11.13; Figure 11.3).

**Table 11.13: Comparative Prevalence of Co Morbid Conditions amongst Persons with Pre-hypertension and Hypertension 2000-2008, (95% Confidence Intervals) JHLSII 2008**

Level of cardiovascular risk	Pre-hypertension 2000	Pre-hypertension 2008	Hypertension 2000	Hypertension 2008
None	35.7 (29.8-42.1)	36.8 (32.7-41.1)	12.8 (8.7-18.5)	13.9 (10.2-18.4)
One	33.6 (29.8- 37.6)	38.9 (34.4-43.0)	27.5 (23.2-32.4)	26.2 (23.0-29.7)
Two	22.2 (18.5-26.6)	18.7 (15.4-22.4)	31.7 (27.3-36.6)	33.9 (30.3-37.6)
More than Three	8.5 (6.4-11.1)	5.9 (4.5- 7.8)	27.9 (24.1-32.1)	26.1 (22.6-29.9)

**Figure 11.3: Comparative Prevalence of Co Morbid Conditions amongst Persons with Prehypertension and Hypertension, 2000-2008, JHLSII 2008**



Persons who are overweight or obese have an increased risk of having other cardiovascular disease (CVD) risk factors. Table 11.14 shows the frequency of other CVD risk factors in the presence of obesity and overweight in the two recent surveys. The occurrence of one CVD risk factor coexisting with overweight and obesity has increased slightly in the 2008 survey compared to the 2000 survey while the frequency of two or more coexistent risk factors has decreased. These changes were however not statistically significant but are nevertheless very important.

**Table 11.14: Comparative Prevalence of Co Morbid Conditions amongst Overweight and Obese Persons 2000-2008, JHLSII 2008**

<b>Level of cardiovascular risk</b>	<b>Overweight/Obese 2000</b>	<b>Overweight/Obese 2008</b>
None	23.9 (20.6- 27.5)	27.1(24.6-29.7)
One	33.2 (29.8- 36.8)	37.5(35.4-39.6)
Two	24.5 (21.2- 28.1)	22.4(20.4-24.5)
More than Three	18.4 (15.7- 21.4)	13.1(12.2-14.0)

# Chapter 12

## Discussion

The recently published report of the Caribbean Commission on health and development states: “An analysis of the health systems and services showed that most countries had a health plan, but its execution was often stymied by the lack of a good information system and an organized form of collating data and presenting evidence for decision-making”(31). The Caribbean has seen major changes in its health profile in the last 50 years and the epidemiology of the major health issues of today is different from the infectious diseases for which we had established and efficient surveillance system in the past. The region has not so far implemented an equivalent system with which to serve the new epidemic of chronic non-communicable diseases, violence and injuries, depression and sexual and reproductive health issues and data on the burden of and risk factors for these conditions are not readily available. National surveys, and in particular, sequential surveys can provide data on the public health that will facilitate evidence-based health planning including guidance on appropriate interventions and an assessment of the impact of previously implemented interventions.

The Jamaica Health and Lifestyle Survey II carried between 2007 and 2008 aimed to study a national representative sample of the Jamaican population and derive plausible indices of health, with particular focus on the chronic non-communicable diseases (CNCDs), sexual and reproductive health and violence and other injuries. The study examined the relationship between health status and putative risk and protective factors in order to identify opportunities for intervention.

## Results

### *Demographics*

We enrolled 2848 participants in the study of which 67% were females which is not in keeping with the national statistics which shows 51 % females. As in other similar surveys (reference – lifestyle 2000; Lawrence Tavern) in Jamaica and elsewhere it was easier to recruit females than males. This is probably due to several factors including the more itinerant dwelling habits of males (32)resulting in failure to meet the criteria which requires that the individual sleeps at the house at least three times per week in order to be counted as a member of that household. The larger number of males in the 15-24 and 65-74 is in keeping with this theory as at these age groups the residence of men is likely to be more stable. It is also possible that some of this discrepancy is due to chance, while selection bias among recruiters cannot be entirely ruled out but is made less likely by the Kish method of selection which requires that all household members be recorded. Further study of the structure of Jamaican household as recorded by the Kish selection method should shed some light on this persistent phenomenon. The study also recruited a larger proportion of older persons than would have been expected from national demographic statistics, a feature which has been seen in previous surveys (27).Bearing in mind the discrepancy between the sample and the source population, the representativeness of the findings from this survey have been enhanced by weighting the findings using post-stratification weights derived from the age-sex categories based on national demographic statistics, an accepted technique in survey

epidemiology(11;28;33). The recruitment proportions by parish were consistent with the relative population size in the parishes and were enhanced by selecting the number of EDs proportion to parish population. This has yielded age-sex proportions of recruits per parish which is in keeping with national statistics. The weighting of the sample yielded age-specific proportions which are in keeping with national statistics and enhances the confidence that we have that the data is representative of the national situation. The urban-rural distribution of the population shows slightly larger proportions of younger persons residing in urban areas and larger proportions of older persons in rural population and may reflect the urban drift for opportunities in education and employment.

Demographic data on employment, union status, education and church attendance are also useful in assessing the validity of the data when survey results are compared to other sources including the economic and social survey (ESSJ) and the survey of living conditions (SLC) which are done annually. The employment data among males and females is very similar to the proportions reported by the ESSJ (34).

The low levels of educational achievement among Jamaicans, with 40% not passing in any exams at all, and another 23% only having passed pre-secondary school exams, means that less than 40% of Jamaicans have succeeded in any secondary and/or post-secondary examination. This unsatisfactory situation is further reinforced by the statistic that the average length of schooling in Jamaica is ten years. This suggests that less than 50% of persons would have completed high school which is associated with 12 years of education. The implications of this for the upgrading of skills and lifelong learning are foreboding and will require a strategic response.

Rural dwelling appears to be associated with lower levels of socioeconomic status using several indicators including income, access to piped water and water closets. Household crowding appears to be negatively associated with markers of socioeconomic status (SES) as estimated by household possessions where the association is linear and educational level where the relationship is non-linear. This is similar to other findings by Melki et al (JECH 2004)(35). These markers, even though they may not be independent causes of social ill, can be used as points of entry and intervention in order to ameliorate overall social ills.

### ***Injuries and violence***

Serious injuries occurring in the last year prior to this study was reported by nine per cent of the Jamaican population which translates to approximately 208,000 persons, a number which would put a serious strain on the health services and affect productivity. Serious injuries in the last year were reported by 9% of the population. This is a strain on the health care system and will reduce productivity. Motor vehicle accident are a major contributor to serious injuries and yet habitual seat belt use is absent in over 40% of drivers and front seat passengers. The particularly low prevalence of seat belt use by female drivers is cause for concern and should be the subject of intense health education. The lack of safety helmet use among motorcycle riders is even more alarming and should be included in health promotion effort. We did not enquire about non-motorized bicycle riding but in all likelihood the safety practices among those users are worse and they should be targeted for education. There are legislation mandating the use of these safety gadgets and perhaps more attention should be paid to the enforcement



of these. The demonstrated increase in seat belt use among more educated persons suggests that education could improve this practice among road users.

Almost 10% of the population report that they witnessed a violent event in the previous month and a similar proportion carry weapons for self-protection which provides evidence of the pervasive presence of violence in the society and the society's perception which is buttressed by the evidence that a third of persons regard their community as being possibly unsafe. This perception has implications beyond the possibility of injury and may also affect the other lifestyle habits including leisure time exercise which will affect other aspects of health. There is evidence from other studies to show an association between parents' perception of community safety and the prevalence of childhood obesity (36;37). The perception of the lack of safety in communities is similar among men and women but women are less likely to carry protective weapons and this may be associated with increased vulnerability among women.

### ***Lifestyle habits***

Many lifestyle habits have serious implications for health. Cigarette smoking by over 20% of males and seven per cent of females is a continued cause for concern in view of the documented risk that it poses for vascular disease and cancers. Excess alcohol consumption worsens the risk of vascular disease, exposure to injuries and several other illnesses. These social habits are acceptable and are not associated with any stigma and reducing these habits will require unrelenting health promotional efforts. The data show that the proportion of ex-smokers is greater than current smokers among both males and females and this should encourage the health promotion lobby although only 2% of current smokers have attempted to discontinue the habit in the last 4-5 years. This scenario suggests that the task of reducing the habit is not likely to be easy. Alcohol and smoking habits appear to vary with age as alcohol consumption is more prevalent in youth and young adults while smoking peaks in middle age. Almost 40% of smokers initiate the habit before age 16 years and therefore youth must be the target for health promotion in order to reduce alcohol and discourage the commencement of smoking but reducing the latter may also require more sustained efforts among older persons.

Education and number of household possessions do not appear to be associated with the availability of time for leisure as more than three-quarters of the population regardless of education, report having time for leisure. It is therefore unlikely that the availability or not of time for leisure is the main driving force behind the preferential use of alcohol, tobacco, marijuana or cocaine by socio-economic status.

### ***Health history and health seeking behaviour***

Family history is an important risk factor for some of the chronic diseases including hypertension, diabetes, vascular disease and cancer. These data suggest that higher education, higher income and greater number of household possessions are associated with more frequent family history of the chronic disease. What cannot be certain however, is whether this reflects a genuinely higher frequency or an increased awareness among these persons or compared to those of lower SES. In respect of personal health history and self-reported prevalence of disease, the consistent excess among females compared to males is noted and it is difficult to assess the factors which determine this difference. In respect of some diseases (including hypertension) there is some excess among females but the disparity may reflect a

difference in attitude to health by males and females and may have implications for health promotion. In general, the prevalence of self-reported illness is less than total prevalence detected by the survey except perhaps for sickle disease where the reported prevalence of 0.7 is more than that estimated elsewhere while sickle cell trait, reported at 2.1% is likely to be an underestimate.

The adherence to recommended course of pharmacological and non-pharmacological by persons with chronic diseases is an important aspect of managing the chronic disease epidemic, in particular cardiovascular diseases. Persons with diabetes have the highest rate of self-reported adherence to their medications of almost 90% but the 25% to 50% non-adherence among persons with hypertension and dyslipidaemia and persons who have had a stroke or a heart attack is cause for concern. There is good evidence for the benefits from secondary prevention of heart attacks and strokes by adherence to medications including aspirin, ACE inhibitors, beta-blockers and lipid-lowering agents(38-40). Patients with history of stroke and heart attacks also show the lowest levels of adherence to non-pharmacological recommendations including weight control, reduction of salt intake and reduced tobacco and alcohol use but none of the groups have a satisfactory level of adherence. These data suggest that the management of these persons fall below current evidence-based standards and this will need to be corrected.

In addition to low levels of adherence among those already identified with disease or being at risk the health seeking behaviour is lower than optimal. In a community where the probability of overweight and hypertension over age 40 years exceed 30%, less than 50% of persons report having their blood pressure checked in the previous six months. This is likely to result in under-detection of hypertension and the other chronic disease which may remain without symptoms until the onset of complications. There is evidence from these data that health-seeking behaviour may be influenced by SES, as estimated by possessions and income, and by access to health insurance, with persons in the higher SES categories and those with health insurance being more likely to have had a blood pressure check in the last six months. It is noteworthy that this marker of health seeking behaviour did not appear to vary across the education categories suggesting that access may be more affected by means than education. It will therefore require some attention at the policy level to improve access to detection services on a broad population scale.

The low levels of private health insurance coverage estimated in this survey (<20%) is similar to estimates from national agencies and is inadequate to meet the health needs of the population. The result is that a large proportion of the population will be dependent on the public health care system most of the time. The NHF has provided significant assistance in subsidizing the cost of medications but there remains a dire need to defray the costs of fees for health care professionals in the private sector or to provide such care in the public sector. Health insurance coverage is particularly low in persons older than 44 years old and more so among females, two categories where the chronic disease burden is particularly high.

The National Health Fund (NHF) and Jamaica Drugs for the Elderly Programme (JADEP) schemes provide subsidies on medications for a limited number of illnesses. The overall 9.5% enrolment in the NHF scheme falls well below the prevalence of hypertension in the survey and suggests that approximately 50% of beneficiaries may not be availing themselves of the assistance, this despite a

greater than 70% awareness of the scheme among the population. The situation is worse among men compared to women and may reflect the documented lower awareness and treatment levels among men compared to women. The population is less familiar with the JADEP scheme but enrolment in the scheme from potential beneficiaries i.e. persons 60 years and older, is higher than the NHF at approximately 24% with female enrolment again greater than that among males. The low levels of awareness of the JADEP scheme, approximately 36%, among the general population is of concern as it is the younger relatives who provide care for elderly relatives who need to be aware and therefore take advantage of this subsidy. These data suggest that enrolment in the JADEP is far below its target group with just over a quarter of persons enrolled in the 65-74 year old group. Awareness of the NHF and JADEP seems to be most frequently through the media or from friends and relatives with health care professionals being mentioned less frequently and health fairs even less. Bearing in mind the apparent gap between potential beneficiaries and enrollees it may be necessary for the NHF to focus more promotion efforts on the health care professionals as they are in direct contact with potential beneficiaries and 8% of beneficiaries list the encouragement by health professionals as their reason for using the NHF card while almost 18% give the same reason in respect of the JADEP card. In addition to under-enrolment in the NHF and JADEP schemes, there is under-utilization of the benefit with regular use of the cards being reported in less than 50% of beneficiaries and worse in respect of the NHF card and the promotion efforts of the NHF will have to focus attention on this aspect of the scheme. Investigation of the causes of non-enrolment reveals that apathy and ignorance of the process are the most frequent reasons and this may require more persistent local efforts by community health workers and lay health educators to overcome these obstacles. Among the responsibility of these community workers would be the empowerment of persons to take responsible for the detection and monitoring of their health conditions. The study has shown that among conditions eligible for NHF/JADEP benefits, persons with hypertension had the lowest uptake of the benefit with 30% uptake of NHF and 10% uptake of JADEP benefits.

The media remains the major source of health information among Jamaicans and television and radio are the leading media and this did not vary with SES groups although the use of newspapers, brochures and magazines were more frequently mentioned by the more educated. This means that the dissemination of health information and health promotion will have to use these media in its efforts. Doctors and nurses, despite any shortcomings are a major source of health information to the population and will have to be integral partners in any effort to empower persons to participate in their health care. This group of health workers will have to upgrade some of their skills, in particular in nutrition, where they remain a more frequently accessed source of information than nutritionists. At the same time the role of other professionals in the provision of health will have to be promoted by doctors and nurses and their specialist skills brought to the attention of health care seekers.

### ***Reproductive health***

The vast majority of Jamaican women report a pregnancy at some time during their life and the majority of also reported 1-5 pregnancies. Reports of hypertension and diabetes during pregnancy seems to be low in the older women and raises the question as to whether this is a true estimate or that reports have been affected by failure of recall. Screening for preventable diseases among women continues to be at a sub-optimal level with a third of women reporting that they have never had a Pap smear and almost a

third of women had not had a breast examination by a doctor in the last year. This is occurring at a time when breast and cervical cancers continue to be leading causes of morbidity and mortality and the latter is now regarded as an entirely preventable disease. The data from this study suggest that affordability may not be an issue in accessing these vital screening procedures as equal proportion of women from all strata have never had a breast examination or a Pap smear and the proportions who have had these screening tests did not increase with increased resources.

There remains some doubt about the impact of affordability as more women with health insurance had Pap smears and breast examination by a doctor at the recommended frequency than those without insurance. It is probable that improving access must be complemented by improved awareness and health education if screening is to increase among vulnerable women. There is some evidence that higher education level may modestly improve the chance of accessing screening for both breast and cervical disease but of more importance is the fact even among the most educated women less than a quarter have had a Pap smear and just over a third have had a breast examination by a doctor in the last year.

Among men, prostate cancer is a leading cause of morbidity and mortality (41;42) and yet approximately 60% of men in the highest risk by age group have never had a rectal examination and approximately a quarter had a rectal examination in the previous three years. The study did not seek explanations for this low level of screening in this population but this should be investigated in subsequent studies especially in view of anecdotal reports that this low level of screening may relate to cultural attitudes among men. In this study, men of higher social status as estimated by household possessions, education and income were more likely to have a rectal examination in any given period of time and those with health insurance were also more likely to be screened. It is uncertain whether the difference is due to affordability or awareness and a positive attitude toward the procedure. The rates of screening even among the highest categories of social status are very low and therefore there are barriers to be overcome among men at all social levels. The higher prevalence of enlarged prostate among higher social classes may be due to detection bias as it is uncertain what prompted screening and the proportions being screened are too small to be representative both overall and among special groups.

Having multiple sex partners is reported more frequent among males and it is therefore surprising that women report a higher frequency of sexually transmitted infections (STI). This may be the result of women classifying vaginal discharges as STI when it may not be the case as the study relied on participant report and did not ask about diagnosis by a health care provider. Having multiple sex partners was more frequent among young men who should be the major target for health promotion on this subject.

Condom use is reported in just over 50% of cases which is probably inadequate bearing in mind that approximately 40% of males report multiple sex partners and even though this is higher among youth where multiple partner relationships are more frequently reported, condom use among this high risk group is still less than 70%. Efforts to encourage reduction in the number of sexual partners and the use of condoms must continue if the risks associated are to be reduced. The low (2%) prevalence of oral contraceptive use reported by men is probably due to ignorance of the practice among their partners but

the 9% reported by females reflect dilution by low usage among the youngest and older women while the 16% use among women 35-44 years old is consistent with data from the national family planning sources (43). This consistency of the findings from this study with data from other sources reinforces confidence in the validity of the data from this study. The relationship between socio-economic markers and contraceptive use is inconsistent as while household possessions and income do not seem to be associated, higher educational attainment is associated with more frequent condom use. The target for improving marker of sexual health practice may be more education than resources but the latter is probably still important.

