

VANUATU

NCD RISK FACTORS

STEPS REPORT



**World Health
Organization**

Western Pacific Region

Vanuatu

NCD Risk Factors

STEPS REPORT

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CONTENTS

Foreword – Ministry of Health	7
Foreword – World Health Organization	9
Executive Summary.....	11
1. INTRODUCTION	14
1.1 Background and Rationale	14
1.2.1 Geography	14
1.2.2 Population and Living Environment	14
1.2.3 Government, Culture and the Economy	15
1.2.4 Noncommunicable Disease, Health Status and Health Infrastructure.....	15
1.3 Developing WHO STEPS Survey in Vanuatu.....	16
2. OBJECTIVES	16
3. METHODOLOGY	16
3.1 Survey Structure	16
3.2 Survey Sampling Methodology	17
3.2.1 Provincial and Household Level Sampling	17
3.3 Sample Size Calculation and Response Rates	17
3.4 Data Collection Procedures	17
3.4.1 Registration of Participants	17
3.4.2 Step 1 - Behavioural Risk Factors Interviews	18
3.4.3 Step 2 - Physical Measurements	18
3.4.4 Step 3 - Biochemical Measurements.....	19
3.4.5 Check-out Station and Referral	19
3.5 Data Management and Analyses	19
3.5.1 Data Entry	19
3.5.2 Data Weighting and Analysis.....	19
3.5.3 Statistical Significance.....	19
4. RESULTS	20
4.1 Characteristics of Survey Population	20
4.2 Tobacco Use.....	20
4.3 Alcohol Consumption.....	23
4.4 Kava Consumption	26
4.5 Intake of Fruit and Vegetables	27
4.6 Physical Activity	30
4.6.1 Measurements	30
4.6.2 Analysis	30
4.6.3 Levels of Physical Activity.....	30
4.7 History of raised blood pressure and diabetes.....	32
4.8 Overweight and Obesity.....	33
4.8.1 Height and Weight	33
4.8.2 Body Mass Index (BMI) Categories	34
4.8.3 Waist Circumference	35
4.9 Blood Pressure	36
4.10 Fasting Blood Glucose.....	37
4.11 Total Cholesterol.....	38
4.12 Ten year risk of a cardiovascular event.....	39
5. DISCUSSION AND CONCLUSIONS	40
6. RECOMMENDATIONS	41
Appendices	44
Appendix 1 Betel Nut Use.....	44
Appendix 2 Vanuatu STEPS Survey Questionnaire	45
Appendix 3 Vanuatu STEPS Survey Data Book	56
Appendix 4 NCD STEP Survey Facilitators.....	103
Appendix 5 References.....	104
Appendix 6 Key Contacts	105

LIST OF FIGURES

Figure 1	The WHO STEPwise approach to surveillance of NCDs	16
Figure 2	Vanuatu NCD STEPS Survey province and household Samples	17
Figure 3	Sequence of data collection and stations at the survey base	17

LIST OF TABLES

Table 1	Age and gender of study population	20
Table 2	Mean number of years of education by gender and age group	20
Table 3	Percentage of current smokers in the study population by gender and age group	21
Table 4	Current smoking status among men in the study population by age group	21
Table 5	Current smoking status among women in the study population by age group	21
Table 6	Current smoking status among both sexes in the study population by age group	22
Table 7	Mean age started smoking among current daily smokers	22
Table 8	Mean number of years of smoking among current daily smokers	22
Table 9	Percentage of current daily smokers who smoke manufactured cigarettes	23
Table 10	Percentage of alcohol consumption among men during the past 12 months by age group	23
Table 11	Percentage of alcohol consumption among women during the past 12 months by age group	24
Table 12	Percentage of alcohol consumption among both sexes during the past 12 months by age group	24
Table 13	Frequency and quantity of drinks consumed by male drinkers in the last 7 days	25
Table 14	Frequency and quantity of drinks consumed by female drinkers in the last 7 days	25
Table 15	Number of drinks per drinking day among male drinkers by age group	25
Table 16	Number of drinks per drinking day among female drinkers by age group	26
Table 17	Number of drinks per drinking day among both sexes of current drinkers by age group	26
Table 18	Percentage of kava drinkers in the study population	26
Table 19	Percentage smoking while drinking kava in the study population	27
Table 20	Mean number of occasion's kava was consumed over the past 30 days	27
Table 21	Mean number of bowls of kava consumed on each occasion	27
Table 22	Mean number of days in a week fruits consumed by sex and age group	28
Table 23	Mean number of days in a week vegetables consumed by gender and age group	28
Table 24	Mean number of servings of fruits consumed on a day when fruits were eaten	28
Table 25	Mean number of servings of vegetables consumed on a day when vegetables were eaten	29
Table 26	Mean number of combined servings of fruit and vegetables consumed per average day	29
Table 27	Percentage who consumed less than five combined servings of fruit and vegetables per average day	29
Table 28	Categories of total physical activity among men by age group	30
Table 29	Categories of total physical activity among women by age group	31
Table 30	Categories of total physical activity among both sexes by age group	31
Table 31	Level of total physical activity (mean minutes per day) by gender and age group	31
Table 32	Level of work-related physical activity (mean minutes per day) by gender and age group	32
Table 33	Level of transport-related physical activity (mean minutes per day) by gender and age group	32
Table 34	Level of recreation-related physical activity (mean minutes per day) by gender and age group	32
Table 35	Proportion of participants reporting being diagnosed by a doctor or health worker as having raised blood pressure in the last 12 months	33
Table 36	Proportion of participants reporting being diagnosed by a doctor or health worker as having diabetes in the last 12 months	33
Table 37	Mean height (cm) by gender and age group	34
Table 38	Mean weight (kg) by gender and age group	34
Table 39	Mean body mass index (kg/m ²) by gender and age group	34
Table 40	BMI classifications among men by age group	34
Table 41	BMI classifications among women by age group	35
Table 42	BMI classifications among both genders by age group	35
Table 43	Percentage of obesity (BMI≥30) by gender and age group	35
Table 44	Mean waist circumference (cm) by gender and age group	36
Table 45	Mean resting systolic blood pressure (mmHg) by gender and age group	36
Table 46	Mean resting diastolic blood pressure (mmHg) by gender and age group	37
Table 47	Percentage with raised blood pressure (SBP ≥140 and/or DBP ≥ 90 or currently on medication for raised blood pressure)	37
Table 48	Mean fasting blood glucose in mmol/L by gender and age group	38

Table 49	Prevalence of raised blood glucose by gender and age group.....	38
Table 50	Mean total cholesterol (mmol/L) by gender and age group	38
Table 51	Percentage with raised cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl).....	39
Table 52	Percentage of men with <10%, 10-<20%, 20-<30%, 30-<40% and $\geq 40\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years	39
Table 53	Percentage of women with <10%, 10-<20%, 20-<30%, 30-<40% and $\geq 40\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years	40
Table 54	Percentage of men and women with <10%, 10-<20%, 20-<30%, 30-<40% and $\geq 40\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years	40
Table A1	Percentage of current betel nut chewers among men by age group	44
Table A2	Percentage of current betel nut chewers among women by age group.....	44
Table A3	Percentage of current betel nut chewers among both sexes by age group	44

LIST OF ABBREVIATIONS

BMI	Body Mass Index
BP	Blood Pressure
CI	Confidence Interval
DBP	Diastolic Blood Pressure
EA	Enrolment Area
FCTC	Framework Convention on Tobacco Control
ISH	International Society for Hypertension
MET	Metabolic equivalent
mg/dL	Milligrams per decilitre (unit of blood chemistry values)
mmHg	Millimetres of mercury (unit of blood pressure measurement)
mmol/L	Millimoles per litre (unit for blood chemistry values)
MOH	Ministry of Health
NCD	Noncommunicable diseases
NIDM	Non Insulin Diabetes Mellitus
NSHP	National Strategic Health Plan
PDA	Personal Digital Assistant
PICs	Pacific island countries and areas
PHC	Primary Health Care
STEPS WHO	Stepwise approach to NCD surveillance
SBP	Systolic Blood Pressure
SPC	Secretariat of the Pacific Community
UN	United Nations
WHO	World Health Organization

Foreword – Ministry of Health



Vanuatu has reached a health crisis from poor health, disability, suffering, poverty and early deaths brought about by an overwhelming NCD epidemic.

NCDs, principally cardiovascular diseases, diabetes, cancer and chronic respiratory diseases impose a major and growing burden on health and development in Vanuatu. NCDs are the leading causes of death and disability, and responsible for 70% of deaths. However, our people are ill-informed of the risk factors, the disease process and debilitating complications of NCDs.

The national NCD STEPS survey conducted during 2011-2012 was a major undertaking by government, in particular Ministry of Health and National Statistics Office to measure the prevalence of risk factors for NCDs. In this study, more than 4,000 individuals participated, including male and female aged 25-64 years from all six provinces in Vanuatu. They were asked about their lifestyles in order to elicit behavioural risk factors related to tobacco use, alcohol consumption, eating habits and physical inactivity. They also underwent body measurements for overweight and obesity; measurements of blood pressure; and blood tests for glucose and cholesterol.

This report outlines the results of the survey. It reveals eye-opening facts on high prevalence of NCD risk factors and high rates raised blood pressure, blood sugar and cholesterol. The findings also note that the presence of multiple risk factors in the same individuals was high.

The findings of the survey confirm that Vanuatu has significant disease burden attributed to NCDs. It provides the evidence as grounds to step up action to prevent and control NCDs in our country. The actions are needed to:

- Counteract premature death and disability due to NCDs;
- Prevent the emergence of NCDs in children and in future generations;
- Reduce the economic impact of NCDs on individuals, families and national economies;
- Improve the overall health and well-being of all our people.

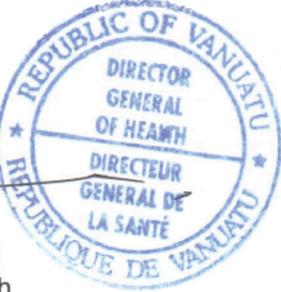
Because of the multi-factorial nature of NCDs, prevention and control strategies need the partnership and engagement of multi-sectoral stakeholders outside the health sector, including relevant government ministries, NGOs, food industries, private sector and the community themselves. The actions point to political commitment on the part of government mobilize resources for NCD programmes; development of a national NCD policy as an overarching framework for action; implementing a multi-sectoral NCD prevention and control strategy; and establishing a monitoring plan to track changes.

The government of Vanuatu is grateful to WHO for its untiring assistance and guidance throughout the conduct of the survey and to arrive at concrete findings. The Ministry of Health is also grateful to

other development partners, in particular AusAid, whose contribution to the survey has greatly assisted in its completion. Lastly, we commend the efforts of our own national statistics office for its technical inputs, the sampling frame and data management; and to the survey field teams without whom this study would not have been made possible.



Minister for Health
Ministry of Health
Vanuatu



Director General
Ministry of Health
Vanuatu

Foreword – World Health Organization



NCDs in Pacific island countries and areas (PICs) account for 75% of all deaths and contribute to significant long term illness and disability, hampering social and economic development. Ministers at the 9th Pacific Health Ministers' Meeting held in June, 2011 declared a NCD crisis in the Pacific requiring urgent attention and Pacific Islands Forum Leaders echoed this call. As part of the global response, the September 2011 political declaration of the High-level Meeting of the UN General Assembly on the Prevention and Control of Non-communicable Diseases called for a comprehensive global monitoring framework including a set of indicators and voluntary global targets.

In light of the size of the NCD problem and the growing political support for action nationally, regionally and globally, this national NCD risk factors report for Vanuatu is timely as it coincides with final agreement at the World Health Assembly in May 2013 on what the global NCD targets and indicators will be. This puts Vanuatu in an excellent position to develop national NCD targets, to report on the status of NCD risk factors globally and to develop national and local policy and programs to address NCDs.

Data contained in the report were collected using the WHO STEPwise Approach to Surveillance of NCD Risk Factors (STEPS). To date, more than 148 countries and areas throughout the world have used this approach to conduct national surveys on risk factors and prevalence of NCDs.

Some of the key results of the Vanuatu STEPS survey were:

- 45.8% of men and 4% of women were current smokers and the mean age of starting smoking was 20.2 years;
- Kava was commonly consumed with over 40% of participants reporting consuming kava; 68% of men and 18% of women. Furthermore kava consumption was associated with tobacco use;
- Over 70% of women and 23% of men reported being lifetime abstainers from alcohol;
- The overall prevalence of obesity was 18.8% and obesity was more prevalent among women (23.3%) than among men (13.9%);
- Overall 58.2% of men and 65.0% of women were eating less than the recommended 5 servings of fruit and vegetables per average day;
- Overall, 73.9% of participants reported high levels of physical activity. Men (81.7% reporting high levels) were more active than women (66.9% reporting high levels);
- 28.6% of the sample were hypertensive (30.8% of men and 26.7% of women);
- 21.2% of participants had raised blood glucose, 21.4% in men and 21.0% in women;

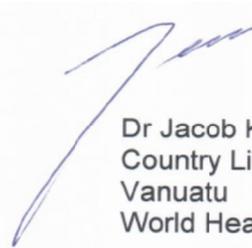
- Over a third of participants (36.5%) had raised total cholesterol levels exceeding 5.0 mmol/L (≥ 190 mg/dl), a greater proportion of men than women (38.4% and 34.7% respectively);
- Overall 3.6% of participants had a >30% risk of a fatal or non-fatal cardiovascular event in the next 10 years.

Compared to other countries in the Pacific, the NCD profile for Vanuatu does not look too bad and the low rates of smoking among women, the high proportion of lifelong abstainers from alcohol among women, the relatively low prevalence of obesity, sufficient fruit and vegetable intakes for at least 40% of the population, and high levels of physical activity should be acknowledged and celebrated. However, tobacco use among men, hypertension, blood glucose and cholesterol levels are of concern and the challenge for Vanuatu is to prevent the NCD epidemic from strengthening its grip. To do this, priority needs to be given to both primary and secondary prevention activities and we commend the Ministry of Health for the priority actions they have identified for reducing modifiable risk factors and for managing existing disease.

WHO is honoured to have been a part of the collaboration that led to the publication of this report and will continue to work with the Ministry of Health and other key stakeholders to address the NCD burden in Vanuatu.



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Executive Summary

The Vanuatu national NCD STEPS survey provides the baseline assessment of the risk factors of non-communicable diseases (NCDs) and their associated risk factors among ni-Vanuatu adults. The survey was conducted between August and October 2011.

The key objectives of the NCD STEPS survey were:

- To determine the prevalence and magnitude of major modifiable risk factors for NCDs including tobacco and betel nut use, kava and alcohol consumption, poor eating patterns, physical inactivity, obesity, raised blood pressure, raised blood glucose and cholesterol levels;
- To compare the prevalence of NCD risk factors across different age groups and between men and women;
- To use data from the NCD Steps Survey to measure potential future disease burden and to propose intervention strategies.