### ***Emotions, mental health and quality of life***

The frequency of depressive symptoms among Jamaicans and more so among women is cause for concern and the almost 10% of women who have ever considered suicide is alarming. The higher prevalence of depressive symptoms among women is consistent with more women reporting poor quality sleep despite sleeping for longer hours. One fifth of persons are not satisfied with their lives and more than a quarter reports not having any relaxing activity in the last week. The underlying issues leading to this level of discontent need to be identified and addressed. These data suggest that the unfavourable symptoms were more frequent in poorly educated persons and those with fewer resources. It is therefore reasonable to conclude that low social status is a contributor to depressive symptoms and dissatisfaction with life. This is not entirely consistent however as suicidal ideation is marginally more frequent among persons with more resources and higher education and therefore the causative web is likely to be much more complex than is demonstrable from these data. Other explanations for depressive symptoms include co-morbid medical diseases of which diabetes has been shown to be associated with depression (44-46). These data show an increased frequency of depressive symptoms in persons with diabetes and the independence of this association will be assessed in further analyses. Additionally, the association of variations in weight seen in these data have been reported before (47) and in these data depressive symptoms are more prevalent among the overweight and underweight persons compared to normal weight persons.

### ***Physical activity and dietary practices***

Increased physical activity has been shown to be beneficial to many aspects of both physical and mental health (48-50). Measuring physical activity in free living individuals is difficult and reliability and validity are always in question. It is accepted however that while it is difficult to estimate individual physical activity levels with these epidemiological instruments, they are more valid in categorizing persons in various physical activity groups (51;52). The low levels of physical activity among women in Jamaica is cause for concern and is no doubt related to more of them being engaged in non-vigorous occupations and only a minority engaged in strenuous activity in their leisure time. The consistently low levels of physical activity across all age groups suggest that efforts to ameliorate this problem must target all age groups with a particular focus on women and the lack of any association with and employment suggest that these factors do not make significant contributions to physical activity and interventions should not target these factors.

Special diets are uncommon in the Jamaican population and this is so even among persons who co-existent medical conditions suggest that they should be on a special diet. Only 16% of persons with

diabetes mellitus report being on a special diet and less than 10% of persons with hypertension report a low salt diet. These levels suggest that lifestyle changes to achieve targets in these conditions are unlikely to be successful using current strategies. Perhaps a more societal or public health approach will be required in order to better enable persons to activate these dietary practices and contribute to achieving their disease goals. This includes the continued use of the frying method in the preparation of proteins by a third of the population, even in the presence of chronic diseases including obesity, a habit which is reinforced by so-called common practice. The less than 10% who report adding salt at the table is however quite encouraging but it is well known that probably more than 70% of the salt in food comes with the purchased product. There is no connection between physical activity and food preparation as so-called healthy habits and even the most physically active also prepare food by frying. Perhaps the health promotion efforts should target the highlighting the various healthy habits as a promotional package. It appears that the so-called healthy habits are unnatural in the current societal norms and this creates difficulty for persons to make the necessary adjustments. Health promotion should be targeted at the society rather than at persons with defined illnesses. Fruits and vegetable consumption fall well below the recommended daily intakes and while we are unable to explain the main reasons for this in the present study, this occurrence must be the subject of detailed study so that the situation can be corrected as the benefits of recommended levels of consumption are well documented.

### ***Biomedical measures and the chronic diseases***

Obesity is now recognized as a worldwide epidemic and the developing world including the Caribbean is being significantly affected (2;6;19;53;54). Obesity has been linked to the chronic diseases in particular diabetes mellitus, hypertension and hyperlipidaemia (2;54-60). These data show that Jamaica has a high prevalence of obesity as estimated by WHO cut-points of BMI and other internationally recognized cut-points for waist circumference (WC) and waist-to-hip ratio (WHR) and that the burden is heavier on the female population. The difference in this burden is mainly in the obese category where the prevalence is three times that in men while similar proportions of men and women are overweight. Similarly, the prevalence of increased WC in women is more than three times that in men and increased WHR in women is eight times more prevalent than in men. We hypothesized that the burden of obesity would be greater in urban areas compared to rural but these data show that only among men are there some differences in combined overweight and obesity (39.6% vs. 36.0%) and increased WC (21.3% vs. 16.5%) with urban men being more affected than their rural counterpart. The likely explanation here is that the factors which drive obesity are likely to be similar in both urban and rural areas suggesting that Jamaican has become very urbanized. It is possible to explore finer differences by making more detailed characterization of urban and rural lifestyle than is done by the STATIN so as to avoid any bias due to misclassification and these data will be explored further to determine whether this makes a difference in the distribution of these markers of obesity.

We would have expected that the higher burden of obesity among females would have translated to greater relative burden of the chronic diseases among women. Our expectation was only confirmed in the prevalence of hypercholesterolemia where the prevalence among females was twice that among males (15.6% vs. 7.5%) and there was an excess of diabetes among women, albeit smaller (9.3% vs 6.4%). These estimates appear smaller than other published for Jamaica(27) but this population include

the 15-24 age group where the prevalence is much less compared to the other report which includes a 25-74 year old sample. The higher prevalence of pre-hypertension among men has been shown before (61). Although there is little urban-rural difference in overweight/obesity there is a slight excess of diabetes mellitus, hypertension and high cholesterol in rural females compared to their urban counterparts. The most likely explanation for this is a probable misclassification error inherent in the STATIN definition of urban and rural dwelling. The consistent increase in the prevalence of hypertension among older persons and the peak prevalence in diabetes mellitus in middle age followed by a decline in prevalence among older persons has been described in several populations and probably reflects the lowered life expectancy of persons with diabetes.

The management of the chronic diseases in particular hypertension, diabetes and hypercholesterolemia is limited by poor detection, treatment and control. Many studies have shown that in the case of hypertension, population surveys have demonstrated the “rule of halves”, i.e. 50% are aware, of which 50% are on treatment and a further 50% are under control (62). In this study among females with hypertension a higher than 50% are aware (70%) but treatment (58%) and control (45%) are close to other population studies while among males the awareness, treatment and control proportions of 31%, 21% and 31% are much worse than expected. This means that special strategies targeted at males will be required to manage this epidemic of hypertension, including the recognition that gender issues will be a critical part of our approach. In contrast while awareness levels of high cholesterol is low among both males and females the control is much higher among males and our data show that the prevalence is much higher among females. It is possible that gender issues are at work here as practitioners and population alike continue to regard high cholesterol and the associated coronary heart disease as a male phenomenon. The data on prevalence demonstrated here need to be the basis for health education highlighting the CVD risk burden associated with females.

The pattern of chronic diseases across social groups has varied between societies and some reports suggest that the prevalence is higher in higher SES groups in poor societies while the reverse is true in wealthy societies (4;19;63). Societies at an intermediate stage of development often demonstrate an intermediate pattern oftentimes with middle SES groups at lowest risk (64). In these data diabetes, hypertension and high cholesterol are more frequent in those with lower education and the frequency falls precipitously in more educated groups. Similar patterns are seen for hypertension and mean systolic blood pressure when household possessions are used to categorize persons but the trend for diabetes and hypercholesterolemia is less convincing. The relationship between overweight/obesity and these markers of social position is not as convincing. Lack of physical activity is an acknowledged risk factor for diabetes, hypertension and high cholesterol but the measurement errors in the estimation of physical activity in population studies often results in a failure to demonstrate this association. In these data there is a convincing downward trend in diabetes and high cholesterol prevalence as physical activity increases but the pattern was not seen for hypertension. These data show consistent relationships between markers of obesity and mean glucose, cholesterol and blood pressures and higher physical activity groups demonstrate lower levels of cholesterol, BMI and WC.

The clustering of CVD risk factors have been shown to increase risk exponentially when compared to single risk factors (65;66) and the WHO has reinforced the multiple risk factor approach in its

recommendations (67). These data show that more than a quarter of adults will have three or more CVD risk factors concurrently and that this increases to over 70% in persons older than 45 years. More than a quarter of persons with obesity, pre-hypertension, hypertension and diabetes mellitus will have two or more other CVD risk factors and in the case of diabetes mellitus this rises to more than 70%. These data strongly suggest that health care professionals should actively search for other risk factors when they encounter any patient with any of these conditions.

### ***Secular Trends – 2000-2008***

Eight years is a short time to demonstrate secular trends but direction is important and can provide useful information even when changes are not statistically significant. There has been a slight aging of the society and unemployment proportion has increased substantially. These data will need to be compared with national statistics in order to assess validity. Improvement in social circumstances including facilities for sewage disposal as estimated by the availability of water closets to a larger proportion of the population and a decline in household crowding are also worthy of note and are likely to improve overall quality of life. Nominal income has increased but this will need to be adjusted for inflation and devaluation in order for valid comparisons to be made.

Changes in social behaviour can have a major impact on health and these data suggest that while serious injuries were no more frequent, risk behaviours had increased with less frequent use of seatbelts in motor vehicles. The 4% decline in cigarette is encouraging and there has been an increase in the proportion of persons who report being satisfied or very satisfied with their lives.

In respect of cardiovascular risk factors, the proportion of persons reporting high levels of activity has fallen sharply and is consistent with changes in the prevalence of obesity as estimated by BMI and WC. The prevalence estimates of all the chronic diseases which have been reported on have increased with the smallest margin for diabetes and the largest for pre-hypertension. The increases in obesity and hypertension along with the increase in proportions who are inactive and the decrease in proportions reporting high activity are all statistically significant and in all probability are related. This suggests that strategies to increase activity in the population must be part of the response if the obesity epidemic is to be stalled or reversed.

There are marginal increases in the awareness of their status among patients with hypertension and diabetes mellitus and although treatment proportions have remained stagnant or may even have fallen in persons with hypertension, they have increased for diabetes and the proportions controlled have increased in both conditions. These findings are encouraging and may reflect the efforts of the Ministry of Health (MoH), the National Health Fund (NHF) and the non-governmental organizations (NGOs) over the period under review.



## **Methods and Limitations**

This national survey was carried out using standard survey techniques for population survey and the data analysis also took these features into consideration thus deriving conservative estimates of means, proportions and differences between them.

The Kish methodology is well established as a method of selecting respondents for household surveys with close to equal probability. We however continue to have concerns about the high male to female ratio in our sample when our source population has an almost 1:1 ratio of males to females. We intend to investigate this further by empirical examination of the household structures recorded prior to the selection of the participant for the survey. The explanation we have proffered so far for the unexpected male to female ratio has been the itinerant nature of males thus not meeting the criteria for residency of having slept in the house at least three nights per week.

Any departures of the characteristics of the sample from the source population were compensated for by post-stratification weighting, a standard procedure in surveys like these and in addition the data were weighted for item and overall non-response.

We are confident of our measuring technique based on comprehensive training and certification in the required techniques, close follow-up in the field and quality control measures obtained by duplicate measurements on a sub-sample by regional supervisors. Confidence in our findings also derive from the similarity of our findings with those from other surveys including similar estimates for contraceptive use among child-bearing women, educational achievement among males and females and private insurance coverage by the survey of living conditions.

## **Implications**

The data from this survey and the comparisons with the previous health survey should be used to inform the policy makers on the health situational analysis and trend in Jamaica. It is clear that improvements in health will require the input from many so-called non-health sectors in the society including education, security, agriculture and food policy, economic policy, town planning and local government to name only some. In addition, civil society and the private sector must become partners in our effort to reduce population risk i.e. shifting the whole population towards low risk status while at the same time we must improve our efficiency in detection and management of all the health risks in the population. It is also likely that the improved detection will increase the burden on the health services who must respond. Many of the health human resources which will need to be part of the response are known to be in short supply, the main example being nutritionists and dietitians. We suggest that as a first step a national commission be established involving all stakeholders in accordance with the recommendation of the declaration of Port of Spain 2007 as these data suggest that the situation is probably worse than was documented by the report of the Caribbean Commission on Health and Development (CCHD).

# Chapter 13

## Conclusions and Recommendations

1. Education – the low levels of educational achievement with 40% of the population having never passed any examination is unsustainable if the society is to grow. This suggests that a very large proportion of the population will be unskilled and unable to avail themselves of opportunities for upward mobility through more specialized training. This will undoubtedly have a negative impact on wealth creation
2. Serious injuries are reported by 9% of the population. This is a strain on the health care system and will reduce productivity. Motor vehicle accident are a major contributor to serious injuries and yet habitual seat belt use is absent in over 40% of drivers and front seat passengers. This needs to be corrected and should be the subject of intense health education and enforcement and strengthening where necessary of relevant legislation.
3. Proven interventions to reduce alcohol and tobacco use (legislative, taxation, health promotion) should be instituted to ameliorate the short and long term adverse effects of smoking and alcohol consumption.
4. Must elaborate strategies to encourage patients to avail themselves of the assistance from the National Health Fund (NHF) and other agencies and develop community strategies to encourage adherence including community health aides and lay educators for the various disease need to be identified. These persons would be identified from the community and trained in the monitoring of the diseases including awareness of targets, alertness to adverse reactions to medications and the development of sensitivity to the concerns of the patients.
5. The opportunities for detection of markers of disease risk must be widened by the screening of persons above an agreed age (perhaps 30-40 years) to include pharmacies, non-governmental organizations and community based organizations. This will require improvements in the health care system that will allow it to respond to the increased demand.
6. The non-pharmacological management of these risk factors will involve a wide range of health professionals, many of which are in short supply. These include dietitians, nutritionists, physical therapists, occupational therapists, exercise physiologists among others,
7. A judicious combination of education, legislation and taxation must be used to improve the dietary intakes of the population
8. Build coalition of all stake holders (government, NGOs, civil society, the private sector, regional and international agencies) to enhance detection and treatment. This must mean that all health care facilities including pharmacies must be incorporated into the screening and detection of cases of the chronic diseases.
9. Enlist the help of community health workers and lay health educators in the promotion of the NHF and JADEP schemes.
10. The NHF should consider adding blood pressure monitors to its list of benefits
11. Doctors and nurses, the traditional providers of health care and the preferred sources of health and nutrition information after the media must play a significant role in promoting the other health care professionals including nutritionists to the population.

12. Access to screening for breast and cervical cancer among women must be increased and the awareness among women of the need for screening must also be increased. All women attending maternity and family planning clinics must be encouraged to enrol in screening programmes and mechanisms for follow-up after pregnancy must be established.
13. Targets for screening levels should be established and strategies to achieve them put in place along with measures to monitor progress towards these targets.
14. Young men should be targeted for the reduction in multiple sexual partners
15. Mental health, emotions and quality of life need to be assessed as a matter of course in examining person's health and perhaps should be particularly sought after in the management of chronic diseases, especially diabetes mellitus.
16. It is imperative that facilities for increased physical activity be made available to the population at all stages of the life course. This may require creative approaches and must take into consideration other societal issues that we face including features of the built environment, safety and transportation. This must mean that opportunities for both curricular/occupational and leisure time physical activity must be increased at schools, work places and in the communities where people live.
17. Policy changes and community/societal re-engineering will be required to assist persons in engaging in healthy practices as current strategies make these activities unusual and difficult to adhere to. For example societal leaders can assist in making healthy living fashionable. Public occasions should be marked by appropriate dietary and other social activities including alcohol intake in the same way that smoking at public gathering is now a not so fashionable activity.
18. A gender specific approach will have to be taken in the personal and public health management of obesity and hypertension specifically and the chronic diseases in general.
19. The frequent clustering of CVD risk factors demand that a multiple risk factor approach be taken to the management of the chronic diseases and in particular the cardiovascular diseases. Active search for other risk factors when persons present with any risk factor should be a priority. There should be ready availability of multiple risk factor charts which will allow for overall assessment of risk rather than specific disease.
20. An improvement in social status as estimated by education and wealth will have a positive impact on health

# List of Appendices

## Appendix 1

### Total Population by Age: STATIN 2007

Age Group	Population	% of Total
Under 15	758,900	28.3
15-19	249,900	9.3
20-24	209,200	7.8
25-29	214,800	8.0
30-39	440,700	16.4
40-49	319,200	11.9
50-59	197,200	7.4
60+	292,100	10.9
Total 15-49 Years	1,433,891	53.5
Total	2,682,100	100.0

## Appendix 2

### Distribution of Primary Sampling Units in Jamaica by Parish- STATIN 2007

Parish	Selected PSU	Urban /rural	#/Parish	Cons #	# of Dwellings	Total PSUs
Kingston	E 83	U		1	208	
1	E 82	U		1	196	
	C 68	U		2	276	
	C 65/66	U		2	175	
	W 37/41	U		3	338	
	W 51	U	6	3	88	
						176
St. Andrew	ER 42/43	R		1	274	
2	ER 23	R		1	141	
	E 15/11	U		4	164	
	E 3	U		4	211	
	E 43	U		4	126	
	NE 44	U		3	211	
	NE 23/42	U		3	146	
	SE 31	U		5	191	
	S 21	U		6	275	
	S 20	U		6	258	
	W 77	U		10	169	
	W 79	U		10	183	
	NW 82	U		11	124	
	NW 75	U		11	115	
	SW 15	U		7	141	
	SW 19	U		7	125	
	EC 28	U		8	91	
	EC 17	U		8	194	
	NC 2	U		2	184	
	NC 6	U		2	173	
	WR 9	R		12	80	
	WR 19	R	22	12	159	
						891
St Thomas	E 82	U		1	245	
3	E 83	U		1	176	
	W 74	R		2	126	
	W 80	R	4	2	171	
						185
Portland	E 30	R		1	194	
4	E 40	U	2	2	304	
						153
St. Mary	W 28	R		3	121	
5	W 29	R		3	251	
	SE 10/11	R		1	125	
	SE 20	U	4	1	143	
						214
Appendix 2 Cont'd						
Distribution of Primary Sampling Units in Jamaica by Parish- STATIN 2007						
St Ann	NW 47/7	R		2	127	
6	SW 11/29	R		4	86	

	NE 33/44	U		1	324	
	NE 50	U		1	214	
	SE 1	R		3	130	
	SE 41/43	R	6	3	126	
						278
Trelawny	N 7	R		1	178	
7	N 14/15	U		1	162	
	S 32	R		2	129	
	S 44	R	4	2	118	
						144
St James	WC 31/32/92	U		3	269	
8	WC 35	U		3	162	
	WC 4	U		3	278	
	NW 7	U		1	333	
	S 34	R		4	93	
	S 62	R	6	4	181	
						295
Hanover	E 61	R		1	128	
	E 31	R		1	192	
	W 19/20	U		2	156	
	W 23	U	4	2	132	
9						137
Westmoreland	C 83	U		2	362	
	C 92	U		2	175	
	E 56	R		1	153	
	E 74	R	4	1	174	
10						280
St Elizabeth	SW 15	R		4	151	
11	SW 27	U		4	146	
	NE 37	R		1	121	
	NE 66	R		1	244	
	SE 29	R		2	129	
	SE 32	R	6	2	141	
						275
Manchester	NE 1	R		1	105	
12	NE 11	R		1	90	
	C 38	U		3	133	
	C 39	U		3	134	
	S 42	R		4	80	
	S 49	R		4	172	
	NW 66	U		3	121	
	NW 74	U	8	3	198	
						309
Appendix 2cont'd						
Distribution of Primary Sampling Units in Jamaica by Parish- STATIN 2007						
Clarendon	N 23	R		1	255	
13	N 27	R		1	218	
	NC 59	R		3	116	
	NC 52	R		3	108	
	SE 71	R		5	150	
	SE 72	R		5	116	

	SW 14	U		6	327	
	C 56	U	8	4	129	
						398
St Catherine	SC 65	U		6	207	
14	SC 67	U		6	137	
	SC 25/26	U		6	171	
	SC 48	U		6	462	
	S 104	U		8	150	
	S 108	U		8	131	
	S 70	U		8	129	
	S 81	U		8	147	
	WC 72	U		4	284	
	WC 92	U		4	150	
	WC 5/11	R		4	162	
	WC 31	R		4	133	
	C 2	U		5	157	
	C 10	U		5	153	
	EC 40/36	R		3	127	
	EC 5	U		3	112	
	EC 8	U		3	118	
	NE 58/56/57	R	18	1	98	
						820
			102		17666	4555

Nb. (1) Changes in red ; (2) there are 5235 EDs , however 4555 PSUs.

# Appendix 3

## KISH TABLE

*How many persons live in this household?*

\_\_\_\_\_ Number

**PLEASE RECORD THE NAMES AND OTHER PARTICULARS OF ALL PERSONS WHO LIVE IN THIS HOUSEHOLD. THIS SHOULD INCLUDE ALL WHO USUALLY EAT AND SLEEP HERE. START WITH THE OLDEST MEMBER, THEN THE NEXT OLDEST, MALES THEN FEMALES ETC.**

### SCHEDULE OF ALL PERSONS LIVING IN HOUSEHOLD

Line NO.	Name <i>Please give me all the names of all Persons who usually live in your household</i>	SEX* <i>Is male or female</i>	AGE <i>How old is he or she</i>
01	_____	_____	_____
02	_____	_____	_____
03	_____	_____	_____
04	_____	_____	_____
05	_____	_____	_____
06	_____	_____	_____
07	_____	_____	_____
08	_____	_____	_____
09	_____	_____	_____
10	_____	_____	_____
11	_____	_____	_____
12	_____	_____	_____

\* Gender codes

- 1      Male
- 2      Females

**IF THERE IS ONE OR MORE ELIGIBLE RESPONDENTS, SELECT THE ONE TO BE INTERVIEWED, BASED ON THE INSTRUCTIONS GIVEN AND USING THE RANDOM TABLE SHOWN BELOW.**

**THEN COMPLETE THE INDIVIDUAL QUESTIONNAIRE FOR THE SELECTED RESPONDENT.**

**IF THERE ARE NO ELIGIBLE RESPONDENTS, COMPLETE TITLE PAGE AND MOVE ON TO THE NEXT HOUSEHOLD.**



**Appendix 3 Cont'd**

**RANDOM SELECTION OF RESPONDENT**

Questionnaire Number \_\_\_\_\_ Number of eligible persons \_\_\_\_\_

Last digit on questionnaire number	Number Of Eligible Persons In Household									
	1	2	3	4	5	6	7	8	9	10
0	1	2	3	1	2	5	2	8	7	10
1	1	1	1	2	3	6	3	1	8	1
2	1	2	2	3	4	1	4	2	9	2
3	1	1	3	4	5	2	5	3	1	3
4	1	2	1	1	1	3	6	4	2	4
5	1	1	2	2	2	4	7	5	3	5
6	1	2	3	3	3	5	1	6	4	6
7	1	1	1	4	4	6	2	7	5	7
8	1	2	2	1	5	1	3	8	6	8
9	1	1	3	2	1	2	4	1	7	9

SEQUENCE NUMBER OF PERSONS SELECTED FOR INTERVIEW: \_\_\_\_\_

AFTER COMPLETING THE HOUSEHOLD QUESTIONNAIRE,  
RETURN TO TITLE PAGE AND  
COMPLETE INFORMATION ON INTERVIEW CALLS

# Appendix 4

## Project Team

### Investigators

#### *Tropical Medicine Research Institute, University of the West Indies*

Rainford Wilks - Epidemiologist & Director, Epidemiology Research Unit

Novie Younger - Statistician, Epidemiology Research Unit

Marshall Tulloch-Reid- Senior Lecturer, Epidemiology Research Unit

Jan van den Broeck - Senior Lecturer, Epidemiology Research Unit

#### *Faculty of Medical Sciences University of the West Indies*

Dr Georgianna Gordon-Strachan- Research Scientist

Dr Deanna Ashley - Chairman, Violence Prevention Alliance

Dr Elizabeth Ward - Executive Director, Violence Prevention Alliance

Professor Peter Figueroa- Senior Lecturer, Community Health & Psychiatry

#### *Ministry of Health, Jamaica*

Dr Eva Lewis- Fuller - Director, Health Promotion & Protection

Ms Andrienne Grant - Acting Head, Epidemiology Unit

Ms Ayesha Johnson - Statistician

### Project Staff

#### *National Coordinator*

Ms Shelly McFarlane

#### *Research Assistant*

Mr. Damian Francis

#### *Data Supervisor*

Ms Shelly-Ann Spencer

#### *Training Staff: TMRI*

Orgen Brown - Research Nurse

Renee Walters - Research Nurse

Janet Garel - Research Nurse

Beverley Walker -Research Nurse

Sandra Douglas - Research Nurse

Chenelle Josephs - Research Assistant

#### *Administrative Assistant*

Mrs. Novelette Campbell

#### *Data Entry Staff*

Calette Gordon Beverley Young

Sherica Campbell Shelby Spencer

Michelle Thomas Jillian Campbell

Alexis Fox

### Field Staff

#### South East Regions

##### **Kingston & St Andrew (A)**

*Supervisor:* Doreen Hall-Millwood

*Team Leader:* Janice Bent-Carr

*Interviewers:* Devon Lindsay

Diane Nielsen

Donna Wilson

Jacqueline Ebanks

Janet Barnett

Millicent Mitchell

Christopher Campbell

Norma Surgeon

Rosemarie Harris

##### **St Catherine: (B)**

Mauvett Nelson

Donna Russell

Cydia McPherson

Neslene McLean

Morphia Blair-West

Michelle Mighty

Effy Nembhard

Eugenie Davis

Lorna Bingham

**Southern Region***Supervisor:**Team Leaders:**Interviewers:*

Gracelin Muirhead

Tanisha Gordon

Dillon Beadle

Hanif Baker

Alpheus Latty

Revalyn King

Christine Gayle

Nathlee Vernon

Omar Allen

Glenville Reid

Marie Johnson

Lorna Crooks

Nerissa Adams

Sandra Francis

Charmaine Baker

Yvette McLean

**Northeast Region***Supervisor:**Team Leader:**Interviewers:*

Carey Renford

Sharon Patten

Annette Griffiths

Karen Haughton

Melissa Dixon

Andrea Harris

Keisha Brooks

**Western Region***Supervisor:**Team Leaders:**Interviewers:*

Andrew Pearson

Ariel Thompson

Tashna Findlayter

Donya-Gaye Lofters

Neisha Graham

Natalie Williams

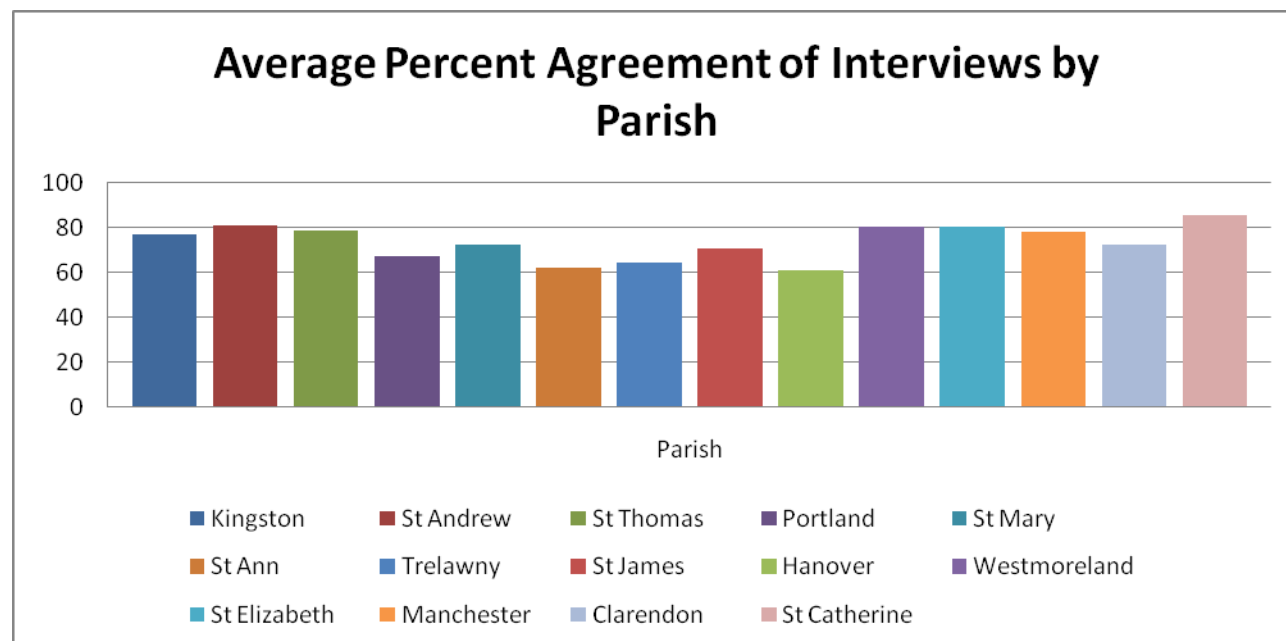
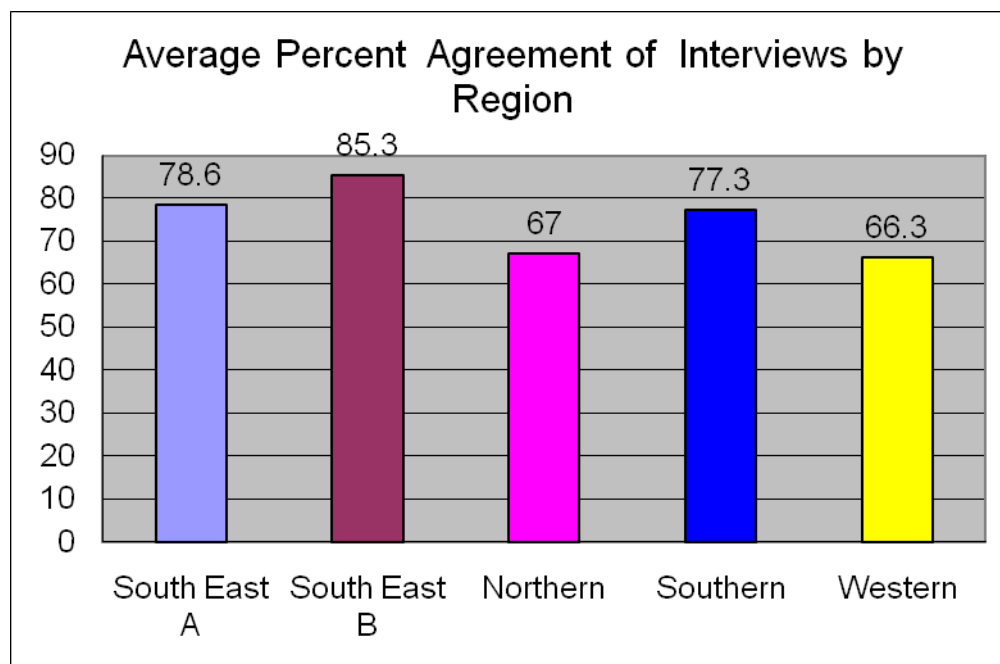
Tanesha Anglin

Rosemarie Wallace

Suzette Daley

## Appendix 5

### Inter-Observer Reliabilities during Field Work, JHLSII 2008



## Appendix 6

### **Adaptation of Jamaica Standard Occupational Classification (1991) to Jamaica Health and Lifestyle Survey II**

Employment was classified using the revised Jamaica Standard Occupational Classification 1991 (JSOC-91). This provides a system for classifying and aggregating occupational information obtained by means of population censuses and other statistical survey as well as administrative records. The JSOC-91 was developed to facilitate international comparisons of occupational statistics and research as for specific decision making and action oriented activities such as those connected with international migration or job placement.

The JSOC-91 has nine major groups meant to facilitate the interpretation of the classification; namely:

- 1.) Legislators, senior officials and managers
- 2.) Professionals
- 3.) Technicians and associate professionals
- 4.) Clerks
- 5.) Service workers and shop and market sales workers
- 6.) Skilled agricultural and fishery workers
- 7.) Craft and related trades workers
- 8.) Plant and machine operators and assemblers
- 9.) Elementary occupations
- 10.) Armed forces.

Each of the above mentioned groups are further subdivided into categories to delineate hierarchy within classified groups.

For the purpose of this report the major groups were collapsed into four categories:

Professionals

Highly Skilled

Skilled

Unskilled

## Appendix 7

### Letter Sent to Respondents Advising of Sickle Status

Dear .....

Thank you very much for participating in the Jamaica Health & Lifestyle Survey.

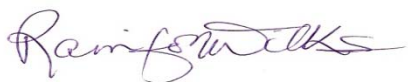
Attached please see the results of your Haemoglobin test.

Your results show abnormal haemoglobin \_\_\_\_\_ please see report card for further details.

Should you have any further questions please do not hesitate to contact us on the telephone numbers shown. You may also wish to discuss this result with your personal doctor.

With kind regards

Yours sincerely,



.....  
Professor Rainford Wilks  
Director , ERU



.....  
Dr. Marvin Reid  
Director, SCU

## Appendix 8

### **Jamaica Health and Lifestyle Survey II Referral Slip**

**To Whom It May Concern:**

**Re:**

This respondent participated in the Jamaica Health and Lifestyle Survey II.  
As a part of the survey the respondent's blood pressure, fasting glucose and cholesterol were measured. The results were as follows:

BP \_\_\_\_\_

FBG \_\_\_\_\_

Cholesterol \_\_\_\_\_

BMI > 30kg/m<sup>2</sup> \_\_\_\_\_

Could you kindly conduct a follow-up visit for the participant send the invoice to:-

Professor Rainford Wilks

Director- Epidemiology Research Unit

Tropical Medicine Research Institute

University of the West Indies

Mona, Kingston 7

Tel: 876- 9776152

# Appendix 9

## LIST OF ACRONYMS USED

A&E	Accident and Emergency
AIDS	Acquired Immunodeficiency Syndrome
AC	Sickle cell C trait
AS	Sickle cell A trait
BMI	Body Mass Index
CARICOM	Caribbean Community
CCHD	Caribbean Commission on Health Development
CFNI	Caribbean Food & Nutrition Institute
CI	Confidence Interval
CNCD	Chronic Non-Communicable Disease
CVD	Cardio-Vascular Disease
DBP	Diastolic Blood Pressure
DRE	Digital Rectal Examination
DSM-V	Diagnostic Screening Manual
ED	Enumeration District
ERU	Epidemiology Research Unit
FBG	Fasting Blood Glucose
GCT	Glucose Cholesterol Testing
HC	Hip Circumference
HIV	Human Immunodeficiency Virus
HTC	High Total Cholesterol
HTN	Hypertension
JISS	Jamaica Injury Surveillance System
JADEP	Jamaica Drugs for the Elderly Programme
JNC-7	Joint National Council on Hypertension
KSA	Kingston and St Andrew
MOE	Ministry of Education
MOH	Ministry of Health
MOW	Ministry of Works
NE	North East
NHANES	National Health and Nutrition Examination Surveys
NHF	National Health Fund
OR	Odds Ratio
PAL	Physical Activity Level
PPS	Probability Proportionate to Size
PSU	Primary Sampling Unit
SC	Sickle cell C disease
SE	South East
SBP	Systolic Blood Pressure
SES	Socio-Economic Status
SR	Sampling Region
SS	Sickle cell disease
STATIN	Statistical Institute of Jamaica
UWI	University of the West Indies
WC	Waist Circumference
WHO	World Health Organization
WHR	Waist Hip Ratio



# Appendix 10

## Jamaica Health and Lifestyle Survey II- 2007 Questionnaire

**Investigators:** Rainford Wilks, Novie Younger, Marshall Tulloch-Reid, Jan van den Broeck, Georgiana Gordon-Strachan, Andrienne Grant, Deanna Ashley, Elizabeth Ward, Peter Figueroa, Eva Lewis-Fuller

### Consent Form

#### Purpose of Study

Investigators from the Tropical Medicine Research Institute-Epidemiology Research Unit of the University of the West Indies are carrying out a research study in the communities on persons 15-74 years old in Jamaica. The purpose of this study is to find how people's lifestyle behaviours put them at risk for chronic illnesses such as hypertension (high blood pressure) or diabetes (sugar) so that we can help to reduce the number of persons who have these conditions and help those who have them to be in better control.

#### Procedure

You are being asked to be a part of this study which has two parts. The first part asks questions on diet, physical exercise, mental health, living environment, general well-being, violence, alcohol, tobacco and drug use, sexual behaviour, and sources of health information. You have the right to refuse any question which makes you feel uncomfortable. We will also measure your blood pressure, height, weight, hip, and waist. In the second part we will measure your sugar and cholesterol levels using few drops of blood from a finger prick for testing. Another drop of blood will be placed on a filter paper and will be tested to determine your sickle cell status; you will be informed of these results which you can discuss with your doctor. The sample collected will not be used for any other purpose without your permission.