A total of 4,649 individuals (response rate 94%) aged 25-64 participated in the survey. This report presents data and commentary on the sample following the standard 10-year age group reporting for WHO STEPS surveys.

Step 1: Behavioural risk factors

The report shows that ni-Vanuatu start smoking young. The mean age of starting smoking was 20.2 years and younger (18.8 years) in the 25-34 age group suggesting that it is dropping. Men were much more likely to smoke than women. There was a tenfold difference in current smoking prevalence between men and women with 45.8% of men and only 4% of women being current smokers. Manufactured cigarettes were the most common cigarettes smoked, particularly by women.

Kava was commonly consumed with over 40% of participants reporting consuming kava; 68.1% of men and 18.3% of women. On average, men also consumed twice the amount of kava as women. Kava consumption was associated with smoking cigarettes in all age groups, but particularly among people aged 25-34 years, where almost three quarters of men (73.7%) and over a quarter (28.2%) of women smoked while drinking kava.

Alcohol consumption in Vanuatu was not widespread with just 12.0% of men and less than 3% of women classified as current drinkers and over 70% of women and 23% of men reported being lifetime abstainers from alcohol. Among those who drank alcohol, 21.9% of men and 15.2% of women exhibited binge drinking behaviour on at least one drinking occasion.

Fruit was consumed on average on 3.9 days a week and vegetables on 5.5 days a week. Men reported marginally higher mean days of fruit consumed in a typical week than women, overall and across all age groups, but a similar rate of vegetable consumption. Overall 58.2% of men and 65.0% of women were eating less than the recommended 5 servings of fruit and vegetables per average day.

Overall, 73.9% of participants reported high levels of physical activity, 14.4% moderate levels and 11.7% low levels. Men were more active than women with 81.7% of men reporting high levels of physical activity compared to 66.9% of women. Also, men engaged in physical activity for a mean of 336.0 minutes per day compared to a mean of 232.5 minutes per day for women. Across all age groups, men reported engaging in more minutes of work, transport and recreation activity than women.

Step 2: Physical risk factors

Men were on average significantly taller and heavier (167.8cm and 72.2kg) than women (158.7cm and 67.6kg). In both sexes, height varied little across age groups. Average weight among both men and women peaked in the 45-54 year age group (75.5kg and 70.6kg respectively).

Body Mass Index (BMI) scores placed women with higher mean BMI (26.7kg/m²) than men (25.5 kg/m²) in all age groups. The mean BMI for both men and women was highest in the 45-54 age group. The proportion of the total sample classified as being overweight was 50.9% (males 45.5% and females 55.9%), while 47.3% were classified as normal and 1.8% as underweight. The overall prevalence of obesity was 18.8%. The obesity rate was significantly higher among women (23.3%) than among men (13.9%). The highest prevalence of obese women (32.4%) and men (23.1%) was in the 45-54 age group.

Waist circumference was assessed as a measure of central obesity. Women had a higher mean waist circumference (79.7cm) than men (75.0cm). Mean waist circumference varied more with age in men than in women and was highest in both sexes in age group 45-54 and in females aged 55-64.

Raised blood pressure (defined as having SBP \geq 140 mmHg and/or DBP \geq 90 mmHg or on medication for raised blood pressure) was found in 28.6% of the sample (30.8% of men and 26.7% of women), increasing with age in both sexes. From the 25-34 age group to the 55-64 age group, the rate of hypertension among men more than doubled (22.4% to 52.6%) and the rate among women increased almost fivefold (12.0% to 57.8%).

Step 3. Biochemical risk factors

The mean fasting blood glucose level was 5.7 mmol/L for both men and women and increased with age.

Based on measures of fasting capillary whole blood, the overall prevalence of raised blood glucose (fasting glucose level \geq 6.1 mmol/L or on medication for raised blood glucose) was 21.2% and similar in both men (21.4%) and women (21.0%). More than one fifth of the sample from age 35-44 had raised blood glucose; increasing to a quarter of both men and women aged 45-54, and to a third of women aged 55-64. The onset of adult diabetes is evident from the increase in raised blood glucose among age group 35-44.

Over a third of the sample (36.5%) had raised total cholesterol levels exceeding 5.0 mmol/L (\geq 190 mg/dl), a greater proportion of men than women (38.4% and 34.7% respectively). In the age group 45-54, almost half of both men and women (46.2% and 49.1% respectively) had raised blood cholesterol.

Risk of a fatal or non-fatal cardiovascular event in the next 10-years

The risk of developing a NCD accumulates with the number of risk factors an individual has. The absolute risk of a fatal or non-fatal cardiovascular event in the next 10-years was assessed for all individuals surveyed based on age, raised blood glucose, smoking status, blood pressure and total cholesterol. Overall, 3.6% of participants had a $>$ 30% risk of a fatal or non-fatal cardiovascular event in the next 10 years. The proportion of participants above a 30% level of risk increased in a step-wise fashion across the three age groups.

Conclusions & Recommendations

The Vanuatu NCD STEPS survey showed some positive findings with respect to the modifiable risk factors of tobacco use, alcohol consumption, physical activity and fruit and vegetable intake. However, levels of raised blood pressure, raised blood glucose and total cholesterol were of concern. Moreover, in the oldest age group (55-64 years), 11.4% of men and 4.9% of women had a 30% or greater absolute risk of a fatal or non-fatal cardiovascular event in the next 10 years. NCDs are clearly a public health concern and these diseases are already impacting on the health system.

The survey has produced evidence for developing relevant policy and strategy towards preventing and managing non-communicable diseases in Vanuatu - particularly when we know that risk can be modified by effective policy and preventative interventions. The survey confirms that raised blood glucose and high blood pressure are prevalent but at the same time, also provides encouraging evidence that certain risk factors are not as prevalent as observed in other Pacific Islands countries, such as tobacco smoking and the use of alcohol. The findings suggest existing prevention strategies should be maintained and further expanded while policy actions are developed to facilitate a multi-sectoral whole-of-country response in scaling up a core set of interventions to tackle NCDs. Of concern was the finding that smoking was already present before the age of survey inclusion, highlighting the need for effective health promotion and disease prevention activities among younger people.

When compared to the *1998 Vanuatu NCD Survey Report* the obvious change is in the increased prevalence of diabetes, although the authors of the 1998 NCD Survey raised the potential of sampling error. Using the same definitions, the prevalence of diabetes appears to have increased from 2.8% in 1998 to 21.2% in 2011. Obesity increased from 15.9% to 18.8% and was particularly noticeable for women, increasing from 19.6% to 23.3%.

The following recommendations are outlined as priority actions for Vanuatu:

Based on the findings of this NCD risk factor survey, a number of recommendations have been identified for government, the Ministry of Health and stakeholders. They are outlined in detail in the discussion and conclusions section of the report and summarized here.

It is recommended that the government develop a national NCD policy response that positions NCD interventions at the highest level of the development agenda and that support is given to the implementation of the policy actions through political commitment and resource mobilization.

The Ministry of Health is called on to take a lead role in the coordination of a multi-sectoral NCD prevention and control strategy that engages relevant stakeholders and includes efforts to expand screening, initiate early diagnosis and treatment, and strengthen NCD management to prevent major complications, disability and premature deaths. Close collaboration between staff within the Minister of Health is needed to achieve this and to ensure system support for NCD interventions at all levels of health care and especially at primary level. Also needed is adequate staffing within the Ministry, essential technology and medicines, health financing, health facility capacity, referrals and support for health information. Reciprocally, improved delivery of essential NCD interventions will strengthen the delivery of health services in all areas.

It is also recommended that the Ministry of Health establish, lead and maintain a functional surveillance system to monitor essential NCD data in an ongoing and systematic way so that Vanuatu is able to measure changes in the NCD disease burden over time. The system should include the collection of relevant mortality and morbidity data so that Vanuatu is able to measure progress against the global goal of reducing premature (between ages 30 and 70 years) deaths by 25% by 2025. As part of the surveillance system, ongoing national NCD STEPS surveys are recommended every five to seven years, supplemented by mini STEPS surveys every two years to determine the effectiveness, or otherwise, of NCD prevention and control measures. Finally, Vanuatu is encouraged to make this data available for country comparisons and to participate in reviewing inter-country interventions so that best-practice approaches for NCD prevention and control can be adopted.

1. INTRODUCTION

1.1 Background and Rationale

In all countries across the globe, regardless of size or stage of economic development, non-communicable diseases (NCDs) are responsible for a high proportion of death and disability. In developing countries, the burden of disease caused by NCDs is increasing rapidly and there are significant social, economic, and health consequences for these countries. The 2004 *Global Burden of Disease* study concluded for the world that “cardiovascular diseases were responsible for the largest proportion of NCD deaths under the age of 70 (39%), followed by cancers (27%). Chronic respiratory diseases, digestive diseases and other NCDs were together responsible for approximately 30% of deaths, and diabetes was responsible for 4%” (WHO 2008).

WHO (2004) have stated that “behavioural risk factors, including tobacco use, physical inactivity, and unhealthy diet, are responsible for about 80% of coronary heart disease and cerebrovascular disease”. The 2010 *Global status report on noncommunicable diseases* (WHO 2011) stated that “in low- and middle-income countries, 29% of NCD deaths occur among people under the age of 60, compared to 13% in high-income countries”.

Based on current trends, by the year 2020 these diseases are predicted to account for 73% of deaths and 60% of the world’s disease burden (WHO NCD Surveillance Strategy 2012). These increases are consistent with the epidemiological transition from predominantly communicable to noncommunicable causes of death and disease. Unless the rise in NCD morbidity and mortality can be reversed the disability and dependency that accompanies NCDs will continue to be a major burden on families, health facilities and nations.

STEPS surveys are intended to be repeated periodically with the same methodology. This 2011 survey provides a baseline to assist in determining the directions of risk factor behaviour changes and the effectiveness, or otherwise, of NCD prevention and control measures over time. In the immediate term, this STEPS report provides information to inform people about the risks of their consumption of tobacco, alcohol and unhealthy foods and levels of physical activity. It also provides evidence for national policy development in areas where population health gains can be made by action both within and outside the health sector: by improving food production and availability; regulating trade and advertising; and providing education and infrastructure to support healthier choices by groups and individuals.

1.2 The National Context

Vanuatu has been inhabited for over 4000 years and first came into brief contact with Europeans in 1606, followed by James Cook in 1774 and then French and English missionaries, traders, and ‘black birders’ who took local people as slaves to work in the sugar cane plantations in Australia. After some 74 years of joint “Condominium” rule between Britain and France, Vanuatu received independence on the 30th July 1980.

1.2.1 Geography

The Vanuatu government web site describes Vanuatu as “an archipelago of approximately 83 islands situated in the South-western Pacific Ocean, about 1,750 kilometres east of Australia and 500 kilometres northeast of New Caledonia. The Republic of Vanuatu lies between latitude 130 south and 230 south and longitude 1660 east and 1720 east. The total land area is approximately 12,200 square kilometres and the territorial waters cover 450,000 square kilometres”.

1.2.2 Population and Living Environment

The 2009 Census of Population and Housing reported the total population of Vanuatu as 234,023 in November 2009, 75% of whom lived in rural areas. The population has grown from 187,000 in 1999 with a growth rate of 2.3% per annum. In 1999, 39% of the population were aged less than 15

years, 19% were aged 15-24 years, 36% 25-59 years and 6% >60 years. The majority population is Melanesian (95%).

The living environment of Vanuatu is a tropical seasonally wet and dry climate where subsistence farming and fishing have sustained Ni-Vanuatu¹ for generations.

1.2.3 Government, Culture and the Economy

The Republic of Vanuatu is a parliamentary republic formerly known as the New Hebrides. On December 1994, the 11 Local Government Councils were converted into 6 semi-autonomous provinces (Malampa, Penama, Sanma, Shefa, Tafea, Torba) under the control of the national Government. The capital is located at Port Vila on Efate Island. The national government administers the nation's 13 government ministries.

The Vanuatu Ministry of Health (MOH) web pages states "the MoH is guided by the Health Sector strategy (HSS) (2010–2016)...which defines our vision for the development of the health sector in the country. It provides broad objectives and the strategies to be employed in meeting them".

The culture of Vanuatu is predominantly Melanesian and animist with strong traditions of ancestral linkages between the land and people. Clan allegiances are strong and social structure patrilineal or matrilineal depending on your location in the archipelago. There are over 100 languages spoken. Christianity has provided a more recent overlay of modern religion but is interpreted through similarities to ancient cultural beliefs.

The economy of Vanuatu is based on rural small-scale agriculture, which provides a living for the bulk of the rural population. Fishing, tourism and offshore financial services are important components of the economy. Mineral deposits are thought to be negligible. Tax revenues come mainly from import duties. Economic development is limited by exports dependent on fluctuating world prices (copra, beef, cocoa, timber, kava and coffee) and the long distances from markets.

1.2.4 Noncommunicable Disease, Health Status and Health Infrastructure

In 2000 the Secretariat of the Pacific Community (SPC) published the 1998 Non-Communicable Disease Survey Report (Carlot-Tary et al 2000) conducted with the Vanuatu Ministry of Health. The sample of 1620 participants was selected from 100 households in each of three randomly selected villages in each province. While not directly comparable to the NCD STEPS survey's sample size and selection process, the report found that one third of all respondents were classified as being overweight and a further 15.9% as obese, with obesity more common among women (19.6% as to 12.2% for men). More than half (51.9%) of all women and almost a half (45.9%) of men were overweight. Thirteen percent of the sample was hypertensive increasing with age in both males and females. The prevalence of diabetes was found to be low at 2.8% of the sample. Males consumed more alcohol, tobacco and kava than women. The Report stated that "in general, rates of obese and overweight conditions, and hypertension and borderline hypertension, have increased since 1985 by as much as 10%... however the rates of diabetes and impaired glucose tolerance have remained steady".

The World Health Organization - *NCD Country Profiles* , 2011 states that NCDs are estimated to account for 70% of all deaths in Vanuatu, 36% of which are due to cardiovascular diseases, 13% to other NCDs, 12% to cancers, 6% to respiratory diseases and 4% to diabetes.

NCD services in Vanuatu are provided at the primary and secondary care levels. Inpatient services are available at all provincial hospitals with specialised care at the 2 referral hospitals in Port Vila and Luganville and specialist Outpatient Department care for follow-up and the prevention of disability and disease progression. Although the follow-up of these patients can be made at the primary level, the health system has not built sufficient capacity to provide the essential care required. However, with the recent introduction of the concept of the Package of Essential NCD interventions (PEN) at the primary care level, the Ministry is optimistic that better care and referrals for NCD patients at Health Centre and Dispensary levels can be provided. The impetus for the

¹ This term denotes nationals or citizens of Vanuatu, particularly those of Melanesian origin.

Ministries work in these areas comes from commitments made at the Pacific Ministers for Health meeting 1995 as part of the Yanuca Islands Declaration to revitalise of Primary Health Care and uphold the vision of Healthy Islands.