You will be interviewed in your home. The questionnaire and body measures will take about 50 minutes to complete. The finger prick measures take an additional five minutes to complete. We would like to do the interview first thing in the morning, before you have eaten. I will come back tomorrow morning to do this part of the questionnaire. You may choose not to participate in the first or second part of the study. Your participation is entirely voluntary. If you do not wish to participate it will not interfere with any care or treatment you may receive or are receiving.

#### Benefits

Research is used to benefit society by gaining new knowledge. You will not receive anything for taking part in this study. However, if we find anything abnormal while interviewing or examining you we will refer you to the appropriate health department. The information will be used to design future programmes to protect the Jamaican population from chronic illnesses.

#### Risks

Sometimes things happen to people in research studies that may make them feel bad. These are called "risks". This study poses no risks to you. The information will be kept confidential and will only be accessible to the study team. If you feel uncomfortable about any of the questions, the interviewer can skip those questions and go on to the next section. If you become distressed from answering the survey questions, you will be referred for help at no cost. For the finger prick, a sterile needle will be used to prick the finger. The finger will be squeezed to obtain a few drops of blood. This may cause temporary minor discomfort.

#### Confidentiality

All answers will be confidential and will be available only to the researchers on this project. No responses will be revealed to anyone. The overall results of this study will be presented in a report. Wherever the results are presented, your identity will not be revealed and the results will be presented for the group.

#### Contact Numbers

This study has been reviewed by the Ethics board of the University of the West Indies and the Ministry of Health. If you have any questions about the research or your participation, contact either Professor Rainford Wilks of the Tropical Medicine Research Institute at (876) 977-4753, email: rainford.wilks@uwimona.edu.jm or Dr. Georgiana Gordon-Strachan of the faculty of Medical Sciences at 977-2565.

Independent Advice: Please contact the office of Professor A. McDonald, Dean, Faculty of Medical Sciences, U.W.I. Mona at: (876) 927-2556

#### DECLARATION

This form has been read to me. I was given the opportunity to ask questions which were answered to my satisfaction. I voluntarily give permission to participate in this research project and indicate this by signing on the designated space, below. I am entitled to be given a copy of this form if I so desire.

**Subject/Participant**

QUESTIONNAIRE ID NO.

Reg	Par	ED	Con	D	H				

Name: \_\_\_\_\_

DOB 

DD		MM		YY					

Address \_\_\_\_\_

Signature \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
DD MM YY

#### Witness

Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
DD MM YY

ID NO. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]      QUESTIONNAIRE ID NO. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Reg    Par    Con    ED    Dw    H    Re

PARISH \_\_\_\_\_

REGION NO.	____	DWELLING NO.	____
PARISH NO.	____	HOUSEHOLD NO.	____
CONSTITUENCY NO.	____		
ENUMERATION DISTRICT NO.	____	RESPONDENT NO.	____

Interview Visit	Visit 1		Visit 2	Visit 3	Visit 4		Final Visit	
Date (dd/mm/yy )								
Status of Visit								
Interviewer's Initials								
Interviewer's Number								
Supervisor's Initials								
Supervisor's Number								
Date and Time of next appt								

Interview Status codes	Refusal Status	Partial Refusals
1. Completed household interviews : assessment of eligibility 2. no individual available for household interview <b>- REVISIT</b> 3. Household interviews completed – selected respondent not at home or available - REVISIT 4. Completed household interview - selected respondent –completed questionnaire 5. Partially completed questionnaire – REVISIT 6. Partially completed questionnaire – anthropometry and biomedical measures outstanding 7. Partially completed questionnaire- anthropometry outstanding 8. Partially completed questionnaire- biomedical measure incomplete 9. Refusal - individual	<b>Complete refusals</b> 1. Study not relevant to me 2. No time, too busy 3. invasion of privacy 4. Too personal 5. Didn't believe information was confidential 6. Other (specify	1. questionnaire incomplete 2. anthropometry 3. blood pressure 4. biomedical measures refused

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# KISH TABLE

How many eligible persons live in this household? \_\_\_\_\_ Number

**PLEASE RECORD THE NAMES AND OTHER PARTICULARS OF ALL ELIGIBLE PERSONS WHO LIVE IN THIS HOUSEHOLD. THIS SHOULD INCLUDE ALL WHO USUALLY EAT AND SLEEP HERE. START WITH THE OLDEST MALE MEMBER, THEN THE NEXT OLDEST, MALES THEN FEMALES ETC.**

**SCHEDULE OF ALL PERSONS LIVING IN HOUSEHOLD\*** Gender codes 1- Male 2-Female

Line NO.	Name <i>Please give me all the names of all persons who usually live in your household</i>	SEX* <i>male or female</i>	AGE <i>How old is this person</i>
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			

**IF THERE IS ONE OR MORE ELIGIBLE RESPONDENTS, SELECT THE ONE TO BE INTERVIEWED, BASED ON THE INSTRUCTIONS GIVEN AND USING THE RANDOM TABLE SHOWN BELOW. THEN COMPLETE THE INDIVIDUAL QUESTIONNAIRE FOR THE SELECTED RESPONDENT IF ELIGIBLE RESPONDENT HAS REFUSED, COMPLETE TITLE PAGE AND MOVE ON TO THE NEXT HOUSEHOLD**

## RANDOM SELECTION OF RESPONDENT

Questionnaire Number \_\_\_\_\_

Number of eligible persons \_\_\_\_\_

Last digit on questionnaire number	Number Of Eligible Persons In Household									
	1	2	3	4	5	6	7	8	9	10
0	1	2	3	1	2	5	2	8	7	10
1	1	1	1	2	3	6	3	1	8	1
2	1	2	2	3	4	1	4	2	9	2
3	1	1	3	4	5	2	5	3	1	3
4	1	2	1	1	1	3	6	4	2	4
5	1	1	2	2	2	4	7	5	3	5
6	1	2	3	3	3	5	1	6	4	6
7	1	1	1	4	4	6	2	7	5	7
8	1	2	2	1	5	1	3	8	6	8
9	1	1	3	2	1	2	4	1	7	9

**AFTER COMPLETING THE HOUSEHOLD QUESTIONNAIRE,**

**RETURN TO TITLE PAGE AND**

**COMPLETE INFORMATION ON RESPONDENT ID**

**SEQUENCE NUMBER OF PERSONS SELECTED FOR INTERVIEW:** \_\_\_\_\_

For all questions circle the appropriate responses unless otherwise indicated.

**THIS SECTION IS TO BE COMPLETED BY THE SUPERVISOR:**

Has this questionnaire been returned to correct errors?	Yes <input type="checkbox"/> (tick)	No <input type="checkbox"/> (tick)
If yes, list items:		
Questionnaire Checked:  Supervisor (name) _____  _____ (Supervisor's signature)		Date: ____/____/200

**SECTION 1  
DEMOGRAPHIC INFORMATION**

<b>1.1 OBSERVED RACE:</b> 1. Black 2. Mixed 3. Indian 4. Caucasian 5. Other _____	
<b>1.2 OBSERVED SEX:</b> 1. Male 2. Female	
<b>1.3 BIRTHDATE:</b> ____/____/____ DD MM YY	<b>1.4 AGE (At last birthday):</b> ____ Years

- 1.5** What is your union status? (Circle only one) *PROMPT IF NECESSARY* ☐ ☐
- |                  |                 |
|------------------|-----------------|
| 0. None (Single) | 1. Married      |
| 2. Common law    | 3. Widowed      |
| 4. Divorced      | 5. Separated    |
| 6. Visiting      |                 |
| 88. Don't know   | 99. No response |
- 1.6** What is the highest level or grade you have reached in school? (Circle only one) ☐ ☐
- PROMPT IF NECESSARY*
- |                              |                                |            |
|------------------------------|--------------------------------|------------|
| 0. No schooling (Go to Q1.9) | 1. Basic School                | 2. Primary |
| 3. All Age/Junior High       | 5. Technical/Vocational school |            |
| 4. Secondary/High School     | 7. Other (Specify) _____       |            |
| 6. College/tertiary          | 99. No response                |            |
| 88. Don't know               |                                |            |
- 1.7** How many years did you spend at?
- |  |   |
|--|---|
| 1. Basic School <input type="checkbox"/> No. of years          | 2. Primary <input type="checkbox"/> No. of years        |
| 3. Secondary <input type="checkbox"/> No. of years             | 4. Post-secondary <input type="checkbox"/> No. of years |
| 7. Other (Specify) _____ <input type="checkbox"/> No. of years |   |
| 88. Don't know   | 99. No response   |
- 1.8** What is the highest examination that you passed? ☐ ☐
- |                                   |  |
|-----------------------------------|--|
| 0. None                           | 1. GSAT/Common Entrance/11+                        |
| 2. Grade 9 Achievement            | 3. School Certificate, CXC Basic                   |
| 4. O-Level/CXC Gen, CSEC          | 5. A-Levels /CAPE                                  |
| 6. College diplomas, Certificates | 7. University degrees, Professional qualifications |
| 8. Other (Specify) _____          |  |
| 88. Don't know                    | 99. No response                                    |
- 1.9** What is your employment status? *PROMPT IF NECESSARY* ☐ ☐
- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| 1. Full-time (30 or more hours/week) | 2. Part-time (29 or fewer hours/week) |
| 3. Seasonally employed               | 4. Unemployed and looking             |
| 5. Unemployed and not looking        | 6. Student                            |
| 7. Other _____ (specify)             |                                       |
| 88. Don't know                       | 99. No response                       |
- 1.10** What is your primary occupation, that is the job which you spend most time doing?
- 1.11** Are you self-employed in this occupation? ☐ ☐
- |                |                 |
|----------------|-----------------|
| 0. No          | 1. Yes          |
| 88. Don't know | 99. No response |
- 1.12** Do you have another occupation? ☐ ☐
- |                               |                                |
|-------------------------------|--------------------------------|
| 0. No (Go to Q1.16)           | 1. Yes                         |
| 88. Don't know (Go to Q 1.16) | 99. No response (Go to Q 1.16) |

- 1.13** What is your secondary occupation?
- 
- 1.14** Are you self-employed in this occupation? \_ \_ \_  
 0. No 1. Yes  
 88. Don't know 99. No response
- 1.15** What is your employment status in this occupation? *PROMPT IF NECESSARY* \_ \_ \_  
 1. Full-time (30 or more hours/week) 2. Part-time (29 or fewer hours/week) 3. Seasonally employed  
 4. Other \_\_\_\_\_ (specify)  
 88. Don't know 99. No response
- 1.16** Do you have a religious affiliation? *PROMPT IF NECESSARY* \_ \_ \_  
 0. None (Go to Q1.19) 1. Catholic  
 2. United Church of Jamaica (Presbyterian, Congregational, Disciples of Christ) 3. Seventh Day Adventist  
 4. Methodist 5. Anglican 6. Baptist 7. Church of God 8. Pentecostal 9. Other Christian \_\_\_\_\_ (specify)  
 10. Rastafarian 12. Jewish  
 11. Muslim 99. No response  
 88. Don't know
- 1.17** Are you actively practising your religion now? \_ \_ \_  
 0. No 1. Yes  
 88. Don't know 99. No response
- 1.18** How often have you attended s religious service in the past month? \_ \_ \_  
 0. Never 1. Less than once in the past 30 days  
 2. Once or twice in the past 30 days 3. Weekly or almost weekly  
 4. More than once per week  
 88. Don't know 99. No response
- 1.19** What is your height? \_\_\_\_\_ Feet \_\_\_\_\_ inches or \_\_\_\_\_ Centimetres \_ \_ \_  
 88. Don't know 99. No Response
- 1.20** What is your weight? \_\_\_\_\_ Pounds \_\_\_\_\_ Kilogrammes \_ \_ \_  
 88. Don't know 99. No Response

## SECTION 2

### FAMILY'S HEALTH HISTORY

Now I would like to ask you some questions about your family's health.

Including living and deceased, have any of your blood relatives (grandparents, parents, brothers, sisters and children) suffered from any of the following and if so, which relative/s... and how old were they at the time of diagnosis?

ASK FOR EACH DISEASE SEPARATELY. Use the codes as follows:

Suffered conditions: No-0; Yes-1; DK-88; NR-99

Age at diagnosis: age categories : ( 15-24)-2, (25-34)-3, (35-44)-4, (45-54)-5 (55-64)-6 (65-74)-7 (> 74 yrs)-8

	Any Grand parent	Mother	Father	Sister	Brother	Children
<b>Heart Attack</b>						
No. of such relatives?						
Age at diagnosis?						
<b>High blood pressure</b>						
No. of such relatives?						
Age at diagnosis?						
<b>Stroke</b>						
No. of such relatives?						
Age at diagnosis?						
<b>Diabetes</b>						
No. of such relatives?						
Age at diagnosis?						
<b>Cancer</b>						
No. of such relatives?						
Age at diagnosis?						
<b>Epilepsy/Fits</b>						
No. of such relatives?						
Age at diagnosis?						

## SECTION 3

### MEDICAL HISTORY

Now I would like to ask you some questions about your own health.

- 3.1.** Has a health provider/doctor ever told you have any of the following? Please respond to all items [ \_ ]

(a) Heart Disease	0. No	1. Yes	88. Don't know	99. No Response
(b) Diabetes Mellitus (sugar)	0. No	1. Yes	88. Don't know	99. No Response
(c) Glaucoma	0. No	1. Yes	88. Don't know	99. No Response
(d) High Blood Pressure	0. No	1. Yes	88. Don't know	99. No Response
(e) High Cholesterol (fat in blood)	0. No	1. Yes	88. Don't know	99. No Response
(f) Stroke	0. No	1. Yes	88. Don't know	99. No Response
(g) Kidney Disease	0. No	1. Yes	88. Don't know	99. No Response
(h) Obesity/Overweight	0. No	1. Yes	88. Don't know	99. No Response
(i) Circulation problems	0. No	1. Yes	88. Don't know	99. No Response
(j) Enlarged prostate	0. No	1. Yes	88. Don't know	99. No Response
(k) Rheumatic Fever	0. No	1. Yes	88. Don't know	99. No Response
(l) Sickle Cell Disease	0. No	1. Yes	88. Don't know	99. No Response
(m) Sickle Cell Trait	0. No	1. Yes	88. Don't know	99. No Response
(n) Arthritis	0. No	1. Yes	88. Don't know	99. No Response
(o) Asthma/Wheezing	0. No	1. Yes	88. Don't know	99. No Response
(p) Bronchitis/ Pneumonia	0. No	1. Yes	88. Don't know	99. No Response
(q) Cancer	0. No	1. Yes	88. Don't know	99. No Response
(r) Broken bones/fractures	0. No	1. Yes	88. Don't know	99. No Response
(s) Epilepsy /Fits	0. No	1. Yes	88. Don't know	99. No Response
(t) Mental Health problems	0. No	1. Yes	88. Don't know	99. No Response
(u) Psychosis	0. No	1. Yes	88. Don't know	99. No Response
(v) Major depression	0. No	1. Yes	88. Don't know	99. No Response
(w) Anxiety	0. No	1. Yes	88. Don't know	99. No Response

**NB to interviewer if respondent answers yes to any particular condition/s skip to relevant condition/s in Section.**

**Please ask Q 3.2**

<b>3.2</b> How long has it been since you last had your blood pressure taken by a doctor, nurse, or other health professional? (Circle only one) PROMPT IF NECESSARY <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
0. Never	1. Less than 6 months (0-6 months) 2. Six months to less than a year
3. One to two years ago	4. Over 2 years ago
88. Don't know	99. No response

**Now I would like to ask you about some of these health conditions in more detail**

### HIGH BLOOD PRESSURE

- 3.3** Have ever been told you have high blood pressure? ☐☐☐  
0. No (Go to Q3.10) 1. Yes  
88. Don't know (Go to Q3.10) 99. No response (Go to Q3.10)
- 3.4** How old were you when you were told that you have high blood pressure ☐☐☐ Yrs  
88. Don't know 99. No response
- 3.5** Because of your high blood pressure are you now/have you ever done any of the following (now or in the past)?..... ANSWER ALL QUESTIONS
- |                                   |       |                     |                   |                 |  |
|-----------------------------------|-------|---------------------|-------------------|-----------------|--|
| a. taken prescribed medicine?     | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| b. controlled or lost weight?     | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| c. used less salt in your diet?   | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| d. been on an exercise programme? | 0. No | 1. Yes, in the past | 2. yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| e. reduced/eliminated alcohol?    | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | 77. Never drinks   |
| f. stopped smoking?               | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | 77. Non-smoker   |
| g. done anything else?            | 0. No | 1. Yes, in the past | 2. yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
- specify: ☐☐☐
- 3.6** About how long has it been since you last visited a doctor or health professional about your high blood pressure? ☐☐☐  
0. Never 1. Less than 6 months  
2. Six months to less than one year 3. One - five years ago  
4. More than 5 years  
88. Don't know 99. No response
- 3.7** Have you been prescribed medication for your high blood pressure? ☐☐☐  
0. No (Go to Q3.10) 1. Yes  
88. Don't know (Go to Q3.10) 99. No response (Go to Q3.10)
- 3.8** Are you currently taking your prescribed medication for high blood pressure? ☐☐☐  
0. No (Go to Q3.10) 1. Yes  
88. Don't know (Go to Q3.10) 99. No response (Go to Q3.10)
- 3.9** When you don't take your medication, what is the reason? (Multiple responses allowed) ☐☐☐☐☐  
0. I always take my medication 1. Cannot afford to pay for it  
2. I am feeling better 3. I get side effects  
4. I hear there are side effects 5. I forget  
6. I run out before my next doctors/clinic appointment 7. Other reason ☐☐☐☐☐

88. Don't know

99. No response

### DIABETES

3.10 Have you ever been told by a doctor, nurse or other healthcare professional that you have diabetes (sugar)? ☐☐☐

0. No (Go to Q3.17)

1. Yes

88. Don't Know (Go to Q3.17)

99. No response (Go to Q3.17)

3.11 How old were you when you were told that you have diabetes (sugar)? ☐☐☐ years

88. Don't know

99. No response

3.12 Because of your diabetes ('sugar') are you now/have you ever done any of the following (now or in the past)?... ANSWER ALL QUESTIONS

- |                                    |       |                     |                   |                 |  |
|------------------------------------|-------|---------------------|-------------------|-----------------|--|
| a. taken prescribed oral medicine? | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| b. taken insulin?                  | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| c. been on a special diet?         | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| d. controlled or lost weight?      | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| e. been on an exercise programme?  | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| f. reduced /eliminated alcohol?    | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | 77. Never drinks   |
| g. stopped smoking?                | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | 77. Non-smoker   |
| h. done anything else?             | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |

specify: ☐☐☐

3.13 About how long has it been since you last visited a doctor or health professional about your diabetes ('sugar')? ☐☐☐

0. Never

1. Less than 6 months

2. Six months to less than one year

3. One - five years ago

4. More than 5 years

88. Don't know

99. No response

3.14 Have you been prescribed medication for your diabetes (sugar)? ☐☐☐

0. No (Go to Q3.17)

1. Yes

88. Don't know (Go to Q3.17)

99. No response (Go to Q3.17)

3.15. Are you currently taking your prescribed medication for your diabetes? ☐☐☐

0. No (Go to Q3.17)

1. Yes

88. Don't know (Go to Q3.17)

99. No response (Go to Q3.17)

3.16 When you don't take your medication, what is the reason? (Multiple responses allowed) ☐☐☐

0. I always take my medication

1. Cannot afford to pay for it

2. I am feeling better

3. I get side effects

4. I hear there are side effects

5. I forget

6. I run out before my next doctors/clinic appointment

7. Other reason ☐☐☐

88. Don't know

99. No response

### HEART ATTACK

3.17 Have you ever been told by a doctor or other healthcare professional that you have suffered a heart attack? (Circle only one)

0. No (Go to Q3.26)

1. Yes ☐☐☐

88. Don't know (Go to Q3.26)

99. No response (Go to Q3.26)

3.18 Has there been any recurrence? ☐☐☐

0. No

1. Yes

88. Don't know

99. No response

3.19 Because of your heart attack are you now taking aspirin? ☐☐☐

0. No (Go to Q3.20)

1. Yes (Go to Q3.22)

88. Don't know (Go to Q3.20)

99. No response (Go to Q3.20)

3.20 Why are you not taking it? ☐☐☐

1. Stopped taking it (Go to Q3.21)

2. Was never told by health professional to take it Go to Q3.22

88. Don't know (Go to Q3.22)

99. No response (Go to Q3.22)

3.21 Why have you stopped? ☐☐☐

3.22 Because of your heart attack are you now/have you... ANSWER ALL QUESTIONS

- |                                   |       |                     |                   |                 |  |
|-----------------------------------|-------|---------------------|-------------------|-----------------|--|
| a. taken prescribed medicine?     | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| b. controlled or lost weight?     | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| c. used less salt in your diet?   | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| d. been on an exercise programme? | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| e. reduced your alcohol intake?   | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | 77. Never drinks   |
| f. stopped smoking?               | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | 77. Non-smoker   |
| g. done anything else?            | 0. No | 1. Yes, in the past | 2. Yes, currently | 99. No response | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |

specify: ☐☐☐

3.23 Have you been prescribed medication for your heart attack? ☐☐☐

0. No (Go to Q3.26)

1. Yes

88. Don't know (Go to Q3.26)

99. No response (Go to Q3.26)

3.24. Are you currently on prescribed medication for your heart? ☐☐☐

0. No (Go to Q3.26)

1. Yes

88. Don't know (Go to Q3.26)

99. No response (Go to Q3.26)

3.25 When you don't take your medication, what is the reason? (Multiple responses allowed) ☐☐☐

0. I always take my medication

1. Cannot afford to pay for it 2. I am feeling better

- STROKE

**3.26** Have you ever been told by a doctor, nurse, or other health professional that you have suffered a stroke? (Circle only one)

- 3.27 Because of your stroke are you now taking aspirin? |\_|\_|

88. Don't know (Go to Q3.30) 99. No response (Go to Q3.30)

0. No (Go to Q3.32) 1. Yes (Go to Q 3.31)

- 3.32** When you don't take your medication, what is the reason? (Multiple responses allowed) |\_\_|\_\_||\_\_|\_\_|

6. I run out before my next doctors/clinic appointment 7. Other reason \_\_\_\_\_

- ## LIPID LEVELS

- 3.34** Were you told by a doctor, nurse or other healthcare professional that your cholesterol was high? ☐ ☐

- 3.35** Because of your high cholesterol are you now/have you... **ANSWER ALL QUESTIONS**

- 3.36** Do you take medication for your high cholesterol? ☐ ☐

- 3.37 When you don't take your medication, what is the reason? (Multiple responses allowed) | | | | |

0. I always take my medication

6. I run out before my next doctors/clinic appointment
7. Other reason \_\_\_\_\_

88. Don't know 99. No response

**3.38** Were you told by a doctor, nurse or other healthcare professional that you have asthma? ☐ ☐

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- 3.39** Do you still have asthma? ☐☐☐  
 0. No (Go to Q3.42) 1. Yes  
 88. Don't know/Not sure (Go to Q3.42) 99. No response (Go to Q3.42)
- 3.40** Do you take medication for your asthma? ☐☐☐  
 0. No (Go to Q3.42) 1. Yes  
 88. Don't know (Go to Q3.42) 99. No response (Go to Q3.42)
- 3.41** When you don't take your medication, what is the reason? (Multiple responses allowed) ☐☐☐  
 0. I always take my medication 1. Cannot afford to pay for it  
 2. I am feeling better 3. I get side effects  
 4. I hear there are side effects 5. I forget  
 6. I run out before my next doctors/clinic appointment 7. Other reason \_\_\_\_\_  
 88. Don't know 99. No response

#### EPILEPSY

- 3.42** Have you ever been told by a doctor, nurse, or other healthcare professional that you have epilepsy/seizure/fits? (Circle only one)  
 0. No (Go to Q3.46) 1. Yes ☐☐☐  
 88. Don't know (Go to Q3.46) 99. No response (Go to Q3.46)
- 3.43** Have you had a seizure in the past year? ☐☐☐  
 0. No 1. Yes  
 88. Don't know 99. No response
- 3.44** Do you take medication for your seizures? ☐☐☐  
 0. No (Go to Q3.46) 1. Yes, I have taken medication  
 2. Yes, I am still on medication.  
 88. Don't know (Go to Q3.46) 99. No response (Go to Q3.46)
- 3.45** When you don't take your medication, what is the reason? (Multiple responses allowed) ☐☐☐☐☐  
 0. I always take my medication 1. Cannot afford to pay for it  
 2. I am feeling better 3. I get side effects  
 4. I hear there are side effects 5. I forget  
 6. I run out before my next doctors/clinic appointment 7. Other reason \_\_\_\_\_  
 88. Don't know 99. No response

#### CANCER

- 3.46** Have you ever been told by a doctor, nurse, or other healthcare professional that you have cancer? (Circle only one)  
 0. No (Go to Q3.50) 1. Yes ☐☐☐  
 88. Don't know (Go to Q3.50) 99. No response (Go to Q3.50)
- 3.47** What type of cancer do you/ did you have? (Multiple responses allowed)  
 1. Stomach 2. Lung ☐☐☐  
 3. Breast 4. Cervical ☐☐☐  
 5. Prostate 6. Colon ☐☐☐  
 7. Other \_\_\_\_\_ (specify)  
 88. Don't know 99. No response
- 3.48** Do you take medication for your cancer? ☐☐☐  
 0. No (Go to Q3.50) 1. Yes  
 88. Don't know (Go to Q3.50) 99. No response (Go to Q3.50)
- 3.49** When you don't take your medication, what is the reason? (Multiple responses allowed) ☐☐☐  
 0. I always take my medication 1. Cannot afford to pay for it  
 2. I am feeling better 3. I get side effects  
 4. I hear there are side effects 5. I forget  
 6. I run out before my next doctors/clinic appointment 7. Other reason \_\_\_\_\_  
 88. Don't know 99. No response

#### WOMEN'S HEALTH

##### WOMEN ONLY (FOR MALES GO TO Q3. 69 – MEN'S HEALTH)

- 3.50** Have you had a period in the last six months? ☐☐☐  
 0. No (Go to Q3.51) 1. Yes (Go to Q 3.52)  
 88. Don't know (Go to Q3.51) 99. No response (Go to Q3.51)
- 3.51.** What is the reason you have not had a period? ☐☐☐  
 0. Never had a period (Go to Q3.54) 1. Natural Menopause (Age\_\_\_\_yrs) (Go to Q3.54)  
 2. Surgery (Age\_\_\_\_yrs) (Go to Q3.54) 3. Pregnant/Post-partum  
 4. Contraceptives 5. Prescribed medications  
 6. Ill-health  
 88. Don't know 99. No response
- 3.52** How long is it usually between the start of one period and the next? ☐☐☐  
 1. Less than 21 days 2. 21-25 days  
 3. 26-28 days 4. 29-31 days

5. 32-39 days  
88. Don't know
6. 40 or more days  
99. No response
- 3.53** Have you been on oral contraceptives or medication for irregular periods in the past year? ☐☐☐  
0. No 1. Yes  
88. Don't know 99. No response
- 3.54.** How long has it been since you had your last pap smear? (Circle only one) PROMPT ☐☐☐  
(Pap smear – scraping of the neck of the womb)  
0. Never had a pap smear 1. Less than 1 year  
2. One to two years 3. Three or more years  
5. Has had hysterectomy  
88. Don't know 99. No response
- 3.55** How often do you examine or feel your own breasts for lumps? (Circle only one) PROMPT. ☐☐☐  
0. Never 1. Every year  
2. Every 6 months 3. Every 3 months  
4. Monthly (or more often)  
88. Don't know 99. No response
- 3.56.** About how long has it been since you had your breasts examined by a doctor, nurse, or health professional? (Circle only one)  
PROMPT  
0. Never 1. Three or more years ☐☐☐  
2. One to two years 3. Less than 1 year  
88. Don't know 99. No response
- 3.57.** In your lifetime how many times have you been pregnant (including any miscarriages, abortions and still-births)? (Circle only one)  
1. Never (Go to Q3.64) 2. 1 time ☐☐☐  
3. 2 times 4. 3 - 5 times  
5. 6 or more times  
88. Don't know (Go to Q3.64) 99. No response (Go to Q3.62)
- 3.58** How many live births have you had? ☐☐☐  
0. None (Go to Q3.64) 1. One  
2. Two 3. Three to five  
4. 6 or more  
88. Don't know (Go to Q3.64) 99. No response (Go to Q3.64)
- 3.59** Did you have high blood pressure during any pregnancy? ☐☐☐  
0. No 1. Yes  
88. Don't know 99. No response
- 3.60** Did you have diabetes mellitus (sugar) during any pregnancy? ☐☐☐  
0. No 1. Yes  
88. Don't know 99. No response
- 3.61.** Are you breastfeeding now? ☐☐☐  
0. No (Go to Q3.56) 1. Yes  
88. Don't know (Go to Q3.56) 99. No response (Go to Q3.56)
- 3.62.** How old is this child? Age in months   
88. Don't know 99. No response
- 3.63.** How long did you breastfeed your last child? ☐☐☐  
Length in months   
00. Never 88. Don't know 99. No response
- 3.64** Have any women aged 15- 44 years from this household died in the past year?  
0. No (Go to Q3.67) 1. Yes  
88. Don't know 99. No response
- 3.65** Where did this person die?  
1. Home 2. Public Hospital  
3. Private hospital  
88. Don't know 99. No response
- 3.66** At the time of their death were they pregnant or did they have a child within a year prior to their death?  
0. No 1. Yes  
88. Don't know 99. No response
- 3.67** Have you ever been treated for acne as an adult? ☐☐☐  
0. No 1. Yes  
88. Don't know 99. No response
- 3.68** Do you have a tendency to have dark coarse hair on the face, above the lips, the neck or upper torso?  
0. No 1. Yes ☐☐☐  
88. Don't know 99. No response

**END OF WOMEN'S HEALTH SECTION, SKIP TO SECTION 4  
MENS HEALTH**

- 3.69** About how long has it been since you had a rectal exam? (Circle only one) ☐☐☐  
0. Never 1. Less than 1 year ago  
2. 1-2 years ago 3. 3 or more years ago

- 3.70 88. Don't know 99. No response  
Have you ever been diagnosed with an enlarged prostate? ☐☐☐  
0. No (Go to Section 4) 1. Yes  
88. Don't know (Go to Section 4) 99. No response (Go to Section 4)
- 3.71 Do you take medication for your enlarged prostate? ☐☐☐  
0. No (Go to Section 4) 1. Yes  
88. Don't know 99. No response
- 3.72 When you don't take your medication, what is the reason? (Multiple responses allowed) ☐☐☐  
0. Don't take medication 1. Cannot afford to pay for it  
2. I am feeling better 3. I get side effects  
4. I hear there are side effects 5. I forget  
6. I run out before my next doctors/clinic appointment 6. Other reason \_\_\_\_\_  
88. Don't know 99. No response

#### SECTION 4 HEALTH SEEKING BEHAVIOUR

- 4.1 Have you been sick in the last 12 months? ☐☐☐  
0. No (Go to Q4.5) 1. Yes  
88. Don't know/can't recall (go to Q4.5) 99. No response (Go to Q4.5)
- 4.2 In the last 12 months whenever you have been sick, have you ever administered your own treatment/ medication? ☐☐☐  
0. No 1. Yes  
88. Don't know 99. No response
- 4.3 Have you ever been to any person other than a doctor or nurse when you have been sick? ☐☐☐  
0. No (Go to Q4.5) 1. Yes  
88. Don't know (Go to Q4.5) 99. No response (Go to Q4.5)
- 4.4 Who was that other person /s who treated you? Multiple Responses Allowed  
1. Bush doctor 2. Community healer ☐☐☐  
3. Massage therapist 4. Iridologist ☐☐☐  
5. Herbalist 6. Balm yard ☐☐☐  
7. Obeah man 8. Acupuncturist  
9. Reflexologist 10. Chiropractor  
11. Distributors of herbal products/ alternative medicine 12. Other \_\_\_\_\_ (specify)  
88. Don't know 99. No response
- 4.5 Are you taking any vitamin supplements? ☐☐☐  
0. No (Go to Q4.6) 1. Yes  
88. Don't know (Go to Q4.6) 99. No response (Go to Q4.6)
- 4.5.1 What brand/s \_\_\_\_\_ 88. Don't know 99. No response
- 4.6 Are you taking any iron supplements? ☐☐☐  
0. No (Go to Q4.7) 1. Yes  
88. Don't know (Go to Q4.7) 99. No response (Go to Q4.7)
- 4.6.1 What brand/s \_\_\_\_\_ 88. Don't know 99. No response
- 4.7 Have you ever been to a dentist/ dental clinic? ☐☐☐  
0. No (Go to Q4.9) 1. Yes  
88. Don't know (Go to Q4.9) 99. No response (Go to Q4.9)
- 4.8 When was the last time you visited the dentist/dental clinic? PROMPT. ☐☐☐  
0. Never 1. Over three years ago  
2. One to two years ago 3. Every year  
4. Every 6 months  
88. Don't know 99. No response
- 4.9 When you brush or floss your teeth do you ever notice that your gums bleed? ☐☐☐  
0. No 1. Yes  
88. Don't know 99. No response

#### HEALTH INSURANCE

- 4.10 Do you have private health insurance? E.g. Blue Cross, Life of Jamaica ☐☐☐  
0. No (Go to Q 4.13) 1. Yes  
88. Don't know (Go to Q 4.13) 99. No response (Go to Q 4.13)
- 4.11 Are you the: - ☐☐☐  
(a) Subscriber 0. No 1. Yes 88. Don't know 99. No response  
(b) Dependent 0. No 1. Yes 88. Don't know 99. No response  
(c) Both 0. No 1. Yes 88. Don't know 99. No response
- 4.12 Did you buy your own insurance or is it from your workplace? ☐☐☐  
(a) Employer 0. No 1. Yes 88. Don't know 99. No response

(b) Individual 0. No 1. Yes 88. Don't know 99. No response

- 4.13 Have you ever heard of the National Health Fund (NHF) |\_|\_|  
0. No (Go to Q4.22) 1. Yes  
88. Don't know (Go to Q4.22) 99. No response (Go to Q4.22)
- 4.14 How did you hear about the NHF? |\_|\_|  
0. Never heard (Go to Q 4.22) 1. Media  
2. Healthcare provider (e.g. doctor, pharmacist)  
3. Family friend 4. Health fair  
88. Don't know 99. No response
- 4.15 Are you enrolled for a NHFcard? |\_|\_|  
0. No 1. Yes (Go to Q4.17)  
88. Don't Know 99. No response
- 4.16 What are the reasons for not enrolling for a NHFCARD? (Multiple responses allowed) (Go 4.22)  
0. I don't have any of the health conditions 1. No TRN |\_|\_|  
2. No birth certificate 3. Drugs not covered  
4. Subsidies too low 5. Other reason \_\_\_\_\_  
88. Don't know 99. No response
- 4.17 Do you use your NHFcard? |\_|\_|  
0. No (Go to Q 4.18) 1. Yes (Go to Q4.19)  
88. Don't Know (Go to Q 4.18) 99. No response (Go to Q 4.18)
- 4.18 What are the reasons for not using your card? (Multiple responses allowed) |\_|\_|  
1. Benefits too small 2. My pharmacy does not accept that card  
3. My prescribed drug is not on the list 4. I cannot afford the co-payment  
5. I have other health insurance 6. I have other means of getting my prescription.  
88. Don't know 99. No response
- 4.19 What prompts you to use your NHFcard? |\_|\_|  
1. To save 2. My doctor/pharmacist encourages me  
3. Friends/Family encourage me 4. Other reason \_\_\_\_\_  
88. Don't Know 99. No response
- 4.20 What are some of the benefits you access with your NHF card? (Multiple responses allowed) |\_|\_|  
1. Medication 2. Glucometer  
3. Strips for Glucometer 3. Glyco Hb testing  
88. Don't know 99. No response
- 4.21 How often do you use your card? |\_|\_|  
0. Never 1. Seldom  
2. Occasionally 3. Regularly  
88. Don't know 99. No response
- 4.22 Have you ever heard of the Jamaica drugs for the elderly programme (JADEP?) |\_|\_|  
0. No (Go to Section 5) 1. Yes  
88. Don't know (Go to Section 5) 99. No response (Go to Section 5)
- 4.23 Where did you hear about JADEP? |\_|\_|  
0. Never heard (Go to Section 5) 1. Media  
2. Healthcare provider (e.g. doctor, pharmacist)  
3. Family friend 4. Health fair  
88. Don't know 99. No response
- 4.24 Are you enrolled for a JADEP card? |\_|\_|  
0. No (Go to Q4.25) 1. Yes (Go to Q 4.26)  
88. Don't Know 99. No response
- 4.25 What are the reasons for not enrolling for JADEP? (Multiple responses allowed) |\_|\_|  
0. I don't have any of the health conditions 1. Not yet sixty  
2. No birth certificate 3. No TRN  
4. The drugs I use are not covered 5. Other reason \_\_\_\_\_  
88. Don't know 99. No response
- 4.26 Do you use your JADEP Card? |\_|\_|  
0. No (Go to Q4.27) 1. Yes (Go to Q 4.28)  
88. Don't know 9. No response
- 4.27 Why do you not use your JADEP Card? (Multiple responses allowed) |\_|\_|  
0. Condition not covered 1. Drugs not covered  
2. Pharmacy does not accept it 3. Other \_\_\_\_\_  
88. Don't know 99. No response
- 4.28 Why do you use your JADEP Card?(Multiple responses allowed) |\_|\_|  
1. To save 2. My Doctor/Pharmacist encourages me

3. Friends/Family encourage me

88. Don't know

4.29 How often do you use your card?

0. Never

2. Occasionally

88. Don't know

4. Other \_\_\_\_\_

99. No response

\_\_\_

1. Seldom

3. Regularly

99. No response

## SECTION 5 SOCIAL HISTORY

Accidents and violence have claimed a lot of lives in recent times and it is important for us to understand how people have been affected by this, so I am going to ask you some questions about this.