1.3 Developing WHO STEPS Survey in Vanuatu

The survey was conducted by the Vanuatu Ministry of Health between August and October 2011, with technical support provided by Vanuatu National Statistics Office and the World Health Organization.

2. OBJECTIVES

The overall aim of the NCD STEPS risk factor survey was to investigate the prevalence of key NCDs and their associated risk factors. Specifically, the STEPS survey:

- Documents the prevalence and magnitude of major modifiable risk factors for NCDs including smoking, alcohol consumption, poor eating patterns, physical inactivity, obesity, high blood pressure, raised blood glucose and cholesterol; and
- Compares NCDs and their risk factors by age and gender groups.

3. METHODOLOGY

3.1 Survey Structure

Vanuatu STEPS survey followed a sequential three-step process as follows (Figure 1):

Step 1: A questionnaire-based (interview) survey on tobacco use, alcohol drinking, kava drinking, betel nut use², fruit and vegetable consumption, physical activity and history of raised blood pressure and diabetes.

Step 2: Physical measures of blood pressure, height, weight, and waist circumference.

Step 3: Biochemical measures of fasting blood glucose and total cholesterol.

Similar to other STEPS surveys conducted in the Pacific region, the Vanuatu survey collected core information across the three steps. STEPS standardized survey methodology was followed (see www.who.int/chp/steps/en/). This approach ensures that Vanuatu has available population-wide and representative data for between-country comparisons as well as within-country comparisons. In future surveys, Vanuatu could add more questions or measurements to the core questions, depending on local needs.

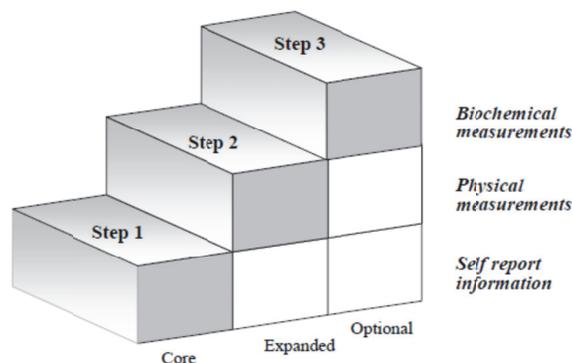


Figure 1. The WHO STEPwise approach to surveillance of NCDs

² Due to the low prevalence of betel nut use, data on this behaviour are not presented in the main report but summarized in the Appendix.

3.2 Survey Sampling Methodology

3.2.1 Provincial and Household Level Sampling

The survey used a cluster sampling design where the primary sampling unit was enumeration area (EA) and the secondary sampling unit was households. All 6 provinces in Vanuatu were included in the survey. One hundred and thirteen (113) EAs were randomly selected proportion to the size of the EA from a total of 411 EAs. Forty four (44) households were then randomly selected in each EA proportional to the number of households in each EA. The selection of participants within each household was done using the Kish method. The total number of households selected by combined Enrolment Areas was 4,972.

Figure 2 Vanuatu NCD STEPS Survey province and household Samples

PROVINCE	TOTAL HOUSEHOLDS	HOUSEHOLDS SELECTED
TORBA	588	176
SANMA	2,817	968
PENAMA	1,779	704
SHEFA	4,391	1,672
MALAMPA	2,290	836
TAFEA	1,646	616
TOTAL	13,511	4,972

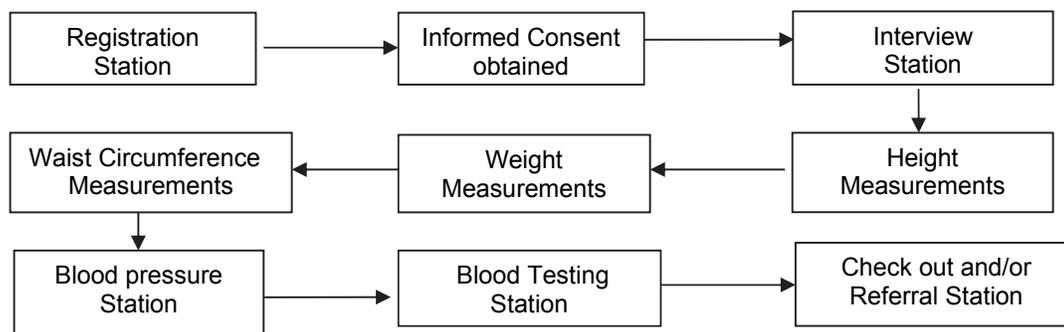
3.3 Sample Size Calculation and Response Rates

The required sample size was calculated as 4972 households on a margin of error of 0.05, an anticipated response rate of 89% and with 80% power to detect statistically significant differences between six age/sex groups. Accordingly, from the 4,972 selected households 4,649 individuals aged 25-64 years participated in STEP 1 and STEP 2 giving an overall response rate of 94%. The response rate dropped to 85% for STEP 3 with 4,224 people participating.

3.4 Data Collection Procedures

The survey was conducted between August and October 2011. Survey personnel (see appendix 4) obtained informed consent from survey participants and gave them fasting instructions. In all study areas the same procedure for selecting eligible participants were followed (figure 3).

Figure 3: Sequence of data collection and stations at the survey base



3.4.1 Registration of Participants

Individual household summary forms and a household tracking form were used to keep track of the number of participants. At the registration station, survey staff assigned participant ID numbers, confirmed informed consent, participants' date of birth, fasting status, and explained to participants all the steps involved in the survey.



A Survey Team loads a speedboat to get to the islands



A truck goes with the survey

3.4.2 Step 1 - Behavioural Risk Factors Interviews

All participants completed a face-to-face interview in which questions were asked on smoking, alcohol consumption, betel nut use, fruit and vegetable consumption, physical activity and history of chronic conditions and medications. Participants were also asked about the number of years of formal education. Responses were recorded on a paper questionnaire.



Interviews take place under trees

3.4.3 Step 2 - Physical Measurements

Trained survey staff conducted the physical measurements following the recommended STEPwise protocols. The OMRON M4 Digital Automatic Blood Pressure Monitor was used to measure resting blood pressure. Blood pressure was measured three times; the first reading followed by two more measurements taken with 2-3 minute intervals in between. The three readings of the blood pressure were recorded, and the average of the second and third readings was used in the analysis.



LEFT: A community school provides a classroom to facilitate field work. *RIGHT:* Data collection in progress

Height and weight were measured once using the Seca Leicester Height Measure to the nearest 0.1 cm and the Siltec PS500L to the nearest 0.1 kg, respectively. Participants were measured without shoes and wearing only light clothing. Waist circumference was measured once using the Figure Finder constant tension tape and recorded to the nearest 0.1 cm. Waist circumference was not measured for pregnant women.

3.4.4 Step 3 - Biochemical Measurements

The survey included assessments of fasting blood glucose and fasting total cholesterol. Participants fasted from 10:00pm the previous night. Testing commenced at 6.00am the following morning, when capillary blood samples were drawn using the method of finger prick.



Skilled nurse checks fasting blood glucose and cholesterol behind truck in the middle of bush

3.4.5 Check-out Station and Referral

Participants who were identified as being at high risk of developing, or with, advanced chronic conditions were referred for a follow-up clinical examination.

3.5 Data Management and Analyses

3.5.1 Data Entry

Submitted questionnaires were checked randomly by Team Leaders and Supervisors to assess overall quality of data collection and completeness. Data entry was conducted by the data entry team at the Ministry of Health office using EpiData software configured for double data entry.

3.5.2 Data Weighting and Analysis

Post-stratification weights were calculated using population projections based on Vanuatu 2009 census of the population aged 25-64 years in 10 year age groups following the standard age group reporting for WHO STEPS surveys. This weighting adjusted for certain age/sex stratum being either over-represented or under-represented in the survey data. Weighted sample means were computed for continuous variables. Frequency distributions were calculated using weighted frequencies for categorical variables. For both weighted frequency estimates and weighted means, 95% confidence intervals were reported by 10-year age groups and gender.

With support from the WHO Office in Suva, the WHO Office in Geneva performed final data cleaning, data weighting, and analysis. Data analyses were conducted using the EpiInfo 2002 Version 3.5.1. The WHO Office in Suva compiled the Data Book – a comprehensive summary of all data collected as part of the survey (see appendix).

3.5.3 Statistical Significance

The data are reported alongside their confidence intervals. A statistically significant difference is achieved when the mean value of one measure is not included within the confidence intervals of the measure to which it is compared.

4. RESULTS

4.1 Characteristics of Survey Population

The study included 4,649 (94% response rate) Ni-Vanuatu aged 25-64 years. Ten year age groups follow the standard age group reporting for WHO STEPS surveys. A smaller number of 4,272 participated in STEP 3.

Table 1 presents the age and gender distribution of the survey sample. A similar number of men and women were surveyed in all age groups except for the oldest age group, where women were fewer than men.

Table 1 Age and gender of study population

Age group and sex of respondents							
Age Group (years)	Men		Women		Both Sexes		
	n	%	N	%	N	%	
25-34	725	47.0	819	53.0	1544	33.2	
35-44	690	49.7	697	50.3	1387	29.8	
45-54	497	49.6	506	50.4	1003	21.6	
55-64	421	58.9	294	41.1	715	15.4	
25-64	2333	50.2	2316	49.8	4649	100	

Table 2 presents the mean years of education of the survey respondents. Men reported a marginally higher mean number of years of education than women: 6.9 years and 6.4 years respectively. For both genders, the youngest age group (25-34 years) reported the highest mean years of education (7.5), while the oldest age group (55-64 years) reported the lowest and a year longer for men (5.5 years) than for women (4.4 years).

Table 2 Mean number of years of education by gender and age group

Mean number of years of education							
Age Group (years)	Men		Women		Both Sexes		
	N	Mean	N	Mean	n	Mean	
25-34	693	7.6	777	7.5	1470	7.5	
35-44	656	7.2	649	6.4	1305	6.8	
45-54	467	6.7	469	5.7	936	6.2	
55-64	384	5.5	262	4.4	646	5.0	
25-64	2200	6.9	2157	6.4	4357	6.6	

4.2 Tobacco Use

Tobacco use was measured by asking participants if they currently smoke tobacco products. Respondents were categorized into the following smoking status categories:

- Current smokers – those who had smoked any tobacco product (such as cigarettes, cigars or rolled tobacco) in the past 12 months;
 - Daily smokers – those who smoke any tobacco product every day;
 - Non-daily smokers – those current smokers who do not smoke on a daily basis;
- Non-smokers – those who had never smoked.

Table 3 shows that 23.7% of all respondents were current smokers, 45.8% of men and 4.0% of women. This major difference between the sexes in smoking behaviour exceeded ten-fold in all age groups except the 25-34 group, which had the highest proportion of current smokers among women (6.2%).

Table 3 Percentage of current smokers in the study population by gender and age group

Age Group (years)	Percentage of current smokers								
	Men			Women			Both Sexes		
	n	% Current smoker	95% CI	N	% Current smoker	95% CI	n	% Current smoker	95% CI
25-34	722	56.0	51.3-60.7	815	6.2	4.0-8.4	1537	29.3	26.0-32.5
35-44	689	46.7	42.2-51.1	692	2.6	1.4-3.8	1381	23.0	20.5-25.5
45-54	493	34.2	30.0-38.5	505	2.1	0.8-3.4	998	17.5	15.1-19.9
55-64	420	29.8	24.3-35.3	292	2.6	0.2-5.0	712	16.2	12.6-19.9
25-64	2324	45.8	43.1-48.6	2304	4.0	2.9-5.2	4628	23.7	21.8-25.6

Table 4 shows that 26.5% of male respondents had never smoked and a further 27.7% had smoked in the past (past smokers). One-quarter (24.6%) of male participants smoked on a daily basis and almost one third (32.6%) of men aged 25-34 years were daily smokers. The proportion of daily smokers was lower in the age group 35-44 but the proportion of non-daily smokers was the same as men aged 25-34 years suggesting that a reasonable number of men in this age group quit (see correspondingly higher proportion of past smokers).

Table 4 Current smoking status among men in the study population by age group

Age Group (years)	Smoking status								
	Men								
	N	Current smoker			Non-smokers				
% Daily		95% CI	% Non-daily	95% CI	% Past smoker	95% CI	% Never smoker	95% CI	
25-34	722	32.6	28.1-37.2	23.4	19.5-27.2	21.1	17.7-24.5	22.9	19.1-26.7
35-44	689	23.0	18.7-27.4	23.6	19.2-28.0	26.9	23.4-30.4	26.4	22.6-30.3
45-54	493	18.2	14.2-22.3	16.0	12.7-19.3	33.3	28.2-38.3	32.5	27.3-37.7
55-64	420	12.2	8.6-15.9	17.6	13.1-22.1	42.0	36.0-48.0	28.2	22.4-34.0
25-64	2324	24.6	22.0-27.2	21.2	18.9-23.5	27.7	25.4-30.1	26.5	24.0-28.9

Table 5 shows that 80.2% of women respondents had never smoked and a further 15.8% were past smokers. Current smokers (4.1%) comprised the balance, of whom, 1.6% smoked on a daily basis. The highest proportion of both daily (2.1%) and non-daily smokers (4.2%) were in the youngest age group, decreasing in age groups 35-54 and decreasing further in age group 55-64. In the youngest age group (25-34) the combined proportions of past smokers (21.2%) and current smokers (6.3%) indicates that a quarter of the group had tried smoking at a young age.

Table 5 Current smoking status among women in the study population by age group

Age Group (years)	Smoking status								
	Women								
	N	Current smoker			Non-smokers				
% Daily		95% CI	% Non-daily	95% CI	% Past smoker	95% CI	% Never smoker	95% CI	
25-34	815	2.1	1.0-3.1	4.2	2.4-5.9	21.2	18.0-24.3	72.6	69.0-76.2
35-44	692	1.2	0.4-2.0	1.4	0.5-2.3	11.5	8.5-14.4	85.9	82.9-88.9
45-54	505	1.4	0.4-2.5	0.7	0.1-1.3	11.2	7.9-14.5	86.7	83.3-90.2
55-64	292	0.7	0.0-2.0	2.0	0.0-4.0	14.2	9.6-18.9	83.1	77.9-88.4
25-64	2304	1.6	1.0-2.1	2.5	1.6-3.3	15.8	13.8-17.7	80.2	77.9-82.5

Table 6 presents the prevalence of daily smokers, non-daily smokers and non-smokers for men and women combined. Overall, 23.7% of respondents were smokers (12.4% daily and 11.3% non-daily) and 76.3% were non-smokers (54.9% never smoked and 21.4% were past smokers). The highest proportion of daily smokers in both sexes was in age group 25-34.