5.1 In the last twelve months, when driving and/or as a passenger in a private car how frequently have you used a seat belt?

(Circle only one in each category) ASK BOTH QUESTIONS - PROMPT

\_\_\_

**A. As Driver of  
a private car**

0. Never

1. Always

2. Most times

3. Sometimes

4. Hardly/rarely ever

77. Never drives a car

88. Don't know

99. No response

\_\_\_

**B. As front seat Passenger in  
a private car**

0. Never

1. Always

2. Most times

3. Sometimes

4. Hardly/rarely ever

88. Don't know

99. No response

\_\_\_

**C. As back Passenger in  
a private car**

0. Never

1. Always

2. Most times

3. Sometimes

4. Hardly/rarely ever

88. Don't know

99. No response

5.2 In the last twelve months, when riding a bicycle/motorcycle and as a pillion rider, how frequently

have you used a helmet? (Circle only one in each category) ASK BOTH QUESTIONS- PROMPT

**A. As Rider**

0. Never uses a helmet

1. Always

2. Most times

3. Sometimes

4. Hardly ever

77. Never rides a motorcycle/bicycle

88. Don't know

99. No response

**B. As Pillion rider**

0. Never uses a helmet

1. Always Rider \_\_\_

2. Most times

3. Sometimes Pillion \_\_\_

4. Hardly ever

77. Never rides on a motorcycle/bicycle

88. Don't know

99. No response

5.3 In the past 5-years, have you had an injury (resulting from road traffic, domestic, self-inflicted or violence related incident) that required medical attention? (Circle only one) \_\_\_

0. No (Go to Q5.6)

88. Don't know (Go to Q5.6)

1. Yes

99. No response (Go to Q5.6)

5.4 What was the major cause of the injury? Circle all that apply

1. Motor vehicle accident

3. Industrial

5. A fall

88. Don't know

\_\_\_

2. Domestic incident

4. Violence related incident (criminal)

6. A fight

99. No response

5.5 Were you admitted to the hospital because of this injury? \_\_\_

0. No

88. Don't know

1. Yes

99. No response

5.6 In the past twelve months, what was the most serious injury that happened to you? \_\_\_

0. No serious injury in the past year (Go to 5.8)

2. Cuts, puncture or stab wound

3. Burns

5. Gunshot wound

88. Don't know

1. Fractures or broken bones

4. Concussion or other head injury

6. Other \_\_\_\_\_

99. No response

5.7 How did this injury occur? \_\_\_

1. I hurt myself on purpose

3. I hurt myself by accident

88. Don't know

2. Someone else hurt me on purpose

4. Someone else hurt me by accident

99. No response

5.8 In the past month, have you witnessed a violent act? \_\_\_

0. No (skip to Q 5.11)

88. Don't know (skip to Q 5.11)

1. Yes

99. No response (skip to Q 5.11)

5.9 How many times? \_\_\_

0. None (Go to Q5.11)

88. Don't know (Go to Q5.11)

1. Number of times \_\_\_\_

99. No response (Go to Q5.11)

5.10 What were these violent acts? \_\_\_

1. Shooting incident

3. Domestic dispute

5. Other \_\_\_\_\_ (specify)

2. Stabbing Incident

4. Rape

88. Don't know 99. No response
- 5.11 In the past month, have you participated in a violent act? ☐☐☐  
 0. No (skip to Q 5.14) 1. Yes  
 88. Don't know (skip to Q 5.14) 99. No response (skip to Q 5.14)
- 5.12 How many times? ☐☐☐  
 0. None (Go to Q5.14) 1. Number of times \_\_\_\_  
 88. Don't know (Go to Q5.14) 99. No response (Go to Q5.14)
- 5.13 What were these violent acts? ☐☐☐  
 1. Shooting incident 2. Stabbing Incident  
 3. Domestic dispute 4. Rape  
 5. Fight 6. Other \_\_\_\_\_ (specify)  
 88. Don't know 99. No response
- 5.14 Do you regularly carry any object to protect yourself? ☐☐☐  
 0. No (Go to Q5.16) 1. Yes  
 88. Don't know (Go to Q5.16) 99. No response (Go to Q5.16)
- 5.15 What do you usually carry for protection? ☐☐☐  
 1. Pepper Spray 2. Sharp instrument e.g. knife, machete  
 3. Acid 4. Blunt instrument e.g. bat, board  
 5. Gun 6. Other \_\_\_\_\_ (specify)  
 88. Don't know 99. No response
- 5.16 How safe is it to walk in your community? ☐☐☐  
 1. Very safe 2. Safe  
 3. Usually safe 4. Can be dangerous  
 5. Very dangerous  
 88. Don't know 99. No response
- 5.17 Now I am going to ask you some questions about your home. Remember all this is confidential information.

ANSWER ALL QUESTIONS. (TICK) Which of the following do you have? ☐☐☐☐

ITEM	NO [0]	YES [1]
1. Sewing machine		
2. Gas stove/. Electric stove		
3. Refrigerator or freezer		
4 Microwave oven		
5. Air conditioner		
6. Fan		
7. Telephone		
8. Radio/cassette player		
9. Phonograph/record player		
10. Stereo equipment/component set		
11. Compact Disk/CD player		
12. Video cassette recorder/ DVD		
13. Washing machine		
14. TV set		
15. Cable TV		
16. Satellite dish		
17. Bicycle		
18. Motorbike		
19. Car, other vehicle		
20. Computer/Printer/Fax, etc.		

- 5.18 What type of toilet facilities do you have? (Circle only one) ☐☐☐  
 0. None 1. Hole in the earth  
 2. Pit Latrine shared 3. Pit latrine, unshared  
 4. Water closet, shared 5. Water closet, unshared  
 88. Don't know 99. No response
- 5.19 What is your main source of water for drinking? ☐☐☐  
 0. Standpipe 1. Pipe outside of house  
 2. Pipe inside of house 3. River  
 4. Spring 5. Tank/drum  
 6. Bottled water  
 88. Don't know 99. No response
- 5.20 How many people live in this household (including you)? ☐☐☐  
 5.21 How many rooms are occupied by this household (excluding kitchens & bathrooms)? ☐☐☐  
 5.22 How many rooms are used for sleeping? ☐☐☐  
 5.23 Do you work at home or from home? ☐☐☐

0. No  
2. Unemployed (skip to Q.5.29)  
88. Don't know
1. Yes (Go To Q 5.29)  
3. Student  
99. No response
- 5.24 Do you usually work at night or have to do night shift work? ☐☐☐  
0. No  
88. Don't know
1. Yes  
99. No response
- 5.25 What time do you usually leave for work or school? H \_\_ M \_\_ AM/PM ☐☐  
5.26 What time do you usually return from work or school? H \_\_ M \_\_ AM/PM ☐☐  
5.27 How do you usually get to and from work or school? ☐☐☐  
1. Walk  
2. Chartered bus/taxi  
3. Public Bus/Taxi  
4. Bicycle  
5. Car  
88. Don't know  
99. No response
- 5.28 How long does it take you to get to and from work or school? \_\_H \_\_M ☐☐  
5.29 Do you have easy access to public transportation in your neighbourhood? ☐☐  
0. No  
1. Yes  
88. Don't know  
99. No response
- 5.30 What is your weekly household income in Jamaican dollars (total sum of money earned by all adults in home)?  
PROMPT (Circle only one) ☐☐  
1. More than \$20,000.00/week  
2. \$10,001.00 - \$20,000.00/week  
3. \$5,001.00 - \$10,000.00/week  
4. \$3200.00 - \$5,000.00/week  
5. Less than \$3200.00/week  
88. Don't know  
99. No response
- Note: If participant provides fortnightly, monthly or annual salary, record amount given and circle appropriate period (month/ year)*
- \$ \_\_\_\_\_ fortnight month year
- 5.31 If right now you had extra money, what would you buy with it? \_\_\_\_\_

Note to Interviewer: Based on your own impression, indicate social status of respondent on the following scale:

1 2 3 4 5 6 7 8 9 10  
Very Rich Very Poor

## SECTION 6 LIFESTYLE

Now I am going to ask you some questions about your lifestyle. Remember anything you tell me will be held in confidence.

### SMOKING/ALCOHOL CONSUMPTION

- 6.1 Do you currently smoke any form of tobacco (cigarettes, beady etc.)? ☐☐  
0. No (Go to Q6.3)  
88. Don't know (Go to Q6.3)
1. Yes  
99. No response (Go to Q6.3)
- 6.2 About how many cigarettes do you currently smoke per day? ☐☐  
Number of cigarettes \_\_\_\_ (Go to Q6.5)  
88. Don't know (Go to Q6.5)  
99. No response (Go to Q6.5)
- 6.3 Did you ever smoke any form of tobacco (cigarettes, beady, etc.)? ☐☐  
0. No (Go to Q6.7)  
88. Don't know (Go to Q6.7)
1. Yes  
99. No response (Go to Q6.7)
- 6.4 When did you stop smoking cigarettes? (Number of months/years) PROMPT ☐☐  
1. Less than 1 month ago  
2. 1 – 5 months ago  
3. 6 – 11 months ago  
4. 1 – 3 years ago  
5. 4 – 5 years ago  
6. More than 5 years ago  
88. Don't know  
99. No response
- 6.5 Have you smoked at least 100 cigarettes in your life? ☐☐  
0. No  
88. Don't know
1. Yes  
99. No response
- 6.6 About how old were you when you first started smoking tobacco products (cigarettes, beady etc)? ☐☐  
Age in years \_\_\_\_  
88. Don't know/don't remember  
99. No response
- 6.7 Have you ever smoked ganja/marijuana? (Circle only one) ☐☐  
0. No (Go to Q6.10)  
88. Don't know (Go to Q6.10)
1. Yes  
99. No response (Go to Q6.10)
- 6.8 Do you smoke ganja now? ☐☐  
0. No (Go to Q6.10)  
88. Don't know (Go to Q6.10)
1. Yes (Go to Q6.9)  
99. No response (Go to Q6.10)
- 6.9 How often do you currently smoke ganja? (Circle only one) PROMPT ☐☐  
1. Less than once per week  
2. One to three times per week

3. Four to six times per week  
88. Don't know  
4. Daily  
99. No Response
- 6.10 Do you use ganja in any other form? ☐☐☐  
0. No (Go to Q6.12)  
88. Don't know (Go to Q6.12)  
1. Yes  
99. No response (Go to Q6.12)
- 6.11 What other form/s do you use it in? PROMPT MULTIPLE RESPONSES ALLOWED ☐☐☐  
1. Tea  
2. Used in cooking  
3. Seasoned spliff  
4. Other \_\_\_\_\_ (specify)  
88. Don't know  
99. No response
- 6.12 Have you ever used crack or cocaine? ☐☐☐  
0. No (Go to Q6.13)  
88. Don't know  
1. Yes (Go to Q6.14)  
99. No response
- 6.13 Do you use any other kind of hard/illegal drug? ☐☐☐  
0. No  
88. Don't know  
1. Yes  
99. No response
- 6.14 Do you ever drink alcohol? (Including home-made wines and liqueurs) ☐☐☐  
0. No (Go to Section 7)  
1. Yes (Go to Q6.17)  
2. Stopped drinking (Go to Q6.15)  
88. Don't know (Go to Section 7)  
99. No response (Go to Section 7)
- 6.15 How long ago did you stop? \_\_\_\_\_ ☐☐☐  
88. Don't know  
99. No response
- 6.16 Why was the main reason you stopped drinking? Reason \_\_\_\_\_ (Go to Section 7)  
88. Don't know  
99. No response
- 6.17 During the past month, have you had any alcohol: beer, wine, liquor or home-made wines, liqueurs, etc.? (Circle only one)  
0. No (Go to Section 7)  
88. Don't know  
1. Yes ☐☐☐  
99. No response
- 6.18 Do you drink every day or mainly on weekends? ☐☐☐  
1. Daily  
2. Mainly on weekends  
3. Other \_\_\_\_\_  
88. Don't know  
99. No response
- 6.19 What type of drink do you usually have, how often and how many?  
A drink is 1 beer/stout, one glass of wine, or one shot of liquor.

ALCOHOLIC DRINK	QUANTITY (Record weekly, monthly or annual qty. based on respondent's drinking pattern)			D/K [88]	N/R [99]
	Week	Month	Year		
(a )Wine					
(b) Spirits/liquor – rum/vodka/gin					
(c ) Beer/Stout					
(d) Premixed alcoholic coolers e.g. Smirnoff ice					
(e) Other _____					

\*\*\* MALTANOT CONSIDERED AN ALCOHOLIC DRINK

- 6.20 During the past week have you had **five or more drinks** in a single day? ☐☐☐  
0. No  
88. Don't know  
1. Yes  
99. No response
- SECTION 7**  
**EMOTIONS AND MENTAL HEALTH**
- 7.1 In general, how satisfied are you with your life? Would you say you are...? (Circle only one) PROMPT  
0. Not satisfied  
1. Very satisfied ☐☐☐  
2. Satisfied  
3. Somewhat satisfied  
4. Very dissatisfied  
88. Don't know  
99. No response
- 7.2 Have you done anything for relaxation in the past week? PROBE ☐☐☐  
0. No (Go to Q7.4)  
88. Don't know (Go to Q7.4)  
1. Yes  
99. No response (Go to Q7.4)
- 7.3 What do you do for relaxation? (Multiple responses allowed) ☐☐☐☐☐  
0. Nothing  
1. Watch television/movies at home  
2. Rest  
3. Go out to the movies, social functions  
4. Go to church  
5. Other \_\_\_\_\_ (specify)  
88. Don't know  
99. No response.
- 7.4 What time do you usually go to sleep? \_\_\_\_H\_\_\_\_M\_\_\_\_ (AM/PM) ☐☐☐  
7.5 What time do you usually wake up? \_\_\_\_H\_\_\_\_M\_\_\_\_ (AM/ PM) ☐☐☐  
7.6 Do you wake up several times during your sleep? ☐☐☐



- |  |                 |                 |
|--|-----------------|-----------------|
| 0. No  | 1. Yes          |                 |
| 88. Don't know                                 | 99. No response |                 |
| 7. 7 In general, would you say your health is? |                 | ___             |
| 1. Excellent                                   | 2. Very Good    |                 |
| 3. Good  | 4. Fair         |                 |
| 5. Poor  | 88. Don't know  | 99. No response |

The following two questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities?  
If so, how much?

- |   |                       |                 |
|---|-----------------------|-----------------|
| 7. 8. MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, playing cricket, or walking: |                       |                 |
| 0. No, Not Limited at All   | 1. Yes Limited a Lot  | ___             |
| 2. Yes, Limited a Little  |                       |                 |
| 88. Don't know  | 99. No response       |                 |
| 7. 9. Climbing SEVERAL flights of stairs:   |                       | ___             |
| 0. No, Not Limited at all   | 1. Yes, Limited a Lot |                 |
| 2. Yes Limited a Little   | 88. Don't know        | 99. No response |

**During the PAST 4 WEEKS**

Have you had any of the following problems with your work or other regular activities AS A RESULT OF YOUR PHYSICAL HEALTH?

- |  |                 |     |
|--|-----------------|-----|
| 7. 10 ACCOMPLISHED LESS than you would like: |                 | ___ |
| 0. No  | 1. Yes          |     |
| 88. Don't know                               | 99. No response |     |

- |  |                 |     |
|--|-----------------|-----|
| 7.11 Were limited in the KIND of work or other activities: |                 | ___ |
| 0. No  | 1. Yes          |     |
| 88. Don't know   | 99. No response |     |

Were you limited in the kind of work you do or other regular activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?