Table 6 Current smoking status among both sexes in the study population by age group

Smoking status									
Age Group (years)	Both Sexes								
	N	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Past smoker	95% CI	% Never smoker	95% CI
25-34	1537	16.2	13.8-18.7	13.0	10.8-15.3	21.1	18.8-23.5	49.6	46.3-52.8
35-44	1381	11.3	9.2-13.5	11.7	9.4-13.9	18.6	16.1-21.2	58.4	55.3-61.5
45-54	998	9.5	7.5-11.5	8.0	6.3-9.8	21.8	18.8-24.8	60.7	57.3-64.2
55-64	712	6.5	4.5-8.4	9.8	6.8-12.7	28.1	24.0-32.2	55.7	50.3-61.0
25-64	4628	12.4	11.0-13.8	11.3	10.0-12.6	21.4	19.7-23.0	54.9	52.8-57.1

Table 7 shows that, among current daily smokers, the mean age of starting smoking was 20.2 years for men and 21.0 years for women. That the age of smoking uptake has fallen is suggested by the lowest reported mean age of started smoking (18.8 years) occurring in men in the youngest age group, comprising 46% of the sample of current smokers.

Table 7 Mean age started smoking among current daily smokers

Mean age started smoking									
Age Group (years)	Men			Women			Both Sexes		
	N	Mean age	95% CI	N	Mean age	95% CI	n	Mean age	95% CI
25-34	205	18.8	18.1-19.5	13	--	--	218	18.8	18.2-19.5
35-44	134	21.1	20.0-22.2	8	--	--	142	21.1	19.9-22.3
45-54	76	23.2	21.4-25.0	7	--	--	83	23.1	21.4-24.8
55-64	39	22.0	19.7-24.4	2	--	--	41	22.7	20.2-25.2
25-64	454	20.2	19.7-20.7	30	21.0	--	484	20.2	19.7-20.8

-- N to small to report figures

Table 8 shows that among current daily smokers overall, the mean number of years of smoking was 15.6 years. Men and women reported similar mean durations of smoking (15.6 to 15.7 years). The mean number of years (9.8) of smoking among the youngest age group (25-34) of men indicates that many current smokers had commenced smoking in teenage years.

Table 8 Mean number of years of smoking among current daily smokers

Mean duration of smoking									
Age Group (years)	Men			Women			Both Sexes		
	N	Mean duration	95% CI	N	Mean duration	95% CI	n	Mean duration	95% CI
25-34	205	9.8	9.0-10.5	13	--	--	218	9.8	9.0-10.5
35-44	134	17.4	16.2-18.6	8	--	--	142	17.5	16.3-18.7
45-54	76	25.7	23.8-27.6	7	--	--	83	25.7	23.9-27.5
55-64	39	37.9	35.2-40.6	2	--	--	41	37.4	34.8-40.0
25-64	454	15.6	14.6-16.6	30	15.7	--	484	15.6	14.6-16.6

-- N to small to report figures

Table 9 shows that manufactured cigarettes 52.2% were the most common cigarettes smoked by current daily smokers, particularly by women (50.2% of men and 80.7% of women) and that age had little impact on choice until the oldest age group. Almost half of men current smokers in all age groups, and over two thirds in the oldest age group, smoked alternatives to manufactured cigarettes and these were predominantly hand-rolled cigarettes and pipes.

Table 9 Percentage of current daily smokers who smoke manufactured cigarettes

Manufactured cigarette smokers among daily smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI
25-34	228	53.1	44.3-62.0	15	--	--	243	55.5	46.9-64.1
35-44	162	47.8	37.6-58.0	8	--	--	170	50.0	40.3-59.7
45-54	87	51.6	38.5-64.6	8	--	--	95	53.4	41.3-65.5
55-64	50	30.6	14.5-46.7	2	--	--	52	29.1	13.3-44.8
25-64	527	50.2	43.6-56.7	33	80.7	66.5-95.0	560	52.2	45.9-58.6

-- N to small to report figures

4.3 Alcohol Consumption

This section describes patterns of alcohol consumption. Respondents were asked if they ever consumed alcohol and, if so, the frequency and quantity of alcohol consumed. Those who had consumed an alcoholic drink in the past 30 days were classified as 'current drinkers'. Tables 10-17 summarise the prevalence of alcohol consumption among men, women and both genders combined.

Table 10 shows a quarter (22.3%) of males reported being lifetime abstainers from alcohol while only 11.9% were classified as current drinkers; with the highest proportion of current drinkers being among men aged 25-34 years (17.3%).

Table 10 Percentage of alcohol consumption among men during the past 12 months by age group

Alcohol consumption status									
Age Group (years)	Men								
	n	% Lifetime Abstainer	95% CI	% Past 12 months abstainer	95% CI	% (drank in past 12 months but not current drinker)	95% CI	% Current drinker (drank in past 30 days)	95% CI
25-34	691	18.5	14.9-22.0	36.3	31.9-40.7	27.9	24.0-31.9	17.3	13.7-20.9
35-44	673	23.5	19.9-27.0	42.8	37.9-47.8	21.9	17.9-26.0	11.8	8.0-15.6
45-54	482	28.0	23.7-32.3	48.5	43.2-53.8	16.3	12.1-20.6	7.1	4.2-10.0
55-64	412	22.9	18.4-27.4	62.7	57.0-68.4	11.3	6.6-16.0	3.1	1.4-4.8
25-64	2258	22.3	20.0-24.6	43.9	40.8-46.9	21.9	19.3-24.4	11.9	9.8-14.1

In comparison, Table 11 shows significantly lower alcohol consumption by women, as 71.9% of women reporting being lifetime abstainers and only 2.4% of women were classified as current drinkers.

Table 11 Percentage of alcohol consumption among women during the past 12 months by age group

Alcohol consumption status									
Women									
Age Group (years)	N	% Lifetime Abstainer	95% CI	% Past 12 months abstainer	95% CI	% (drank in past 12 months but not current drinker)	95% CI	% Current drinker (drank in past 30 days)	95% CI
25-34	810	65.8	61.1-70.6	23.5	19.8-27.2	7.7	5.3-10.0	2.9	1.3-4.5
35-44	693	73.5	69.3-77.7	18.4	14.8-22.1	5.6	3.7-7.5	2.5	1.0-4.0
45-54	503	76.6	72.8-80.4	18.5	14.7-22.3	3.0	1.2-4.9	1.9	0.5-3.3
55-64	292	82.5	76.9-88.2	14.8	9.6-19.9	1.4	0.0-2.9	1.3	0.0-2.6
25-64	2298	71.9	68.9-74.9	20.2	17.7-22.6	5.5	4.2-6.8	2.4	1.3-3.5

Table 12 shows that almost half (48.8%) of the combined sample reported being lifetime abstainers, another 31.2% had abstained for the past 12 months and only 6.8% were classified as current drinkers.

Table 12 Percentage of alcohol consumption among both sexes during the past 12 months by age group

Alcohol consumption status									
Both Sexes									
Age Group (years)	N	% Lifetime Abstainer	95% CI	% Past 12 months abstainer	95% CI	% (drank in past 12 months but not current drinker)	95% CI	% Current drinker (drank in past 30 days)	95% CI
25-34	1501	44.3	40.7-47.8	29.4	26.7-32.0	16.9	14.4-19.4	9.5	7.5-11.4
35-44	1366	50.6	46.8-54.4	29.6	26.0-33.2	13.1	10.8-15.3	6.7	4.7-8.7
45-54	985	53.4	49.7-57.1	32.8	29.0-36.6	9.4	7.1-11.6	4.4	2.8-6.0
55-64	704	52.8	48.3-57.3	38.6	34.2-43.1	6.3	3.7-9.0	2.2	1.1-3.3
25-64	4556	48.8	46.4-51.3	31.2	28.9-33.4	13.1	11.7-14.6	6.8	5.5-8.2

Table 13 and 14 present information on current drinkers by the frequency (number of drinking days) of alcohol consumption, quantity of drinks consumed (number of drinks on any drinking day) and the proportion that drank more than 20 alcohol drinks in the past 7 days.

Table 13 shows that over a fifth (21.9%) of male drinkers consumed 5 or more drinks on any drinking day and 4.9% drank 20 or more drinks over the 7 day period. The highest proportion that drank 5 or more standard drinks (i.e. 'binge drinking' for males) on any day was in the 35-44 years age group (32.2%).

Table 13 Frequency and quantity of drinks consumed by male drinkers in the last 7 days

Frequency and quantity of drinks consumed in the last 7 days							
Age Group (years)	Men						
	n	% Drank on 4+ days	95% CI	% 5+ drinks on any day	95% CI	% 20+ drinks in 7 days	95% CI
25-34	93	3.6	0.0-9.0	17.5	8.5-26.6	3.8	0.0-7.5
35-44	66	7.2	0.0-14.3	32.2	18.1-46.4	8.5	0.0-17.4
45-54	29	13.4	0.0-28.1	21.4	5.0-37.8	3.3	0.0-10.0
55-64	13	17.3	0.0-39.8	10.1	0.0-29.3	0.0	0.0-0.0
25-64	201	6.4	2.5-10.3	21.9	14.5-29.4	4.9	1.6-8.2

Table 14 shows that among female drinkers 15.2% consumed 4 or more drinks, ('binge drinking' for females) on any drinking day and 5.7% drank 15 or more drinks over the 7 day period. The highest proportion that drank 4 or more standard drinks on any day was in the 35-44 years age group (18.0%).

Table 14 Frequency and quantity of drinks consumed by female drinkers in the last 7 days

Frequency and quantity of drinks consumed in the last 7 days							
Age Group (years)	Women						
	n	% Drank on 4+ days	95% CI	% 4+ drinks on any day	95% CI	% 15+ drinks in 7 days	95% CI
25-34	23	1.9	0.0-5.9	15.0	0.0-33.7	4.4	0.0-13.7
35-44	19	11.2	0.0-25.6	18.0	0.0-38.0	9.9	0.0-23.3
45-54	11	0.0	0.0-0.0	12.5	0.0-38.0	0.0	0.0-0.0
55-64	4	10.7	0.0-34.4	10.7	0.0-34.4	10.7	0.0-34.4
25-64	57	4.8	0.0-9.8	15.2	1.7-28.7	5.7	0.0-12.7

Note small sample size for older age groups

Tables 15 and 16 present information on the number of standard drinks consumed per drinking day by current drinkers and show that heavy drinking is more common among men than women across all age groups with 27.1% of the men consuming more than 6 standard drinks on a drinking day compared to 14.2% of the women; and an average of 5.5 standard drinks on a drinking day, compared to 3.8 for women.

The largest percentage of those drinking 6+ standard drinks on a drinking day was by 29.9% of male current drinkers in the age group 25-34 followed by 26.4% in the 35-44 age group.

Table 15 Number of drinks per drinking day among male drinkers by age group

Number of standard drinks consumed on a drinking day											
Age Group (years)	Men										
	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI	Mean # of standard drinks	95% CI
25-34	101	19.4	10.2-28.6	30.9	20.6-41.2	19.9	9.9-29.8	29.9	19.6-40.1	6.0	4.5-7.4
35-44	68	19.3	8.5-30.0	45.4	33.3-57.5	8.9	2.3-15.5	26.4	14.4-38.4	5.1	3.6-6.6
45-54	28	17.6	1.2-33.9	29.1	15.5-42.8	36.2	18.3-54.0	17.1	0.0-34.2	3.9	2.7-5.1
55-64	12	22.5	0.0-51.7	34.3	6.3-62.4	22.3	0.0-46.7	20.9	0.0-44.9	4.6	2.2-6.9
25-64	209	19.2	12.6-25.8	34.7	27.6-41.9	19.0	12.1-25.9	27.1	19.3-34.9	5.5	4.5-6.5

Table 16 shows that almost one third (31.2%) of female current drinkers consumed 4 or more drinks on a drinking day, while female drinkers in all age groups averaged 3.8 standard drinks on a drinking day. The heaviest alcohol consumption among women was in the 35-44 years age group.

Table 16 Number of drinks per drinking day among female drinkers by age group

Number of standard drinks consumed on a drinking day												
Age Group (years)	Women										Mean # of standard drinks	95% CI
	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI			
25-34	23	40.1	17.3-62.9	22.1	0.0-46.9	23.5	4.2-42.8	14.3	0.0-30.9	4.0	1.7-6.3	
35-44	18	36.7	9.1-64.3	35.4	2.0-68.7	9.4	0.0-22.8	18.5	0.0-39.6	4.4	0.8-8.0	
45-54	11	24.1	2.7-45.4	51.7	22.5-80.9	12.5	0.0-38.0	11.8	0.0-25.3	2.9	1.8-4.1	
55-64	4	32.4	0.0-87.5	56.8	1.0-100.0	10.7	0.0-34.4	0.0	0.0-0.0	2.0	1.0-3.0	
25-64	56	36.2	16.3-56.1	32.6	11.3-53.9	17.0	5.9-28.2	14.2	4.8-23.7	3.8	2.2-5.5	

Note small sample size for older age groups

Table 17 shows that current drinkers, of both sexes and all ages, drink an average of 5.1 standard drinks on a drinking day; and that the percentage drinking 6+ drinks was 27.1% of the age group 25-34 years, followed by 24.8% of those in age group 35-44 years.

Table 17 Number of drinks per drinking day among both sexes of current drinkers by age group

Number of standard drinks consumed on a drinking day												
Age Group (years)	Both Sexes										Mean # of standard drinks	95% CI
	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI			
25-34	124	23.0	13.7-32.3	29.4	19.8-38.9	20.5	12.0-29.1	27.1	17.6-36.6	5.6	4.3-6.9	
35-44	86	22.8	12.0-33.6	43.4	30.7-56.1	9.0	3.0-15.0	24.8	14.5-35.1	5.0	3.6-6.4	
45-54	39	19.1	5.2-33.0	34.4	22.3-46.5	30.7	14.6-46.7	15.9	3.0-28.8	3.7	2.7-4.7	
55-64	16	25.8	0.0-52.6	41.8	12.2-71.3	18.5	0.0-37.0	13.9	0.0-30.9	3.7	1.9-5.5	
25-64	265	22.5	15.2-29.9	34.3	26.6-42.0	18.6	12.6-24.6	24.6	17.5-31.6	5.1	4.2-6.1	

4.4 Kava Consumption

Table 18 shows the percentage of kava drinkers in the study population. Kava is the crushed root of the Piper Methysticum plant traditionally drunk ceremonially but increasingly consumed as a social drink in Kava Bars and homes. Table 18 shows that 41.8% of both sexes consumed kava; more among men (68.1%) than women (18.3%).

Table 18 Percentage of kava drinkers in the study population

Age Group (years)	Percentage of kava drinkers								
	Men			Women			Both Sexes		
	n	% Drink Kava	95% CI	n	% Drink Kava	95% CI	n	% Drink Kava	95% CI
25-34	719	72.8	±4.3	815	16.0	±3.4	1534	42.3	±3.8
35-44	689	69.1	±3.7	693	20.9	±3.7	1382	43.2	±3.1
45-54	497	63.1	±5.7	505	20.1	±4.1	1002	40.9	±3.5
55-64	418	59.1	±6.3	294	17.2	±5.1	712	38.0	±4.6
25-64	2323	68.1	±3.0	2307	18.3	±2.7	4630	41.8	±2.7

Table 19 shows the relationship between smoking and drinking kava among kava drinkers, and indicates that 53.1% of kava drinkers of both sexes also smoke while drinking, more so among men (63.7%) than women (17.9%). Table 19 also shows that it is among the youngest age group, for both men and women, that smoking while drinking kava is most likely to occur.