- |  |                 |     |
|--|-----------------|-----|
| 7.12 ACCOMPLISHED LESS than you would like:                    |                 | ___ |
| 0. No  | 1. Yes          |     |
| 88. Don't know   | 99. No response |     |
| 7.13 Didn't do work or other activities as CAREFULLY as usual: |                 | ___ |
| 0. No  | 1. Yes          |     |
| 88. Don't know   | 99. No response |     |

- |  |                 |                 |
|--|-----------------|-----------------|
| 7.14. How much did <b>PAIN</b> interfere with your normal work (including both work outside the home and housework)? |                 |                 |
| 0. Not At All  | 1. A Little Bit | ___             |
| 2. Moderately  | 3. Quite A Bit  |                 |
| 4. Extremely   | 88. Don't know  | 99. No response |

For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the PAST 4 WEEKS –

- |   |                           |                             |
|---|---------------------------|-----------------------------|
| 7.15. Have you felt calm and peaceful?  |                           | ___                         |
| 0. None of the Time   | 1. All of the Time        |                             |
| 2. Most of the Time   | 3. A Good Bit of the Time |                             |
| 4. Some of the Time   | 5. A Little of the Time   |                             |
| 88. Don't know  | 99. No response           |                             |
| 7.16 Did you have a lot of energy?  |                           | ___                         |
| 0. None of the Time   | 1. All of the Time        |                             |
| 2. Most of the Time   | 3. A Good Bit of the Time |                             |
| 4. Some of the Time   | 5. A Little of the Time   |                             |
| 88. Don't know  | 99. No response           |                             |
| 7.17. Have you felt downhearted and blue?   |                           | ___                         |
| 0. None of the Time   | 1. All of the Time        |                             |
| 2. Most of the Time   | 3. A Good Bit of the Time |                             |
| 4. Some of the Time   | 5. A Little of the Time   |                             |
| 88. Don't know  | 99. No response           |                             |
| 7.18. How much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting with friends, relatives, etc.)? |                           | ___                         |
| 0. None of the Time   | 1. All of the Time        |                             |
| 2. Most of the Time   | 3. A Good Bit of the Time |                             |
| 4. Some of the Time   | 5. A Little of the Time   |                             |
| 88. Don't know  | 99. No response           |                             |
| 7. 19 During the past month have you been Bothered a lot by:  | 0.No                      | 1.Yes 88.DK 99. No Response |

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Little interest or pleasure in doing things | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Feeling down, depressed or hopeless         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Feeling sad or lonely                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Feeling guilty or worthless                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Change in appetite                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Change in sleeping patterns                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- 7.20** Have you ever seriously considered suicide? |\_|\_|  
 0. No (Go to Section 8) 1. Yes  
 88. Don't know (Go to Section 8) 99. No response (Go to Section 8)
- 7.21** How recently did you consider suicide? |\_|\_|  
 0. Never (Go to Section 8) 1. Less than six months ago  
 2. Six months to a year ago. 3. One to two years ago  
 4. Two – five years ago 5. More than five years ago.  
 88. Don't know 99. No response
- 7.22** Have you ever made a plan to commit suicide? |\_|\_|  
 0. No 1. Yes  
 88. Don't know 99. No response
- 7.23** Have you ever attempted suicide? |\_|\_|  
 0. No 1. Yes  
 88. Don't know 99. No response

## SECTION 8

### PHYSICAL ACTIVITY LEVELS

*Now I am going to ask you some questions about your level of physical activity.*

- 8.1** In general, how physically fit would you say you are? (Circle only one) PROMPT |\_|\_|  
 0. Not fit 1. Very fit  
 2. Fit 3. Partly fit  
 88. Don't know 99. No response
- 8.2** When you consider your body weight, do you consider yourself to be - PROMPT |\_|\_|  
 1. The right weight 2. A little overweight  
 3. A lot overweight 4. Under weight  
 88. Don't know 99. No response
- 8.3** In an average week, how many times do you engage in physical activity (exercise or work, but not sex) which is at least 20 minutes without stopping and which is hard enough to make you breathe heavier and your heart beat faster? (Circle only one) PROMPT  
 0. Never 1. Less than once per week |\_|\_|  
 2. 1 or 2 times per week 3. At least 3 times per week  
 88. Don't know 99. No response
- 8.4** Which of the following describes the nature of your work? PROMPT |\_|\_|  
 1. Don't work anymore/Unemployed  
 2. Mainly sitting work, not much walking  
 (E.g. radio-mechanic, industrial sewing work, office work at desk, watchmaker)  
 3. Quite a lot of walking, but not lifting or carrying heavy things.  
 (E.g. shop assistant, light industrial work, office work where one has to move)  
 4. Lot of walking, often carrying things, or climbing stairs or going uphill.  
 (E.g. carpenter or farmhand, work in engine shop, heavy industrial work)  
 5. Heavy physical work, carrying or lifting heavy things, digging, shovelling, cutting. (e.g. Forestry work, heavy farm work, heavy construction and industrial work)  
 6. Retired  
 7. Student 8. Other \_\_\_\_\_ (please specify)  
 88. Don't know 99. No response
- 8.5.** How much physical activity do you have in your leisure time? (Circle only one) PROMPT |\_|\_|  
 1. Read, watch television and do things that do not require physical activity.  
 2. Walk, ride a bicycle or other physical activity for at least 4 hours a week. (E.g. walking, fishing and hunting, light garden work, etc.)  
 3. Physical activities to maintain fitness, (e.g. running, gymnastics, dancing, swimming, ball games or doing heavy garden work or its equivalent).  
 4. Regular training, several days a week, for competitions (e.g. running, ball games or other physically heavy sports)  
 88. Don't know 99. No response
- 8.6** How many times a week are you engaged in the activities you mentioned? INTERVIEWER WILL REMIND SUBJECT OF LEISURE TIME ACTIVITY MENTIONED |\_|\_|  
 0. Never 1. Less than once per week  
 2. 1 – 3 times a week 3. 4 – 6 times a week, Daily  
 88. Don't know 99. No response
- 8.7** How many minutes a day do you spend walking, cycling or in any other physical activity on your way to work? (Include both the time spent going to and coming from work) PROMPT |\_|\_|  
 0. I don't work or get physical activity on the way to work

1. Less than 15 minutes a day
2. 15 – 29 minutes a day
3. 30 – 44 minutes a day
4. 45 – 59 minutes a day
5. One hour or more a day
88. Don't know
99. No response

**8.8** When was the last time you tried to increase your physical activity? PROMPT |\_|\_|

0. Never
1. More than 6 months ago
2. 1 – 6 months ago
3. During the last month
88. Don't know
99. No response

**8.9** During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, running, basketball, football, tennis, or fast bicycling? |\_|\_|

0. |\_| No vigorous physical activities (SKIP TO Q. 8.11) |\_| **days per week**

**8.10** How much time did you usually spend doing **vigorous** physical activities on one of those days? |\_|\_|

- |\_| **Hours per day** |\_| **minutes per day**

88. Don't know/Not sure
99. No response

Think about all the moderate activities that you did in the last 7 days. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

**8.11** During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, doubles tennis, ? Do not include walking. |\_|\_|

0. No moderate physical activities (SKIP TO Q.8.13) |\_| **Days per week**

**8.12** How much time did you usually spend doing **moderate** physical activities on one of those days? |\_|\_|

- |\_| **Hours per day** |\_| **minutes per day**

88. Don't know/Not sure
99. No response

Think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

**8.13** During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time? |\_|\_|

0. No walking (SKIP TO Q. 8.15) |\_| **days per week**

88. Don't know/Not sure
99. No response

**8.14** How much time did you usually spend **walking** on one of those days? |\_|\_|

- |\_| **Hours per day** |\_| **minutes per day**

88. Don't know/Not sure
99. No response

The last question is about the time you spent sitting on weekdays during the last 7 days. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

**8.15** During the **last 7 days**, how much time did you spend **sitting** on a week day?

- |\_| **Hours per day** |\_| **minutes per day**

88. Don't know/Not sure
99. No response

## SECTION 9 SEXUAL PRACTICES

NOTE TO INTERVIEWER: AIM TO INTERVIEW SUBJECTS IN PRIVACY

**REMINDER: PLEASE OMIT THIS SECTION IF NO PARENTAL CONSENT IS OBTAINED FOR MINORS TO ANSWER QUESTIONS ON SEXUAL PRACTICES.**

Now I am going to ask you some important questions about your health. Although it is private, we hope that you will share some information with us so we can better understand some of the things that affect people's lives and their health.

**9.1** Have you ever had sex? (I.e. having sexual intercourse) |\_|\_|

0. No (Go to Section 10)
1. Yes
88. Don't know (Go to Section 9)
99. No response (Go to Section 9)

**9.2** Have you been sexually active (sexual intercourse) within the past year? |\_|\_|

0. No (Go to Q9.9)
1. Yes
88. Don't know (Go to Q9.9)
99. No response (Go to Q9.9)

**9.3.** How often do you usually have sex? (Circle only one) PROMPT |\_|\_|

1. More than 3 times/week
2. 1 - 3 times/week
3. 1 – 3 times/month
4. Less than once per month
88. Don't know
99. No response

**9.4** The last time you had sexual intercourse, which of the following birth control /family planning methods did |\_|\_| use? (Tick all that apply) |\_|\_|

1. None	
2. Withdrawal	
3. Condom	
4. Injection (Depo Provera)	
5. Regular birth control pill	
6. Morning after pill	
7. Sponge, cream or diaphragm	
8. Douche	

9. Some other method_____ (specify)	
88. Don't know	
99. Non-response	

- 9.5** Do you or your partner usually use a condom whenever you have sexual intercourse? ☐☐☐  
0. No 1. Yes  
88. Don't know 99. No response
- 9.6** About how many different persons have you had sexual intercourse with in the past year?  
(Ask respondent to estimate the number if necessary) Circle only one ☐☐☐  
1. One (1) person 2. Two (2) persons  
3. Three (3) – five (5) persons 4. Six (6) – ten (10) persons  
5. More than ten (10) persons  
88. Don't know 99. No response
- 9.7.** The last time you had sexual intercourse did you use a condom? (Circle only one) ☐☐☐  
0. No (Go to Q9.9) 1. Yes  
88. Don't know (Go to Q9.9) 99. No response (Go to Q9.9)
- 9.8.** If you have more than one partner, was the condom used with your main partner or other partner? (Circle only one)  
1. Main partner 2. Other partner ☐☐☐  
3. Both 99. No response  
88. Don't know
- 9.9.** Have you ever had a sexually transmitted infection or VD? (E.g. discharge, sore) (Circle only one)  
0. No (Go to Section 10) 1. Yes ☐☐☐  
88. Don't know (go to Section 10) 99. No response (Go to Section 10)
- 9.10.** In the last 12 months have you ever had a sexually transmitted infection or VD (E.g. discharge, sore)  
0. No 1. Yes ☐☐☐  
88. Don't Know 99. No response

## SECTION 10 DIETARY HABITS

*Now I am going to ask you some questions about your dietary habits.*

- 10.1** Are you on a special diet – whether for religious, medical or other reasons? ☐☐☐  
0. No (Go to Q10.3) 1. Yes  
88. Don't know (Go to Q10.3) 99. No response (Go to Q10.3)
- 10.2** What type of special diet are you on? (Circle all that apply) ☐☐☐  
1. Vegetarian (any type) 2. Weight loss  
3. Weight gain 4. Diabetic  
5. Low salt 6. Low fat  
7. Low cholesterol 8. Other \_\_\_\_\_ (specify)  
88. Don't know 99. No response
- 10.3** What type of fat/oil do you use to cook, and what is your usual brand? (CIRCLE ALL THAT APPLY) PROMPT ☐☐☐☐☐☐  
0. None  
1. Vegetable oil, Brand \_\_\_\_\_ (specify) 2. Coconut oil, Brand \_\_\_\_\_ (specify)  
3. Soft margarine Brand \_\_\_\_\_ (specify) 4. Hard margarine, Brand \_\_\_\_\_ (specify)  
5. Butter, Brand \_\_\_\_\_ (specify) 6. Oil from meat  
7. Other \_\_\_\_\_ (specify)  
88. Don't know 99. No response
- 10.4** What type of fat do you use on bread and what is the usual brand?  
(CIRCLE ALL THAT APPLY) PROMPT ☐☐☐  
0. No fat used on bread 1. Soft margarine, Brand \_\_\_\_\_ (specify)  
2. Hard margarine, Brand \_\_\_\_\_ (specify) 3. Butter, Brand \_\_\_\_\_ (specify)  
4. Other \_\_\_\_\_ (specify)  
88. Don't know 99. No response
- 10.5** What is/are your main source/s of protein? Circle all that apply. ☐☐☐  
1. Chicken 2. Beef  
3. Pork 4. Fish/Seafood  
5. Milk/milk products (e.g. cheese) 6. Soy products (e.g. tofu, vegemince)  
7. Peas/Beans 8. Other \_\_\_\_\_  
88. Don't Know 99. No response
- 10.6** How do you usually prepare your main source of protein? (Circle only one) ☐☐☐  
1. Fry 2. Stew  
3. Bake 4. Steam  
5. Other \_\_\_\_\_ (specify)  
88. Don't know 99. No response
- 10.7** How much of visible fat (fat that you can see) on meats do you remove before eating? PROMPT ☐☐☐  
1. Do not remove fat 2. Remove small part of fat  
3. Remove most visible fat 4. Remove all visible fat

- 10.8 88. Don't know 99. No response  
Do you usually add salt to your meals at the table? ☐☐☐☐  
0. No 1. Yes  
88 Don't know 99 No response
- 10.9 During a usual week, do you eat at fast food places such as Burger King, KFC, Tastee, Juici Patties or Pizza Hut?  
0. No (Go to Q 10.11) 1. Yes  
88. Don't know 99. No response
- 10.10 During a usual week, how many times do you eat at fast food places such as Burger King, KFC, Tastee, Juici Patties or Pizza Hut?  
1. Less than once per week 2. Once per week  
3. Twice per week 4. Three times per week  
5. Four times per week 6. Five or more times per week  
88. Don't know 99. No response
- 10.11 Now I am going to read you a list of foods and I want you to tell me how many times per week you usually eat them.  
IF PARTICIPANT EATS ANY FOOD LESS THAN WEEKLY (I.E. MONTHLY, ETC.: RECORD FREQUENCY GIVEN (MONTHLY, ANNUALLY, ETC)

For each item or category listed please check one box to indicate how much on average of the food specified the participant reports that he/she usually consumes							
Food	Almost/ never	Once/ week	2-4 times wk	5-6 times wk	Once / day	≥ 2 times/day	Qty/ portion size
<b>Cereals</b>							
Bread							
Rice							
Flour							
Cornmeal							
Crackers							
Other							
<b>Starchy foods roots and tubes</b>							
Sweet potato							
Irish potato							
Green banana							
Plantain							
Breadfruit							
Yam/Dasheen/Coco							
<b>Food from Animal</b>							
Beef, Pork, Mutton							
Chicken							
Fresh Fish							
For each item or category listed please check one box to indicate how much on average of the food specified the participant reports that he/she usually consumes							
Canned fish (sardine, mackerel, etc)							
Pickled /Salted meats							
Legumes /Peas & Beans (e.g. stewed peas)							
<b>Fruits and Vegetables</b>							
Fruits							
Dark green leafy vegetables (e.g. calaloo, pak choi)							
Other vegetables (tomato, cabbage, etc.)							
<b>Milk and Milk products</b>							
Whole milk							
Skimmed milk							
Soy milk/milk free							
Low fat milk products e.g. yoghurt, milk							
<b>Pastries</b>							
Bun/Cake/Pudding/cookie/donuts							
Chips							
<b>Sweetened Beverage</b>							
Coffee/Tea							
Lemonade/Soda/Box drink							
<b>Sweeteners</b>							
Condensed milk							
Sugar							
Honey							
Sugar substitute							
Other(specify)							

# **SECTION 11** **SOURCES OF INFORMATION**

- 11.1 What are your current sources of information on health? PROMPT Multiple Responses allowed

0. None  
2. Television  
4. Doctor/nurse  
6. Dietitian  
8. Friend/relative  
10. Other \_\_\_\_\_ (specify)  
88. Don't know
1. Radio  
3. Brochures/pamphlets  
5. Nutritionist  
7. Magazines/newspapers  
9. Diabetes Association of Jamaica/Heart Foundation, etc
99. No response
- 11.2** What are your current sources of information on diet or nutrition? PROMPT Multiple Responses allowed
0. None  
2. Television  
4. Doctor/nurse  
6. Dietitian  
8. Friend/relative  
10. Other \_\_\_\_\_ (specify)  
88. Don't know
1. Radio  
3. Brochures/pamphlets  
5. Nutritionist  
7. Magazines/newspapers  
9. Diabetes Association of Jamaica/Heart Foundation, etc
99. No response
- 11.3** Which is your most important source of information on nutrition? (Circle only one)
0. None  
2. Television  
4. Doctor/Nurse  
6. Dietitian  
8. Friend/relative  
10. Other \_\_\_\_\_ (specify)  
88. Don't know
1. Radio  
3. Brochures/pamphlets  
5. Nutritionist  
7. Magazines/newspapers  
9. Diabetes Association of Jamaica/Heart Foundation, etc
99. No response
- 11.4** What is the main source from which/whom you learned to take care of your teeth and gums?
1. Dentist/School Nurse  
3. School talk  
5. Internet  
7. Parent/family member  
88. Don't know
2. Health worker  
4. TV/Radio  
6. Posters/magazines/newspapers  
8. Other \_\_\_\_\_  
99. No response
- 11.5** Would you be willing to participate in another survey like this, by :
- a. Telephone interview 0. No 1. Yes 88. Don't know 99. No response  
b. Face-to-face Interview 0. No 1. Yes 88. Don't know 99. No response

#### END OF QUESTIONNAIRE

THANK YOU FOR PARTICIPATING IN THE TROPICAL MEDICINE RESEARCH INSTITUTE JAMAICAN HEALTHY LIFESTYLE SURVEY II

**Interviewers:** Kindly check questionnaire before leaving household to ensure that it is complete.

Kindly make the necessary arrangements with study participant to return to perform blood pressure, fasting blood glucose and cholesterol tests and body measurements.

**Supervisors:** Code answers to all questions except open ended questions, before handing in to Tropical Medicine Research Institute. Codes are to the left of possible responses.

**Interviewer Assessment of Community and Home Environment Questionnaire ID #**

- A. Is the community ... 1. Planned 2. Informal settlement .....  
B. 1. Residential 2. Residential/commercial 3. Commercial  
4. Industrial 5. Agricultural  
C. Is home located on .....  
1. A footpath 2. Cul-de-Sac 3. Main Road 4. Highway 5. Subdivision

**From your observation are the following present?**

Community of the Respondent	No	Yes	Unable to assess
Paved Roads			
Sidewalks / Verges			
Electricity supply to homes			
Telephone lines to homes			
Street Lighting			
Clean Streets			
Recreation areas/ playing fields/ open spaces			
Home of Respondent	No	Yes	Unable to assess
Lawn			
Ornamental Plants			
Trees			

**How would you assess the following factors?**

Community	Excellent	Good	Fair	Poor
Condition of homes in area				
Amount of noise in area (less is better)				
Air quality				
Condition of Streets				
Condition of yards and sidewalks				
Overall rating of the community				

House	Excellent	Good	Fair	Poor
Physical condition of the home				
Internal cleanliness of the home				
Physical condition of the furnishings				
External appearance of the home				
Overall rating of the home				

*Are the following facilities within walking distance of the home?*

	Yes	No	Not sure
Public Transportation			
Primary/Secondary Schools			
Universities or Colleges			
Churches			
Small grocery shop/Supermarket			
A place to obtain fresh fruits and vegetables			
Fast food restaurants			
Full service (sit down) restaurant			
Police Station			
Post Office			
Doctors Office/ Health Centre			
Shopping Centre			
Banking facilities			
Recreation Areas			

**JAMAICA HEALTH AND LIFESTYLE SURVEY II**  
**2007**

**FORM 1: PULSE AND BLOOD PRESSURE MEASUREMENT**

QUESTIONNAIRE ID NO.	I.D. OF INTERVIEWER _____
DATE OF EXAM ____/____/____ DD MM YY	

Now I will explain the procedure for measuring your pulse and blood pressure. It is important that you remain relaxed and seated for the measurement which will take about 15 minutes. Please do not cross your feet or legs during the measurements. I will wrap the blood pressure cuff around your arm, take your pulse and then inflate the cuff. You will feel a sensation of pressure on your arm when the cuff is inflated. I will be inflating the cuff a maximum of 5 times. While I am measuring your blood pressure, it is best if we do not talk. If you have any questions, I will be happy to answer them for you before or after the measurement is taken. I will tell you the results of the measurements afterward.

1. Have you had any food, alcohol, coffee or cigarettes within the last 30 minutes?	Food: 0 [ ] N 1 [ ] Y Alcohol: 0 [ ] N 1 [ ] Y Coffee: 0 [ ] N 1 [ ] Y Cigarettes: 0 [ ] N 1 [ ] Y
2. Arm circumference:	_____ . _____
3. Cuff size selected:	0 [ ] Small adult 9 (18 – 25 cm) 1 [ ] Adult (25 – 35 cm) 2 [ ] Large (33 – 47 cm) 3 [ ] Thigh (>47 cm)
4. Arm selected:	0 [ ] Right 1 [ ] Left _____ Reason
5. Pulse rate for 30 seconds:	_____
6. Pulse regular?	0 [ ] No 1 [ ] Yes
7. Pulse Obliteration Pressure (POP):	_____
8. Maximum inflation level: POP + 30 mmHg=	_____
9. First blood pressure measurement: 0 [ ] BP refused – Reason : _____ 1 [ ] BP not done – Reason: _____	_____ / _____ SBP DBP
10. Pulse rate for 30 seconds:	_____
11. Second blood pressure measurement:	_____ / _____ SBP DBP
12. Pulse rate for 30 seconds:	_____
13. Third blood pressure measurement:	_____ / _____ SBP DBP

**JAMAICA HEALTH AND LIFESTYLE SURVEY II**  
**2007**

**FORM 2: BODY MEASUREMENTS**

QUESTIONNAIRE ID NO.	I.D. OF INTERVIEWER
----------------------	---------------------

DATE OF EXAM ____/____/____ DD MM YY	____
---	------

Now I am going to measure your height, weight, and waist and hip measurements. I will explain each one as we do it. WEIGHT RECORD SCALE IDENTIFICATION NUMBER	____.____ kg ____
HEIGHT	____.____ cm ____.____ cm
WAIST CIRCUMFERENCE  What clothing was the measurement taken over?	1. ____ cm 2. ____ cm 3. ____ cm 0 [ ] No clothing: skin 1 [ ] Shirt or dress 2 [ ] Trousers only 3 [ ] Shirt & trousers
BUTTOCKS (HIP) CIRCUMFERENCE  What clothing was the measurement taken over?	1. ____ cm 2. ____ cm 3. ____ cm 0 [ ] No clothing: skin 1 [ ] Shirt or dress 2 [ ] Trousers only 3 [ ] Shirt & trousers
Thickness of upper body covering:	0 [ ] None 1 [ ] Thin 2 [ ] Thick
Thickness of lower body covering:	0 [ ] None 1 [ ] Thin 2 [ ] Thick

**JAMAICAN HEALTHY LIFESTYLE SURVEY II**

2007

**FORM 3: FASTING GLUCOSE, CHOLESTEROL AND GLYCOSYLATED HAEMOGLOBIN TEST**

QUESTIONNAIRE ID NO.	I.D. OF INTERVIEWER ____
DATE OF EXAM ____/____/____ DD MM YY	

1. What time and date did you last eat? TIME: \_\_\_\_ : \_\_\_\_ 0 [ ] AM 1 [ ] PM

DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DD MM YY

2. What time and date did you last have something other than water to drink? TIME: \_\_\_\_ : \_\_\_\_ 0 [ ] AM 1 [ ] PM

DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DD MM YY

3. What time and date did you last smoke? TIME: \_\_\_\_ : \_\_\_\_ 0 [ ] AM 1 [ ] PM

DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DD MM YY

Time of fasting sample: \_\_\_\_ : \_\_\_\_ 0 [ ] AM 1 [ ] PM

Fasting glucose level: \_\_\_\_ mmol/L

Cholesterol level: \_\_\_\_ mmol/L

**Glycosylated Haemoglobin**

Date the SAMPLE WAS TAKEN: DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DD MM YY

Glyco Hb Result \_\_\_\_%

COMMENTS: \_\_\_\_\_

**Sickle Cell Blot**

Date the SAMPLE WAS TAKEN: DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DD MM



## Reference List

1. Eckel RH, York DA, Rossner S, Hubbard V, Caterson I, St Jeor ST et al. Prevention Conference VII: Obesity, a worldwide epidemic related to heart disease and stroke: executive summary. *Circulation* 2004;110(18):2968-75.
2. Forrester T, Cooper RS, Weatherall D. Emergence of Western diseases in the tropical world: the experience with chronic cardiovascular diseases. *Br.Med.Bull.* 1998;54(2):463-73.
3. Gulliford MC. Epidemiological transition in Trinidad and Tobago, West Indies 1953-1992. *Int.J.Epidemiol.* 1996;25(2):357-65.
4. Leeder S, Raymond S, Greenberg H, Liu H, and Esson K. *A Race Against Time: The Challenge of cardiovascular Disease in Developing Economies.* 2004. New York, Trustees of Columbia University.

Ref Type: Serial (Book,Monograph)

5. Reddy KS, Yusuf S. Emerging epidemic of cardiovascular disease in developing countries. *Circulation* 1998;97(6):596-601.
6. Wilks R, Bennett F, Forrester T, McFarlane-Anderson N. Chronic diseases: the new epidemic. *West Indian Med.J.* 1998;47 Suppl 4:40-4.
7. Caribbean Commission on Health and Development (PAHO). 2005.

Ref Type: Report

8. Wilks, R., Zohoori, N., Ashley, D., and Figueroa, P. *The Jamaican Healthy Lifestyle Survey:* Ministry of Health Jamaica. 2000.

Ref Type: Report

9. Statistical Institute of Jamaica (STATIN). *Demographic Statistics* 1996. 1996.

Ref Type: Report

10. Ward, E. and Grant, A. *Epidemiological profile of Selected Health Conditions and Services in Jamaica 1990-2002.* 2005.

Ref Type: Report

11. Statistical Institute of Jamaica (STATIN). *Demographics Statistics* 2005. 2005.

Ref Type: Report

12. Figueroa JP, Fox K, Minor K. A behaviour risk factor survey in Jamaica. *West Indian Med.J.* 1999;48(1):9-15.

13. *Global Burden of Disease and Risk Factors (WHO).* 2002.

Ref Type: Report

14. Crespo CJ, Palmieri MR, Perdomo RP, McGee DL, Smit E, Sempos CT et al. The relationship of physical activity and body weight with all-cause mortality: results from the Puerto Rico Heart Health Program. *Ann.Epidemiol.* 2002;12(8):543-52.

15. Ferro-Luzzi A, Martino L. Obesity and physical activity. *Ciba Found.Symp.* 1996;201:207-21.

16. Whelton SP, Chin A, Xin X, He J. Effect of aerobic exercise on blood pressure: a meta-analysis of randomized, controlled trials. *Ann.Intern Med* 2002;136(7):493-503.
17. Papas MA, Alberg AJ, Ewing R, Helzlsouer KJ, Gary TL, Klassen AC. The built environment and obesity. *Epidemiol.Rev.* 2007;29:129-43.
18. Perdue WC, Stone LA, Gostin LO. The built environment and its relationship to the public's health: the legal framework. *Am.J.Public Health* 2003;93(9):1390-4.
19. Jackson M, Walker S, Forrester T, Cruickshank JK, Wilks R. Social and dietary determinants of body mass index of adult Jamaicans of African origin. *Eur.J.Clin.Nutr.* 2003;57(4):621-7.
20. Borowsky IW, Ireland M, Resnick MD. Adolescent suicide attempts: risks and protectors. *Pediatrics* 2001;107(3):485-93.
21. Serjeant GR, Serjeant BE. *Sickle Cell Disease*. Third ed. New York: Oxford University Press; 2001.
22. Figueroa JP, Ward E, Walters C, Ashley DE, Wilks RJ. High risk health behaviours among adult Jamaicans. *West Indian Med.J.* 2005;54(1):70-6.
23. Murray CJ, Lopez AD. Mortality by cause for eight regions of the world: Global Burden of Disease Study. *Lancet* 1997;349(9061):1269-76.
24. Samms-Vaughan, M. Cognition, Educational Attainment and Behaviour in a Cohort of Jamaican Children. 5. 2001. Kingston, Planning Institute of Jamaica.

Ref Type: Report

25. Arscott-Mills S, Gordon G, McDonald A, Holder Y, Ward E. A profile of injuries in Jamaica. *Inj.Control Saf Promot.* 2002;9(4):227-34.
26. Reddy KS, Yusuf S. Emerging epidemic of cardiovascular disease in developing countries. *Circulation* 1998;97(6):596-601.
27. Wilks, R., Younger N, McFarlane S, Francis D, and van den Broeck J. Jamaica Youth Risk and Resiliency Behaviour Survey 2006. Community-based Survey on Risks and Resiliency Behaviours of 15-19 year olds, 2007. (<http://www.cpc.unc.edu/measure>) . 2007.

Ref Type: Electronic Citation

28. Stata Corp. *Stata Statistical Software: Release 7.0* College Station, Texas: Corporation 2001. 2001.
29. Global Burden of Disease and Risk Factors (WHO). 2002.

Ref Type: Report

30. Carnethon MR, Gulati M, Greenland P. Prevalence and cardiovascular disease correlates of low cardiorespiratory fitness in adolescents and adults. *JAMA* 2005;294(23):2981-8.
31. Caribbean Commission on Health and Development (PAHO). 2005.

Ref Type: Report

32. Miall WE, Del Campo E, Fodor J, Nava R, Jr., Ruiz L, Standard KL et al. Longitudinal study of heart disease in a Jamaican rural population. 2. Factors influencing mortality. *Bull. World Health Organ* 1972;46(6):685-94.

33. Lohr SE. *Sampling Design and Analysis*. Duxbury Press; 1999.

34. *Economic and Social Survey Jamaica 2007*; PIOJ. 2007. Planning Institute of Jamaica.

Ref Type: Report

35. Melki IS, Beydoun HA, Khogali M, Tamim H, Yunis KA. Household crowding index: a correlate of socioeconomic status and inter-pregnancy spacing in an urban setting. *J. Epidemiol. Community Health* 2004;58(6):476-80.

36. Burdette HL, Whitaker RC. A national study of neighborhood safety, outdoor play, television viewing, and obesity in preschool children. *Pediatrics* 2005;116(3):657-62.

37. Lumeng JC. Small-group physical education classes result in important health benefits. *J. Pediatr.* 2006;148(3):418-9.

38. Becker RC, Meade TW, Berger PB, Ezekowitz M, O'Connor CM, Vorchheimer DA et al. The primary and secondary prevention of coronary artery disease: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). *Chest* 2008;133(6 Suppl):776S-814S.

39. Sacco RL, Diener HC, Yusuf S, Cotton D, Ounpuu S, Lawton WA et al. Aspirin and extended-release dipyridamole versus clopidogrel for recurrent stroke. *N. Engl. J. Med.* 2008;359(12):1238-51.

40. Yusuf S, Diener HC, Sacco RL, Cotton D, Ounpuu S, Lawton WA et al. Telmisartan to prevent recurrent stroke and cardiovascular events. *N. Engl. J. Med.* 2008;359(12):1225-37.

41. Blake G, Hanchard B, Mitchell K, Simpson D, Waugh N, Wolff C et al. Jamaica cancer mortality statistics, 1999. *West Indian Med. J.* 2002;51(2):64-7.

42. Hanchard B, Blake G, Wolff C, Samuels E, Waugh N, Simpson D et al. Age-specific incidence of cancer in Kingston and St Andrew, Jamaica, 1993-1997. *West Indian Med. J.* 2001;50(2):123-9.

43. McFarlane, C. P. *Reproductive Health Survey 2002: Jamaica*. 2005. Kingston, National Family Planning Board.

Ref Type: Report

44. Schulte-Herbruggen O, Bahri S, Ropke S. Depressive symptoms and diabetes. *JAMA* 2008;300(18):2115.

45. Anderson SE, Cohen P, Naumova EN, Must A. Association of depression and anxiety disorders with weight change in a prospective community-based study of children followed up into adulthood. *Arch. Pediatr. Adolesc. Med.* 2006;160(3):285-91.

46. Johnson JG, Cohen P, Kasen S, Brook JS. Eating disorders during adolescence and the risk for physical and mental disorders during early adulthood. *Arch. Gen. Psychiatry* 2002;59(6):545-52.

47. Simon GE, Von Korff M, Saunders K, Miglioretti DL, Crane PK, van Belle G et al. Association between obesity and psychiatric disorders in the US adult population. *Arch.Gen.Psychiatry* 2006;63(7):824-30.
48. Neumark-Sztainer D, Story M, French SA, Hannan PJ, Resnick MD, Blum RW. Psychosocial concerns and health-compromising behaviors among overweight and nonoverweight adolescents. *Obes.Res.* 1997;5(3):237-49.
49. Siscovick DS, LaPorte RE, Newman JM. The disease-specific benefits and risks of physical activity and exercise. *Public Health Rep.* 1985;100(2):180-8.
50. Whelton SP, Chin A, Xin X, He J. Effect of aerobic exercise on blood pressure: a meta-analysis of randomized, controlled trials. *Ann.Intern Med* 2002;136(7):493-503.
51. Siscovick DS, LaPorte RE, Newman JM. The disease-specific benefits and risks of physical activity and exercise. *Public Health Rep.* 1985;100(2):180-8.
52. Weinsier RL, Hunter GR, Schutz Y, Zuckerman PA, Darnell BE. Physical activity in free-living, overweight white and black women: divergent responses by race to diet-induced weight loss. *Am.J.Clin.Nutr.* 2002;76(4):736-42.
53. Forrester T, Wilks R, Bennett F, McFarlane-Anderson N, McGee D, Cooper R et al. Obesity in the Caribbean. *Ciba Found.Symp.* 1996;201:17-26.
54. Shaper AG. Obesity and cardiovascular disease. *Ciba Found.Symp.* 1996;201:90-103.
55. Proceedings of a symposium on the origins and consequences of obesity. Kingston, Jamaica, 28-30 November 1995. *Ciba Found.Symp.* 1996;201:1-268.
56. Crespo CJ, Palmieri MR, Perdomo RP, McGee DL, Smit E, Sempos CT et al. The relationship of physical activity and body weight with all-cause mortality: results from the Puerto Rico Heart Health Program. *Ann.Epidemiol.* 2002;12(8):543-52.
57. Eckel RH, York DA, Rossner S, Hubbard V, Caterson I, St Jeor ST et al. Prevention Conference VII: Obesity, a worldwide epidemic related to heart disease and stroke: executive summary. *Circulation* 2004;110(18):2968-75.
58. Hagley KE. Chronic non-communicable diseases and their impact on Caribbean women. *West Indian Med J* 1990;39(1):4-11.
59. Liu K, Ruth KJ, Flack JM, Jones-Webb R, Burke G, Savage PJ et al. Blood pressure in young blacks and whites: relevance of obesity and lifestyle factors in determining differences. The CARDIA Study. Coronary Artery Risk Development in Young Adults. *Circulation* 1996;93(1):60-6.
60. WHO. Diet, nutrition, and the prevention of chronic diseases. Report of a WHO Study Group. *World Health Organ Tech.Rep.Ser.* 1990;797:1-204.
61. Ferguson TS, Younger NO, Tulloch-Reid MK, Wright MB, Ward EM, Ashley DE et al. Prevalence of prehypertension and its relationship to risk factors for cardiovascular disease in Jamaica: analysis from a cross-sectional survey. *BMC.Cardiovasc.Disord.* 2008;8:20.

62. Cruickshank JK, Mbanya JC, Wilks R, Balkau B, Forrester T, Anderson SG et al. Hypertension in four African-origin populations: current 'Rule of Halves', quality of blood pressure control and attributable risk of cardiovascular disease. *J.Hypertens.* 2001;19(1):41-6.
  63. Mendez MA, Cooper R, Wilks R, Luke A, Forrester T. Income, education, and blood pressure in adults in Jamaica, a middle-income developing country. *Int.J.Epidemiol.* 2003;32(3):400-8.
  64. Mendez MA, Cooper R, Wilks R, Luke A, Forrester T. Income, education, and blood pressure in adults in Jamaica, a middle-income developing country. *Int.J.Epidemiol.* 2003;32(3):400-8.
  65. Castelli WP. Epidemiology of coronary heart disease: the Framingham study. *Am.J.Med.* 1984;76(2A):4-12.
  66. Wilson NJ, Seear MD, Taylor GP, LeBlanc JG, Sandor GG. The clinical value and risks of lung biopsy in children with congenital heart disease. *J.Thorac.Cardiovasc.Surg.* 1990;99(3):460-8.
  67. Preventing Cardiovascular Disease WHO 2007. 2007.
- Ref Type: Report