Table 19 Percentage smoking while drinking kava in the study population

Age Group (years)	Percentage smoking while drinking kava								
	Men			Women			Both Sexes		
	n	% Smoker	95% CI	n	% Smoker	95% CI	N	% Smoker	95% CI
25-34	512	73.7	±4.8	131	28.2	±9.3	643	64.6	±4.7
35-44	472	62.4	±5.1	142	11.6	±5.2	614	49.2	±5.1
45-54	320	51.2	±5.1	97	10.5	±6.1	417	40.8	±4.9
55-64	243	49.2	±7.4	45	17.3	±13.6	288	41.9	±7.1
25-64	1547	63.7	±3.0	415	17.9	±4.4	1962	53.1	±3.2

Table 20 shows that men on average consumed kava on twice as many occasions over the past 30 days than women (15.8 occasions for men compared to 7.6 occasions for women).

Table 20 Mean number of occasion's kava was consumed over the past 30 days

Age Group (years)	Mean number of occasions consumed kava								
	Men			Women			Both Sexes		
	n	Mean	95% CI	N	Mean	95% CI	n	Mean	95% CI
25-34	508	15.7	±1.0	132	6.9	±1.6	640	13.9	±1.0
35-44	468	16.7	±1.4	142	9.0	±1.9	610	14.7	±1.2
45-54	311	16.6	±1.6	96	6.9	±2.1	407	14.1	±1.4
55-64	235	12.4	±1.5	42	7.2	±3.9	277	11.3	±1.5
25-64	1522	15.8	±0.8	412	7.6	±1.3	1934	13.9	±0.8

Table 21 shows that on average men consumed nearly twice the number of bowls of kava on a drinking occasion (5.4 bowls) than women (3.2 bowls) in all age groups.

Table 21 Mean number of bowls of kava consumed on each occasion

Age Group (years)	Mean number of bowls of kava consumed								
	Men			Women			Both Sexes		
	n	Mean	95% CI	N	Mean	95% CI	N	Mean	95% CI
25-34	515	5.8	±0.6	134	3.3	±0.4	649	5.3	±0.5
35-44	476	5.6	±0.4	143	3.3	±0.4	619	5.0	±0.3
45-54	322	5.1	±0.6	97	2.9	±0.3	419	4.6	±0.4
55-64	241	4.1	±0.4	44	2.9	±0.7	285	3.9	±0.4
25-64	1554	5.4	±0.4	418	3.2	±0.2	1972	4.9	±0.3

4.5 Intake of Fruit and Vegetables

Respondents' fruit and vegetable intake was assessed by asking how many days they consumed fruit and vegetables in a typical week, and how many servings of each they consumed on one of those days. Table 22 shows that men reported marginally higher mean days of fruit consumed in a typical week (4.0 days) than women (3.7 days) overall and across all age groups.

Table 22 Mean number of days in a week fruits consumed by sex and age group

Age Group (years)	Mean number of days fruit consumed in a typical week								
	Men			Women			Both Sexes		
	N	Mean number of days	95% CI	N	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	710	4.2	3.9-4.4	806	3.7	3.4-3.9	1516	3.9	3.7-4.1
35-44	681	4.0	3.8-4.2	684	3.7	3.5-3.9	1365	3.9	3.7-4.0
45-54	494	3.9	3.7-4.1	495	3.8	3.5-4.1	989	3.9	3.7-4.1
55-64	411	4.0	3.7-4.3	287	3.7	3.3-4.0	698	3.9	3.6-4.1
25-64	2296	4.0	3.9-4.2	2272	3.7	3.5-3.9	4568	3.9	3.7-4.0

Table 23 shows that men reported marginally higher mean days of vegetable consumption in a typical week (5.6 days) than women (5.5 days) overall although the difference is not significant in any age group.

Table 23 Mean number of days in a week vegetables consumed by gender and age group

Age Group (years)	Mean number of days vegetables consumed in a typical week								
	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	N	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	714	5.6	5.4-5.8	801	5.4	5.2-5.6	1515	5.5	5.3-5.6
35-44	679	5.5	5.3-5.7	685	5.5	5.3-5.6	1364	5.5	5.4-5.6
45-54	488	5.6	5.3-5.8	493	5.6	5.4-5.8	981	5.6	5.4-5.8
55-64	414	5.7	5.5-5.9	283	5.6	5.3-5.8	697	5.6	5.5-5.8
25-64	2295	5.6	5.5-5.7	2262	5.5	5.3-5.6	4557	5.5	5.4-5.6

Tables 24 and 25 show the mean number of servings of fruit and vegetables per day during a typical week. Table 24 shows that, overall, respondents reported an average of 1.9 to 2 servings of fruit per day fairly consistently across all age groups.

Table 24 Mean number of servings of fruits consumed on a day when fruits were eaten

Age Group (years)	Mean number of servings of fruit on average per day								
	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	697	2.1	1.8-2.4	791	1.6	1.4-1.8	1488	1.8	1.6-2.0
35-44	662	2.0	1.7-2.3	663	1.8	1.6-2.0	1325	1.9	1.7-2.1
45-54	487	2.0	1.6-2.3	484	2.0	1.6-2.3	971	2.0	1.7-2.3
55-64	406	2.1	1.7-2.6	282	1.7	1.5-2.0	688	1.9	1.6-2.2
25-64	2252	2.0	1.8-2.3	2220	1.7	1.6-1.9	4472	1.9	1.7-2.1

Table 25 shows that respondents reported an average of just over 3 servings of vegetables per day relatively consistently across all age groups, although marginally less among females aged 25-34 years.

Table 25 Mean number of servings of vegetables consumed on a day when vegetables were eaten

Mean number of servings of vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	697	3.3	2.9-3.6	784	2.8	2.5-3.0	1481	3.0	2.7-3.3
35-44	663	3.3	3.0-3.6	668	3.1	2.8-3.5	1331	3.2	3.0-3.5
45-54	478	3.2	2.8-3.6	480	3.2	2.9-3.6	958	3.2	2.9-3.5
55-64	405	3.5	3.1-4.0	276	3.2	2.9-3.5	681	3.4	3.1-3.7
25-64	2243	3.3	3.0-3.6	2208	3.0	2.8-3.2	4451	3.1	2.9-3.4

Table 26 shows the mean number of servings of fruit and vegetables on an average day. Overall, respondents reported an average daily consumption of 4.9 servings of fruit and vegetables relatively consistently across all age groups.

Table 26 Mean number of combined servings of fruit and vegetables consumed per average day

Mean number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	711	5.2	4.7-5.8	803	4.3	3.9-4.6	1514	4.7	4.3-5.1
35-44	675	5.2	4.7-5.7	683	4.8	4.4-5.3	1358	5.0	4.6-5.4
45-54	493	5.1	4.4-5.8	496	5.1	4.4-5.7	989	5.1	4.5-5.6
55-64	414	5.6	4.7-6.4	284	4.9	4.4-5.3	698	5.2	4.7-5.7
25-64	2293	5.2	4.7-5.8	2266	4.6	4.3-5.0	4559	4.9	4.5-5.3

Table 27 shows that 61.8% of respondents of both genders and all age groups consumed less than five servings of fruit and vegetables on an average day, higher among women (65%) than men (58.2%) and with women in age group 25-34 presenting the highest proportion (67%) of those eating less than 5 servings of fruit and vegetables per average day.

Table 27 Percentage who consumed less than five combined servings of fruit and vegetables per average day

Less than five servings of fruit and vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI
25-34	711	57.5	51.8-63.2	803	67.0	62.6-71.3	1514	62.6	58.5-66.6
35-44	675	58.7	53.1-64.4	683	64.0	58.8-69.2	1358	61.6	57.0-66.2
45-54	493	61.1	54.3-67.9	496	64.0	57.8-70.1	989	62.6	57.1-68.0
55-64	414	54.1	46.7-61.5	284	61.5	54.9-68.1	698	57.8	52.0-63.6
25-64	2293	58.2	53.4-63.0	2266	65.0	61.2-68.7	4559	61.8	57.9-65.6

4.6 Physical Activity

4.6.1 Measurements

Respondents were asked how often (frequency) and how long (duration) they engaged in three domains of physical activity in a typical week: work-related, transport-related and leisure-related. In the work and leisure domains, respondents were asked how many days per week and how many hours/minutes per day they participate in moderate and vigorous intensity activities. In the transport domain, respondents were asked how often and how long they either walk and/or cycle to and from places.

4.6.2 Analysis

The three physical activity domains were first examined separately to determine the mean minutes of activity per day undertaken in each domain. Furthermore, taking all domains into account, mean minutes of total activity were computed, as well as three overall levels of activity: low, moderate, and high. Below, we first present overall levels of activity, then mean minutes of total activity per day, and finally mean minutes of activity per day for each domain separately.

To account for the different levels of energy expenditure required for the activities (i.e. moderate and vigorous), the daily duration of activity was converted into METminutes per day. The term MET (metabolic equivalent) is used as an indication of the intensity of physical activity. A MET is the ratio of the associated metabolic rate for a specific activity divided by the resting metabolic rate. The energy cost of sitting is equivalent to a resting metabolic rate of 1 MET.

In this report, as in all STEPS Reports, the following MET values were allocated to the three physical activity domains:

Moderate physical activity (work and leisure domain)= 4.0 METS
 Vigorous physical activity (work and leisure domain) = 8.0 METS
 Travel related walking/cycling = 4.0 METS

The following levels of activity in terms of METminutes were defined as:

Low activity: <600 METminutes per week
 Moderate activity: 600-1500 METminutes per week
 High activity: >1500 METminutes per week

4.6.3 Levels of Physical Activity

Table 28 shows that when physical activity, done as part of work, transport and leisure time are combined, 10.1% of men reported a low level of total physical activity. Just over 8% (8.3%) of men were moderately active, and a high level of physical was reported by 81.7%. The proportions of low and moderate total physical activity increased in age group 45-54 as the high level of total physical activity decreased and further decreased in age group 55-64.

Table 28 Categories of total physical activity among men by age group

Age Group (years)	Level of total physical activity						
	n	% Low	95% CI	Men % Moderate	95% CI	% High	95% CI
25-34	699	8.0	5.5-10.5	4.7	2.6-6.7	87.3	84.1-90.5
35-44	663	9.0	6.6-11.3	7.9	5.5-10.2	83.2	79.7-86.7
45-54	478	13.1	9.1-17.0	10.1	6.7-13.5	76.8	71.3-82.4
55-64	408	14.2	9.6-18.8	17.7	13.4-22.1	68.0	61.9-74.2
25-64	2248	10.1	8.4-11.7	8.3	6.6-9.9	81.7	79.2-84.2

Table 29 shows that when physical activity, done as part of work, transport and leisure time are combined, 13.2% of women reported a low level of total physical activity. Moderate physical activity was reported by 19.9% of women and a high level of physical was reported by 66.9%. The proportion of low total physical activity decreased in age group 35-44 as the level of high activity increased, while the proportions reporting a moderate level of physical activity varied little. A high level of total physical activity decreased in the age group 55-64.

Table 29 Categories of total physical activity among women by age group

Level of total physical activity							
Age Group (years)	Women						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	772	14.2	11.3-17.2	20.8	17.4-24.2	65.0	60.7-69.3
35-44	661	11.9	9.1-14.7	17.0	13.7-20.3	71.1	66.9-75.3
45-54	490	10.7	7.3-14.1	20.8	16.4-25.3	68.5	62.9-74.2
55-64	286	17.2	11.7-22.7	21.9	16.6-27.3	60.9	54.6-67.2
25-64	2209	13.2	11.2-15.2	19.9	17.7-22.0	66.9	63.8-70.0

Table 30 shows that when physical activity, done as part of work, transport and leisure time are combined, 11.7% of the sample reported a low level of total physical activity. Moderate physical activity was reported by 14.4% and a high level of physical was reported by 73.9%. The proportions reporting a moderate level of physical activity increased in age group 45-54 and increased further in age group 55-64. A high level of total physical activity decreased marginally in the age group 45-54 and further decreased in age group 55-64.

Table 30 Categories of total physical activity among both sexes by age group

Level of total physical activity							
Age Group (years)	Both Sexes						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	1471	11.3	9.3-13.3	13.2	10.8-15.7	75.4	72.3-78.6
35-44	1324	10.5	8.5-12.6	12.7	10.7-14.8	76.7	73.7-79.8
45-54	968	11.8	9.1-14.6	15.6	12.6-18.6	72.5	68.2-76.9
55-64	694	15.7	12.1-19.4	19.8	16.1-23.6	64.5	59.9-69.0
25-64	4457	11.7	10.3-13.1	14.4	12.7-16.0	73.9	71.5-76.3

Table 31 presents the mean minutes of total physical activity across all three domains in minutes per day by sex and age. Overall, respondents reported an average of 281.6 minutes per day spent in total physical activity. There was a statistically significant gender difference with men engaged in physical activity for a mean of 336.0 minutes per day, and women for a mean of 232.5 minutes per day.

Table 31 Level of total physical activity (mean minutes per day) by gender and age group

Mean minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	N	Mean minutes	95% CI
25-34	699	367.3	336.5-398.2	772	230.9	210.7-251.0	1471	294.8	274.6-315.0
35-44	663	341.7	318.0-365.5	661	239.5	221.9-257.1	1324	287.1	271.4-302.9
45-54	478	311.0	277.7-344.2	490	236.3	216.1-256.5	968	272.4	251.3-293.5
55-64	408	263.5	234.9-292.2	286	214.0	187.8-240.2	694	238.7	218.2-259.2
25-64	2248	336.0	317.1-355.0	2209	232.5	218.8-246.1	4457	281.6	268.5-294.7

Tables 32-34 present results on mean minutes per day engaged in work-related, transport-related and recreation-related physical activity separately.

Table 32 shows that work-related physical activities comprised 238.0 minutes/day for men and 107.8 minutes/day for women. Across age groups men reported engaging in significantly more minutes of work-related physical activity than women except for the 54-64 age group.

Table 32 Level of work-related physical activity (mean minutes per day) by gender and age group

Mean minutes of work-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	699	249.1	226.1-272.2	772	164.0	149.9-178.0	1471	203.8	189.5-218.2
35-44	663	248.7	229.9-267.6	661	180.2	165.5-195.0	1324	212.1	199.3-225.0
45-54	478	231.8	205.7-257.8	490	178.4	161.2-195.5	968	204.2	187.4-221.0
55-64	408	188.6	166.3-210.8	286	159.0	138.5-179.5	694	173.8	158.4-189.1
25-64	2248	238.0	223.7-252.3	2209	170.8	160.6-181.0	4457	202.7	192.9-212.4

Table 33 shows that transport-related physical activities comprised 57.5 minutes/day for men and 39.8 minutes/day for women. Across all age groups men reported engaging in more minutes/day of transport related physical activity than women.

Table 33 Level of transport-related physical activity (mean minutes per day) by gender and age group

Mean minutes of transport-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	699	62.4	54.3-70.5	772	39.7	33.7-45.8	1471	50.3	45.7-54.9
35-44	663	55.7	49.8-61.7	661	38.6	34.1-43.1	1324	46.6	42.7-50.5
45-54	478	53.2	43.9-62.5	490	41.3	34.5-48.1	968	47.1	41.3-52.9
55-64	408	52.3	44.4-60.1	286	40.3	33.2-47.3	694	46.2	40.4-52.0
25-64	2248	57.5	52.6-62.3	2209	39.8	36.4-43.2	4457	48.2	45.1-51.2

Table 34 shows that recreation-related physical activities comprised 40.6 minutes/day for men, significantly more than the 21.9 minutes/day for women. In all age groups men reported engaging in more minutes/day of recreation related physical activity than women.

Table 34 Level of recreation-related physical activity (mean minutes per day) by gender and age group

Mean minutes of recreation-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	N	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	699	55.8	47.3-64.4	772	27.2	22.4-32.0	1471	40.6	35.3-45.9
35-44	663	37.3	31.0-43.6	661	20.7	15.6-25.7	1324	28.4	24.2-32.6
45-54	478	26.0	20.5-31.4	490	16.6	12.7-20.6	968	21.1	17.7-24.6
55-64	408	22.7	16.5-29.0	286	14.7	9.2-20.2	694	18.7	13.9-23.5
25-64	2248	40.6	35.6-45.6	2209	21.9	18.6-25.1	4457	30.8	27.5-34.0

4.7 History of raised blood pressure and diabetes

Participants were asked if a doctor or health worker had diagnosed them with raised blood pressure in the last 12 months (table 35). Overall, 3.7% of participants reported that they had been diagnosed as having raised blood pressure, higher amongst women (4.5%) than men (2.8%). Of this group, 33.6% reported currently taking blood pressure drugs prescribed by a doctor or health worker and 11.3% reported currently taking a herbal or traditional remedy for high blood pressure (see data

book). The most commonly received lifestyle advice received from a doctor or health worker was to reduce salt (82.7% of participants reported receiving this advice).

Table 35 Proportion of participants reporting being diagnosed by a doctor or health worker as having raised blood pressure in the last 12 months

Raised blood pressure diagnosed by doctor or health worker in last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	% diagnosed	95% CI	n	% diagnosed	95% CI	n	% diagnosed	95% CI
25-34	721	0.9	0.3-1.4	814	1.5	0.7-2.4	1535	1.2	0.7-1.8
35-44	682	3.0	1.3-4.6	694	3.8	1.9-5.7	1376	3.4	2.2-4.7
45-54	494	5.0	3.0-7.0	505	7.4	5.2-9.7	999	6.3	4.7-7.8
55-64	419	5.5	2.8-8.3	290	12.2	8.0-16.4	709	8.8	6.2-11.5
25-64	2316	2.8	2.1-3.6	2303	4.5	3.5-5.5	4619	3.7	3.0-4.4

Participants were also asked if a doctor or health worker had diagnosed them with diabetes in the last 12 months (table 36) and what treatments they were taking. Overall 1.9% of participants reported being diagnosed by a doctor or health worker as diabetic in the last 12 months and of those, 34.4% reported currently taking insulin, 46.2% reported currently taking oral drugs, and 6.2% reported currently taking herbal or traditional treatments (see data book). The most common advice received from doctors or health workers was to start or do more exercise (81.1%) and to have a special prescribed diet (80.8%).

Table 36 Proportion of participants reporting being diagnosed by a doctor or health worker as having diabetes in the last 12 months

Diabetes diagnosed by doctor or health worker in last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	% diagnosed	95% CI	n	% diagnosed	95% CI	n	% diagnosed	95% CI
25-34	719	0.7	0.0-1.5	810	0.6	0.0-1.2	1529	0.6	0.1-1.1
35-44	682	1.1	0.2-1.9	693	1.4	0.3-2.6	1375	1.3	0.4-2.2
45-54	494	4.3	2.0-6.7	502	3.7	1.9-5.6	996	4.0	2.5-5.6
55-64	417	2.6	1.0-4.1	290	5.3	1.9-8.8	707	4.0	1.9-6.0
25-64	2312	1.8	1.0-2.5	2295	2.0	1.2-2.8	4607	1.9	1.2-2.5

4.8 Overweight and Obesity

4.8.1 Height and Weight

The height and weight of each participant was measured following the standardized STEPS protocol. The body mass index (BMI) of each participant was computed by dividing the weight (kilograms) by the square of the height (metres²). BMI risk categories are defined as follows:

Underweight	BMI < 18.5 kg/m ²
Normal weight	18.5 ≤ BMI ≤ 24.9 kg/m ²
Overweight	BMI ≥ 25.0 kg/m ²
Obese	BMI ≥ 30.0 kg/m ²

Tables 37 and 38 show that men, on average, were significantly taller and heavier (167.8 cm and 72.2kg) than women (158.7cm and 67.6kg). In both genders, height varied little across age groups. Among both men and women, weight peaked in the 45-54 year group (75.5kg and 70.6kg) respectively.

Table 37 Mean height (cm) by gender and age group

Age Group (years)	Mean height (cm)					
	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	698	167.8	167.0-168.7	789	159.0	158.2-159.9
35-44	669	168.5	167.7-169.3	673	159.4	158.8-160.1
45-54	483	167.9	167.0-168.8	497	158.1	157.4-158.9
55-64	407	166.0	165.1-166.8	285	157.1	156.4-157.8
25-64	2257	167.8	167.2-168.4	2244	158.7	158.3-159.2

Table 38 Mean weight (kg) by gender and age group

Age Group (years)	Mean weight (kg)					
	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	706	69.6	68.1-71.1	758	64.8	63.7-65.8
35-44	677	74.3	72.8-75.8	661	69.9	68.5-71.3
45-54	483	75.5	73.6-77.4	498	70.6	68.8-72.3
55-64	413	70.7	68.6-72.8	285	66.7	64.6-68.8
25-64	2279	72.2	71.1-73.4	2202	67.6	66.7-68.5

4.8.2 Body Mass Index (BMI) Categories

Table 39 presents the mean BMI scores for both sexes, individually and combined. The overall mean BMI was 26.1kg/m². Women had a higher mean BMI (26.7kg/m²) than men (25.5 kg/m²) and in all age groups. The mean BMI for both men and women was highest in the 45-54 years age group.

Table 39 Mean body mass index (kg/m²) by gender and age group

Age Group (years)	Mean BMI (kg/m ²)								
	Men			Women			Both Sexes		
	N	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	691	24.6	24.2-25.0	745	25.5	25.1-25.9	1436	25.1	24.8-25.4
35-44	664	25.8	25.5-26.2	651	27.2	26.7-27.6	1315	26.5	26.2-26.9
45-54	480	26.7	26.1-27.3	492	28.1	27.4-28.7	972	27.4	26.9-27.9
55-64	407	25.5	24.9-26.0	283	27.1	26.2-27.9	690	26.3	25.7-26.8
25-64	2242	25.5	25.2-25.8	2171	26.7	26.4-27.0	4413	26.1	25.9-26.4

Tables 40, 41 and 42 present the proportion of the sample population in three BMI classifications - underweight, normal and overweight (includes obese) for men, women and both genders combined.

Table 40 shows that 45.5% of men are classified as overweight, 53.6% as normal and 0.8% as underweight.

Table 40 BMI classifications among men by age group

Age Group (years)	BMI classifications						
	Men						
	n	% Underweight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Overweight ≥25.0	95% CI
25-34	691	0.4	0.0-1.0	65.5	61.0-70.1	34.1	29.5-38.6
35-44	664	0.8	0.1-1.5	47.4	43.6-51.2	51.8	48.1-55.5
45-54	480	0.6	0.0-1.4	41.4	36.4-46.4	58.0	53.0-63.0
55-64	407	2.4	0.7-4.0	49.8	43.7-56.0	47.8	41.6-54.0
25-64	2242	0.8	0.4-1.2	53.6	50.9-56.4	45.5	42.8-48.3

Table 41 shows that 55.9% of women are classified as overweight, 41.5% as normal and 2.7% as underweight.

Table 41 BMI classifications among women by age group

BMI classifications							
Age Group (years)	Women						
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight ≥25.0	95% CI
25-34	745	2.7	1.5-3.8	53.3	49.4-57.2	44.1	40.2-47.9
35-44	651	1.7	0.6-2.7	36.0	31.6-40.4	62.4	58.1-66.6
45-54	492	2.6	1.0-4.3	29.3	24.2-34.3	68.1	62.9-73.3
55-64	283	5.4	2.7-8.1	34.7	28.6-40.8	59.9	53.2-66.5
25-64	2171	2.7	1.9-3.5	41.5	38.8-44.1	55.9	53.2-58.5

Table 42 shows that the proportion of males and females combined classified as being overweight was 50.9%, as normal 47.3% and 1.8% as underweight.

Table 42 BMI classifications among both genders by age group

BMI classifications							
Age Group (years)	Both Sexes						
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight ≥25.0	95% CI
25-34	1436	1.6	0.9-2.3	59.1	55.9-62.2	39.3	36.2-42.4
35-44	1315	1.3	0.6-1.9	41.3	38.3-44.3	57.4	54.5-60.3
45-54	972	1.7	0.7-2.6	35.1	31.2-39.0	63.2	59.3-67.2
55-64	690	3.9	2.1-5.7	42.2	37.7-46.8	53.9	49.1-58.7
25-64	4413	1.8	1.3-2.3	47.3	45.1-49.4	50.9	48.8-53.1

Table 43 presents the rates of obesity (BMI ≥30 kg/m²) for both sexes, individually and combined. The overall prevalence of obesity was 18.8%. The obesity rate was significantly higher among women (23.3%) than among men (13.9%). The highest prevalence of obese women (32.4%) and men (23.1%) was in the 45-54 years age group.

Table 43 Percentage of obesity (BMI≥30) by gender and age group

Age Group (years)	Men			Women			Both Sexes		
	N	% Obese	95% CI	n	% Obese	95% CI	n	% Obese	95% CI
25-34	691	8.2	5.6-10.7	745	16.4	13.6-19.3	1436	12.5	10.5-14.6
35-44	664	14.5	11.2-17.9	651	24.9	21.4-28.5	1315	20.1	17.6-22.5
45-54	480	23.1	18.2-28.0	492	32.4	26.7-38.1	972	28.0	23.7-32.2
55-64	407	15.6	11.0-20.2	283	27.0	20.2-33.7	690	21.3	16.8-25.9
25-64	2242	13.9	11.9-15.9	2171	23.3	20.7-25.8	4413	18.8	16.9-20.8

4.8.3 Waist Circumference

Waist circumference was assessed as a measure of central obesity. Table 44 shows the mean waist circumference for both men and women, that women had a marginally higher mean waist circumference (79.7cm) than men (75cm), that mean waist circumference in men varied more than in women and was highest in age group 45-54 in both sexes and in females aged 55-64. Waist circumferences of greater than 88 cm in women and 102cm in men are generally indicative of central adiposity and greater cardiovascular disease risk.

Table 44 Mean waist circumference (cm) by gender and age group

Age Group (years)	Waist circumference (cm)					
	Men			Women		
	n	Mean	95% CI	N	Mean	95% CI
25-34	644	72.5	70.2-74.8	711	75.9	74.1-77.8
35-44	652	75.6	73.6-77.6	648	80.8	78.6-82.9
45-54	469	78.8	76.1-81.5	482	83.6	80.8-86.3
55-64	398	75.0	71.9-78.2	276	83.0	80.0-86.0
25-64	2163	75.0	73.6-76.4	2117	79.7	78.2-81.1

4.9 Blood Pressure

As part of the STEP 2 protocol, all survey participants had their blood pressure measured. Participants were also asked if they had had their blood pressure measured in the last 12 months, within the last 1-5 years or longer, whether they had ever been told in the last 12 months by a health worker that they had high blood pressure, and if they were currently receiving any medical treatment for raised blood pressure.

The STEPs protocol reports the presence of raised blood pressure to include people with:

- a systolic pressure of ≥ 140 mmHg, whether or not they had previously been told by a health worker that they had high blood pressure, OR
- a diastolic pressure of ≥ 90 mmHg, whether or not they had previously been told by a health worker that they had high blood pressure, OR
- normal systolic and diastolic pressures (i.e. normotensive) AND who were currently receiving anti-hypertensive medication, whether or not they had previously been told by a health worker that they had raised blood pressure.

Those participants who reported having been previously told by a health worker that they had raised blood pressure, but who were normotensive and NOT on anti-hypertensive medication, were NOT included among those considered to have raised blood pressure.

Table 45 presents mean resting systolic and Table 46 mean resting diastolic blood pressures for both genders, individually and combined.

Table 45 shows a higher mean systolic blood pressure in males than in females (131.7 mmHg and 127.2 mmHg respectively), increasing with age in both sexes, particularly in females, where the mean in age group 55-64 years marginally exceeded that of males.

Table 45 Mean resting systolic blood pressure (mmHg) by gender and age group

Age Group (years)	Mean systolic blood pressure (mmHg)								
	Men			Women			Both Sexes		
	n	Mean	95% CI	N	Mean	95% CI	n	Mean	95% CI
25-34	708	126.7	125.3-128.1	801	118.8	117.5-120.1	1509	122.5	121.4-123.6
35-44	677	130.8	129.4-132.2	678	125.9	124.4-127.4	1355	128.2	127.2-129.2
45-54	486	135.6	133.3-137.8	499	136.6	134.7-138.5	985	136.1	134.5-137.6
55-64	412	143.1	140.1-146.1	285	145.4	141.9-149.0	697	144.3	141.7-146.9
25-64	2283	131.7	130.4-132.9	2263	127.2	126.0-128.4	4546	129.3	128.3-130.3

Table 46 shows no significant difference in mean diastolic blood pressure between males and in females (79.8 mmHg and 79.2 mmHg respectively), increasing with age in both genders until age 55-64 years where it decreased marginally in males and increased in females, both remaining above the sample mean.

Table 46 Mean resting diastolic blood pressure (mmHg) by gender and age group

Age Group (years)	Mean diastolic blood pressure (mmHg)								
	Men			Women			Both Sexes		
	N	Mean	95% CI	N	Mean	95% CI	n	Mean	95% CI
25-34	708	76.7	75.6-77.9	801	75.8	74.8-76.9	1509	76.2	75.3-77.2
35-44	677	80.9	79.8-82.0	678	79.8	78.8-80.9	1355	80.3	79.5-81.2
45-54	486	82.7	81.0-84.5	499	82.8	81.4-84.3	985	82.8	81.5-84.0
55-64	412	82.5	80.7-84.2	285	83.9	82.2-85.5	697	83.2	81.8-84.5
25-64	2283	79.8	78.9-80.7	2263	79.2	78.3-80.0	4546	79.5	78.7-80.3

Table 47 presents the prevalence of raised blood pressure in the sample, consistent with the above definition. Raised blood pressure was found in 30.8% of men and 26.7% of women and 28.6% overall. The prevalence of raised blood pressure increased with increasing age in both men and women. From age group of 25-34 to age group 55-64 years, hypertension among men more than doubled (22.4% to 52.6%) and hypertension among women increased almost five-fold (12.0% to 57.8%).

Table 47 Percentage with raised blood pressure (SBP \geq 140 and/or DBP \geq 90 or currently on medication for raised blood pressure)

Age Group (years)	SBP \geq 140 and/or DBP \geq 90 mmHg or currently on medication for raised blood pressure								
	Men			Women			Both Sexes		
	N	%	95% CI	N	%	95% CI	n	%	95% CI
25-34	708	22.4	17.8-26.9	801	12.0	9.5-14.6	1509	16.8	14.0-19.6
35-44	677	28.2	24.0-32.4	678	25.9	22.1-29.6	1355	26.9	24.3-29.6
45-54	486	37.6	31.9-43.3	499	41.8	37.3-46.3	985	39.8	36.2-43.4
55-64	412	52.6	46.6-58.5	285	57.8	50.6-65.0	697	55.2	50.2-60.2
25-64	2283	30.8	28.0-33.5	2263	26.7	24.2-29.2	4546	28.6	26.5-30.8

4.10 Fasting Blood Glucose

Participants who took part in step 3 of the survey were asked if they had been told by a health worker in the previous 12 months that they had diabetes, within 1-5 years or longer, and whether they were currently receiving medical treatment for diabetes. To measure fasting blood sugar levels, capillary whole blood was drawn using the finger prick method.

Estimates of raised blood glucose prevalence were computed based on the capillary whole blood glucose test results and by following the WHO guidelines for defining and classifying diabetes mellitus:

- fasting capillary whole blood value of glucose greater than or equal to 6.1 mmol/L (\geq 110 mg/dl) whether or not they had previously been told by a health worker that they had diabetes, OR
- normal capillary whole blood value of glucose less than 6.1 mmol/L (<110 mg/dl) AND who were currently receiving anti-diabetes medication prescribed by a health worker.

Those participants who had been advised by a health worker that they had diabetes but who had normal fasting blood glucose, and who were NOT on anti-diabetes medication or on a special diet prescribed by a health worker, were NOT included among those considered as having raised blood glucose.

Table 48 summarizes results on mean fasting blood glucose for both genders individually and combined. The overall mean fasting blood glucose was 5.7 mmol/L. Men and women returned similar mean fasting glucose levels (5.7 mmol/L). For both men and women, mean fasting blood glucose levels increased with increasing age and peaked in the oldest age groups.

Table 48 Mean fasting blood glucose in mmol/L by gender and age group

Age Group (years)	Mean fasting blood glucose (mmol/L)								
	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	690	5.4	5.4-5.5	779	5.4	5.3-5.5	1469	5.4	5.3-5.5
35-44	654	5.7	5.5-5.8	662	5.7	5.6-5.9	1316	5.7	5.6-5.8
45-54	473	6.0	5.7-6.2	486	6.1	5.8-6.3	959	6.0	5.9-6.2
55-64	391	6.3	6.0-6.6	284	6.1	5.9-6.4	675	6.2	6.0-6.4
25-64	2208	5.7	5.6-5.8	2211	5.7	5.6-5.8	4419	5.7	5.6-5.8

Table 49 shows the prevalence of raised blood glucose for both sexes individually and combined. The overall prevalence was 21.2%. The prevalence of raised blood glucose was similar in both men and women. More than one fifth of the sample from age 35-44 had raised blood glucose; increasing to a quarter of both men and women aged 45-54 and to a third of women aged 55-64 years.

Table 49 Prevalence of raised blood glucose by gender and age group

Age Group (years)	Raised blood glucose or currently on medication for diabetes **								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	690	16.3	13.0-19.7	779	13.7	10.9-16.4	1469	14.9	12.6-17.2
35-44	654	21.5	17.0-26.0	663	23.4	19.7-27.1	1317	22.5	19.1-25.9
45-54	473	26.3	22.3-30.4	487	26.1	21.0-31.3	960	26.2	22.9-29.5
55-64	392	30.0	24.0-36.0	284	32.9	25.9-39.9	676	31.5	26.5-36.5
25-64	2209	21.4	18.8-24.0	2213	21.0	18.5-23.5	4422	21.2	19.0-23.3

** capillary whole blood value: ≥ 6.1 mmol/L (110 mg/dl)

4.11 Total Cholesterol

Consistent with STEPs protocol, for elevated total cholesterol, a cut-off point ≥ 5.0 mmol/L (or ≥ 190 mg/dl) was used to classify participants as being in a high-risk group for coronary artery disease.

Table 50 shows the overall mean cholesterol levels for both sexes individually and combined. The overall mean was 4.9 mmol/L, similar for men (5.0 mmol/L) and women (4.9 mmol/L) and with little variance across age groups from age 35-44 years.

Table 50 Mean total cholesterol (mmol/L) by gender and age group

Age Group (years)	Mean total cholesterol (mmol/L)								
	Men			Women			Both Sexes		
	n	Mean	95% CI	N	Mean	95% CI	n	Mean	95% CI
25-34	666	4.8	4.8-4.9	747	4.7	4.6-4.8	1413	4.8	4.7-4.8
35-44	637	5.1	5.0-5.2	631	4.9	4.8-4.9	1268	5.0	4.9-5.1
45-54	462	5.1	5.0-5.2	471	5.1	5.0-5.2	933	5.1	5.1-5.2
55-64	385	4.9	4.8-5.0	273	5.1	5.0-5.2	658	5.0	4.9-5.1
25-64	2150	5.0	4.9-5.1	2122	4.9	4.8-4.9	4272	4.9	4.9-5.0

Table 51 shows the proportion of the sample with raised blood cholesterol for both genders individually and combined. Over a third of the sample (36.5%) had raised total cholesterol, a greater proportion of men than women (38.4% and 34.7% respectively) and particularly in age group 45-54 where half of both men and women (46.2% and 49.1% respectively) had raised total cholesterol.

Table 51 Percentage with raised cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl)

Age Group (years)	Total cholesterol ≥ 5.0 mmol/L or ≥ 190 mg/dl								
	Men			Women			Both Sexes		
	n	%	95% CI	N	%	95% CI	n	%	95% CI
25-34	666	31.5	26.9-36.0	747	24.8	21.0-28.5	1413	27.9	24.8-31.0
35-44	637	43.5	38.6-48.3	631	35.0	30.4-39.6	1268	38.9	35.4-42.5
45-54	462	46.2	40.8-51.6	471	49.1	43.9-54.3	933	47.7	44.2-51.2
55-64	385	37.1	31.5-42.6	273	44.9	38.9-51.0	658	41.0	36.8-45.3
25-64	2150	38.4	35.3-41.6	2122	34.7	32.1-37.3	4272	36.5	34.2-38.7

4.12 Ten year risk of a cardiovascular event

Using the WHO and International Society for Hypertension (ISH) charts developed for the Western Pacific Region as part of the Package of Essential NCD interventions for low resource countries,³ absolute risk of a fatal or non-fatal cardiovascular event was determined based on participants: gender; age (in the range 40 – 64 years); smoking status (current smoker, yes or no); systolic blood pressure (SBP range = 40 – 300 mmHg); diabetes prevalence (raised blood glucose ≥ 6.1 mmol/L capillary whole blood value or currently on medication for diabetes) and; total blood cholesterol (with a range of 2 – 12 mmol/L).

Table 52 shows the 10-year risk of a fatal or non-fatal cardiovascular event for men. Overall, 3.9% of men aged 40-69 years had a $\geq 30\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years. Those at highest risk were men aged 60-64 years with 11.4% having a $\geq 30\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years.

Table 52 Percentage of men with <10%, 10-<20%, 20-<30%, 30-<40% and $\geq 40\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years

Age Group (years)	10-year risk of a fatal or non-fatal cardiovascular event										
	Men										
	n	<10%	95% CI	10-<20%	95% CI	20-<30%	95% CI	30-<40%	95% CI	$\geq 40\%$	95% CI
40-49	527	87.3	83.4-91.3	9.6	6.3-12.9	1.8	0.2-3.4	0.5	0.0-1.1	0.7	0.0-1.6
50-59	401	80.7	76.3-85.2	13.8	10.1-17.4	0.6	0.0-1.3	3.1	0.8-5.4	1.8	0.4-3.1
60-64	199	71.0	62.9-79.1	16.2	10.4-21.9	1.5	0.0-3.3	7.6	2.0-13.1	3.8	1.0-6.6
40-64	1127	82.8	79.4-86.1	12.0	9.6-14.4	1.4	0.5-2.2	2.4	1.3-3.5	1.5	0.7-2.3

Table 53 shows the 10-year risk of a fatal or non-fatal cardiovascular event for women. Overall, and similar to men, 3.6% of women aged 40-69 years had a $\geq 30\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years. Unlike men however, the age group that had the highest proportion of women with a $\geq 30\%$ risk of a fatal or non-fatal cardiovascular event in the next 10 years was the 50-59 year old decile (5.5%).

³ World Health Organization. Package of Essential Noncommunicable (PEN) Disease Interventions for Primary Health Care in low-resource Settings. World Health Organization 2010.

Table 53 Percentage of women with <10%, 10-<20%, 20-<30%, 30-<40% and ≥40% risk of a fatal or non-fatal cardiovascular event in the next 10 years

10-year risk of a fatal or non-fatal cardiovascular event											
Age Group (years)	Women										
	n	<10%	95% CI	10-<20%	95% CI	20-<30%	95% CI	30-<40%	95% CI	≥40%	95% CI
40-49	525	91.0	88.0-94.1	5.9	3.8-8.1	1.1	0.1-2.0	1.4	0.1-2.8	0.5	0.0-1.2
50-59	370	76.0	70.8-81.1	14.9	10.8-18.9	3.7	1.3-6.0	2.6	1.0-4.2	2.9	1.1-4.6
60-64	123	68.9	60.2-77.6	22.9	15.4-30.4	3.3	0.0-6.8	2.2	0.2-4.2	2.7	0.0-5.5
40-64	1018	83.0	80.1-86.0	11.1	8.8-13.3	2.3	1.2-3.4	2.0	0.9-3.0	1.6	0.8-2.5

Table 54 shows the 10-year risk of a fatal or non-fatal cardiovascular event for both sexes. Overall 3.6% of participants had a ≥30% risk of a fatal or non-fatal cardiovascular event in the next 10 years. The proportion of participants above this level of risk increased in a step-wise fashion across the three age groups.

Table 54 Percentage of men and women with <10%, 10-<20%, 20-<30%, 30-<40% and ≥40% risk of a fatal or non-fatal cardiovascular event in the next 10 years

10-year risk of a fatal or non-fatal cardiovascular event											
Age Group (years)	Both Sexes										
	n	<10%	95% CI	10-<20%	95% CI	20-<30%	95% CI	30-<40%	95% CI	≥40%	95% CI
40-49	1052	89.3	86.8-91.7	7.7	5.8-9.5	1.4	0.5-2.3	1.0	0.2-1.7	0.6	0.1-1.2
50-59	771	78.2	74.6-81.8	14.3	11.5-17.2	2.2	0.9-3.5	2.9	1.6-4.2	2.3	1.3-3.4
60-64	322	70.1	63.9-76.2	19.2	14.5-24.0	2.3	0.3-4.4	5.1	1.8-8.4	3.3	1.3-5.3
40-64	2145	82.9	80.6-85.3	11.5	9.9-13.1	1.8	1.2-2.5	2.2	1.4-2.9	1.6	1.0-2.2

5. DISCUSSION AND CONCLUSIONS

Comparisons between early NCD risk factor surveys and this one indicate that NCDs are slowly taking hold in Vanuatu. That said, NCD risk factors are not as prevalent in Vanuatu as they are in other Pacific countries. For example, the 2010 Global Status Report on NCDs indicates the prevalence of obesity in the Cook Islands, Nauru, Samoa and Tonga is over 50% and over 30% in Fiji and the Solomon Islands.⁴ This may indicate that Vanuatu is at an earlier stage in the epidemiological transition than other Pacific Islands Countries. However, tobacco use among men, hypertension, high blood glucose and cholesterol should be flagged as areas for priority action.

Vanuatu can be proud of a long history of monitoring NCDs. Monitoring is now the key to maintaining some control over the changing conditions contributing to population health, including the availability of fruit and vegetables, the licensing and regulation of products that impact adversely on health, health education campaigns on the outcomes of risky behaviours, particularly among young people who still have the potential to avoid NCDs by changing their behaviours. Such change will need to occur in a manner that is sensitive to the prevailing social, economic and cultural environments of Vanuatu.

The Vanuatu STEPS survey presents findings relevant to progressing national policy and activity towards preventing non-communicable diseases in Vanuatu. The survey has provided strong evidence that NCDs are prevalent in Vanuatu and has identified related risk factors to be modified by policy and related preventative actions. At the same time, the report also provides encouraging evidence that Vanuatu culture is resisting or rejecting some known risk factors, such as tobacco smoking and the use of alcohol. The data suggests a policy response to support the abstainers and to celebrate those who have 'given-up'.

⁴ World Health Organization. Global Status report on noncommunicable diseases 2010. World Health Organization 2011.

Yet the data also indicate that the behavioural risks to public health start at a young age and are already available and tried before the age of survey, presenting a need for effective health promotion and disease prevention activities among younger people, particularly to prevent diabetes reaching higher levels as it has done elsewhere in the Pacific region. Concurrently, the need to respond to the preventable aspects of NCDs requires a significant social and health service response.

The key strength of the survey is its size and its representativeness of the population as a whole. However, it should be noted when interpreting the findings that the behavioural risk factor data were collected from self-reports and, as such, the prevalence of some risk factors may be over or underestimated. It is possible for example that reporting of physical activity was over-estimated and also, if fasting protocols were not strictly adhered to, blood glucose levels may also be overestimated. Finally the assessment of absolute CVD risk relies on estimates of several risk factors and may underestimate risk for the Vanuatu population.

6. RECOMMENDATIONS

The following recommendations are outlined as priority actions for Vanuatu:

Overarching high level national policy directions

That the government:

- 1.1 Develops a national NCD response policy that positions NCD interventions at the highest level of the national development agenda;
- 1.2 Supports the implementation of the NCD policy through political commitment and resource mobilization that applies a whole-of-government and multi-sectoral approach in the fight against NCDs;
- 1.3 Establishes and supports the necessary legal frameworks to steer the implementation of national NCD policy and plans;
- 1.4 Communicates this policy to other government ministries, agencies and stakeholders to leverage support and resources for the implementation of operational plans and strategies for NCD prevention and control;
- 1.5 Aligns national NCD strategies with international frameworks and conventions, such as the WHO Framework of Convention on Tobacco Control (FCTC), and with the national priority action agenda (PAA).

Advocacy and Dissemination of NCD STEPS Survey Findings

That the Ministry of Health:

- 1.6 Values the findings of the 2011 NCD STEPS Survey and uses the publication of this report as a tool to strengthen a nation-wide NCD control programme with clear targets and focus;
- 1.7 Uses survey findings to develop targeted NCD interventions focused on risk factor reductions;
- 1.8 Takes lead role in the coordination of a multi-sectoral plan to engage relevant stakeholders in the fight against NCDs;
- 1.9 Collaborates with other government departments, development partners, donors and civil society organizations to render support for a multi-sectoral action, and to build on existing inter-agency programmes – for example health promoting schools in school settings;
- 1.10 Collaborate with media organizations to develop a multi-media communication strategy aimed at creating advocacy, awareness, education and behaviour change for NCD prevention and control.

Actions for NCD Prevention: addressing risk factors:

That the government addresses smoking, alcohol and kava consumption:

- 1.11 Enforces the legal frameworks and regulatory mechanisms to reduce tobacco use and smoking by reviewing the current status of tobacco laws, legislation and law enforcement;
- 1.12 Reviews taxes on the importation and sale of tobacco products;
- 1.13 Enforces existing regulations on sale of tobacco to young people;
- 1.14 Supports national anti-smoking campaigns and cessation programs targeted at both active and passive smokers, with particular emphasis on teenagers;
- 1.15 Enforces the legal frameworks and regulatory mechanisms to reduce alcohol consumption by reviewing the current status of alcohol laws, legislation and law enforcement;
- 1.16 Reviews taxes on the importation and sale of alcohol. Reviews the effect of kava consumption and its impact on health, social, and economic well-being of individuals, families and nation.

That the government addresses healthy lifestyle related to healthy diet and physical activity:

- 1.17 Develops a food security and nutrition policy that outlines regulatory frameworks, enforcement and compliance; and which incorporates a review of food importation to minimize a negative impact on NCD and risk factors;
- 1.18 Supports local food production and marketing of local produce that increases availability and affordability of local foods which will in turn promote consumption of local foods, especially fruits and vegetables;
- 1.19 Explores the introduction of a food price index for food products especially locally produced food items;
- 1.20 Supports the implementation of a salt reduction strategy to reduce salt intake and its unwanted effect on high blood pressure;
- 1.21 Promotes health education campaigns and advocacy to increase public awareness of healthy diet and the adverse effects of excessive consumption of unhealthy food products;
- 1.22 Supports lifelong healthy eating behaviours from exclusive breast feeding from birth and healthy infant feeding practices;
- 1.23 Establishes physical activity- and health-eating friendly environments using healthy settings approach and engaging all age groups – for example, healthy communities, healthy workplaces, healthy schools.

Actions for management of patients: screening, early diagnosis, treatment and prevention of premature death

That the Ministry of Health through its service delivery mechanisms:

- 1.24 Undertakes a well-developed plan for NCD screening, early diagnosis and initiation of treatment;
- 1.25 Strengthens the health care system to effectively respond to NCD management through provision of supplies and medicines to sustain patient treatment and referrals, both at hospital level and through an effective primary health care system;
- 1.26 Strengthens community-based care of individuals with diagnosed NCDs by supporting primary care facilities to deliver the package of essential NCD interventions. This requires appropriately trained health workers, essential technology and medicines made available at all levels of the health care system;

- 1.27 Prevents NCD-related disability and premature deaths due to NCDs by provision of quality patient care to prevent early complications.

Actions for NCD Surveillance:

That the Ministry of Health:

- 1.28 Establishes and maintains a functional surveillance system to monitor essential NCD data in an ongoing and systematic way as an essential component of the Health Information System, in order to measure NCD disease burden and trends over time;
- 1.29 Establishes the current baseline for NCDs mortality and morbidity in line with requirements to report on the Pacific regional goal to reduce NCD premature deaths by 25% by 2025;
- 1.30 Establishes strong leadership to maintain a systematic approach to STEPS data collection, building on local capacity for implementing the STEPS survey in order to create an ongoing and robust surveillance system;
- 1.31 Conducts NCD STEPS surveys at 5 to 7 year intervals supplemented by mini STEPS (ie surveys in workplaces and/or with high risk groups) every 2 years to determine the effectiveness, or otherwise, of NCD prevention and control measures;
- 1.32 Participates in the comparison of NCD STEPS survey findings across all Pacific island countries that have completed the NCD STEPS survey, and review inter-country interventions that are most amenable to modification;

Appendices

Appendix 1 Betel Nut Use

Table A1 shows that 98.2% of the male respondents were abstainers from chewing betel nut with a negligible proportion of 0.2% being daily chewers among the 25-34 age group. On these findings, rates of betel nut use in Vanuatu are minimal. Anecdotal evidence suggests a small rise in Betel nut use in the far north of Vanuatu close to the Solomon Islands where Betel nut is in common usage. Betel nut has been shown to have a harmful and potentially carcinogenic effect on the gums.

Table A1 Percentage of current betel nut chewers among men by age group

Chewing status							
Men							
Age Group (years)	N	Current chewer				% Does not chew	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	719	0.2	0.0-0.6	2.6	1.2-4.0	97.2	95.8-98.6
35-44	689	0.0	0.0-0.0	1.5	0.4-2.6	98.5	97.4-99.6
45-54	492	0.0	0.0-0.0	0.9	0.1-1.7	99.1	98.3-99.9
55-64	420	0.0	0.0-0.0	0.5	0.0-1.1	99.5	98.9-100.0
25-64	2320	0.1	0.0-0.2	1.7	1.1-2.3	98.2	97.6-98.9

Table A2 shows that nearly all females do not chew betel nut, with a small proportion of non-daily chewers in older age.

Table A2 Percentage of current betel nut chewers among women by age group

Chewing status							
Women							
Age Group (years)	N	Current chewer				% Does not chew	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	814	--	--	0.2	0.0-0.5	99.8	99.5-100.0
35-44	695	--	--	0.1	0.0-0.2	99.9	99.8-100.0
45-54	505	--	--	0.2	0.0-0.7	99.8	99.3-100.0
55-64	291	--	--	0.6	0.0-1.9	99.4	98.1-100.0
25-64	2305	--	--	0.2	0.0-0.5	99.8	99.5-100.0

Table A3 shows that betel nut chewing was almost non-existent in both sexes of the sample population.

Table A3 Percentage of current betel nut chewers among both sexes by age group

Chewing status							
Both Sexes							
Age Group (years)	n	Current chewer				% Does not chew	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	1533	0.1	0.0-0.3	1.3	0.6-2.1	98.6	97.9-99.3
35-44	1384	0.0	0.0-0.0	0.7	0.3-1.2	99.3	98.8-99.7
45-54	997	0.0	0.0-0.0	0.5	0.1-1.0	99.5	99.0-99.9
55-64	711	0.0	0.0-0.0	0.5	0.0-1.5	99.5	98.5-100.0
25-64	4625	0.0	0.0-0.1	0.9	0.6-1.3	99.0	98.7-99.4

Appendix 2 Vanuatu STEPS Survey Questionnaire

National STEPS Survey Questionnaire for NCD Risk Factors

Vanuatu 2011



of Health



Survey Information

Location and Date		Response	Code
1	EA No	_____	I1
2	Island name		I2
3	Interviewer ID	_____	I3
4	Date of completion of the questionnaire	_____ dd mm year	I4

Consent, Interview Language and Name		Response	Code
Participant Id Number _____			
5	Consent has been read and obtained	Yes 1 No 2 If NO, END	I5
6	Interview Language	Bislama 1 English 2 Other 3	I6
7	Time of interview (24 hour clock)	_____ : _____ hrs mins	I7
8	Family Surname		I8
9	First Name		I9
10	Contact phone number where possible		I10

Record and file identification information (I5 to I10) separately from the completed questionnaire.

		Other <input type="checkbox"/> <i>T5other,</i> <input type="checkbox"/> <i>else go to T6</i>	<i>If Other, go to</i> <i>T5f</i>
		Other (please specify): <input type="checkbox"/> <i>Go to T9</i>	T5other
28	In the past, did you ever smoke daily ?	Yes 1 No 2 <i>If No, go to T9</i>	T6
29	How old were you when you stopped smoking daily ?	Age (years) Don't Know 77 <input type="checkbox"/> <i>If Known, go to T9</i>	T7
30	How long ago did you stop smoking daily? <i>(RECORD ONLY 1, NOT ALL 3)</i> <i>Don't Know 77</i>	Years ago <input type="checkbox"/> <i>If Known, go to T9</i>	T8a
		OR Months ago <input type="checkbox"/> <i>If Known, go to T9</i>	T8b
		OR Weeks ago <input type="checkbox"/>	T8c
31	During the past 7 days, on how many days did someone in your home smoke when you were present?	Number of days Don't know 77 <input type="checkbox"/>	T9
32	During the past 7 days, on how many days did someone smoke in closed areas in your workplace (in the building, in a work area or a specific office) when you were present?	Number of days Don't know or don't work in a closed area 77 <input type="checkbox"/>	T10

Betel Nut Use			
Question	Response	Code	
33	Do you currently chew betel nut?	Yes 1 No 2 <i>If No, go to A1a</i>	X1
34	If Yes, Do you currently chew betel nuts daily ?	Yes 1 No 2	X2
35	When you chew, how many nuts on average do you chew at one time?	Number of Betel Nuts <input type="checkbox"/>	X3
36	On average, how many times each day do you chew?	Times per day <input type="checkbox"/>	X4
Betel Nut with Tobacco			
Question	Response	Code	
37	Do you currently chew betel nut with Tobacco ?	Yes 1 No 2 <i>If No, go to A1a</i>	X5
38	Do you currently chew betel nut with Tobacco daily ?	Yes 1 No 2	X6
39	During the past 30 days, how many occasions did you chew betel nut with Tobacco ?	Number of times Don't Know 77 <input type="checkbox"/>	X7

Alcohol Consumption			
The next questions ask about the consumption of alcohol.			
Question	Response	Code	
40	Have you ever consumed an alcoholic drink such as beer, home brew, wine or spirits?	Yes 1 No 2 <i>If No, go to X8</i>	A1a

41	Have you consumed an alcoholic drink within the past 12 months ?	Yes 1 No 2 <i>If No, go to X8</i>	A1b
42	During the past 12 months, how frequently have you had at least one alcoholic drink? (<i>READ RESPONSES</i>)	Daily 1 5-6 days per week 2 1-4 days per week 3 1-3 days per month 4 Less than once a month 5	A2
43	Have you consumed an alcoholic drink within the past 30 days ?	Yes 1 No 2 <i>If No, go to X8</i>	A3
44	During the past 30 days, how many occasions did you have at least one alcoholic drink?	Number Don't know ?? <input type="text"/>	A4
45	During the past 30 days, when you drank alcohol, on average , how many standard alcoholic drinks did you have during one drinking occasion?	Number Don't know ?? <input type="text"/>	A5
46	During the past 30 days, what was the largest number of standard alcoholic drinks you had on a single occasion, counting all types of alcoholic drinks together?	Largest number Don't Know ?? <input type="text"/>	A6
47	During the past 30 days, how many times did you have for men: five or more for women: four or more standard alcoholic drinks in a single drinking occasion?	Number of times Don't Know ?? <input type="text"/>	A7
48	During each of the past 7 days , how many standard alcoholic drinks did you have each day? <i>Don't Know ??</i>	Monday <input type="text"/>	A8a
		Tuesday <input type="text"/>	A8b
		Wednesday <input type="text"/>	A8c
		Thursday <input type="text"/>	A8d
		Friday <input type="text"/>	A8e
		Saturday <input type="text"/>	A8f
		Sunday <input type="text"/>	A8g

Kava			
Question	Response	Code	
49	Have you consumed kava in the past 30 days ?	Yes 1 No 2 <i>If No, go to D1</i>	X8
50	During the past 30 days, how many occasions did you drink kava?	Number of times Don't Know ?? <input type="text"/>	X9
51	On each occasion that you drank kava, how many bowls did you consume?	Number of bowls Don't Know ?? <input type="text"/>	X10
52	Do you smoke when you drink kava?	Yes 1 No 2 <i>If No, go to D1</i>	X11
53	How many tobacco products do you usually smoke during one kava drinking occasion?	Number of products <input type="text"/>	X12

54	After drinking kava, do you continue with drinking alcohol?	Yes 1 No 2	X13
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Diet			
The next questions ask about the fruits and vegetables that you usually eat. I have a nutrition card here that shows you some examples of local fruits and vegetables. Each picture represents the size of a serving. As you answer these questions please think of a typical week in the last year.			
Question	Response		Code
55	In a typical week, on how many days do you eat fruit?	Number of days <input type="text"/> If Zero days, go to D3 Don't Know 77 <input type="text"/> <input type="text"/>	D1
56	How many servings of fruit do you eat on one of those days?	Number of servings <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Don't Know 77 <input type="text"/> <input type="text"/>	D2
57	In a typical week, on how many days do you eat vegetables	Number of days <input type="text"/> If Zero days, go to D5 Don't Know 77 <input type="text"/> <input type="text"/>	D3
58	How many servings of vegetables do you eat on one of those days?	Number of servings <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Don't know 77 <input type="text"/> <input type="text"/>	D4
59	On average, how many meals per week do you eat that were not prepared at a home? By meal, I mean breakfast, lunch and dinner.	Number <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Don't know 77 <input type="text"/> <input type="text"/>	D5
60	On average how long does it take to consume 500g of salt?	Number of days <input type="text"/> If Zero days, go to P1 Don't Know 77 <input type="text"/> <input type="text"/>	X14
61	Please choose an example that best represents what your biggest meal of the day is made of	<p>1.  2.  3. </p> <p>4.  5. </p>	X15

Physical Activity			
Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.			
Question	Response		Code
Work			
62	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like [carrying or lifting heavy loads, digging or construction work] for at least 10 minutes continuously?	Yes 1 No 2 If No, go to P 4	P1

63	In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days <input type="text"/>	P2
64	How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P3 (a-b)
65	Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking [or carrying light loads] for at least 10 minutes continuously?	Yes 1 No 2 If No, go to P 7	P4
66	In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days <input type="text"/>	P5
67	How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P6 (a-b)
Travel to and from places			
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship.			
68	Do you walk or use a bicycle (<i>pedal cycle</i>) for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 If No, go to P 10	P7
69	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days <input type="text"/>	P8
70	How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P9 (a-b)
Physical Activity, Continued			
Question		Response	Code
Recreational activities			
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure).			
71	Do you do any vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause large increases in breathing or heart rate like [running or football] for at least 10 minutes continuously?	Yes 1 No 2 If No, go to P 13	P10
72	In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days <input type="text"/>	P11
73	How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P12 (a-b)
74	Do you do any moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause a small increase in breathing or heart rate such as brisk walking, [cycling, swimming, volleyball] for at least 10 minutes continuously?	Yes 1 No 2 If No, go to P16	P13
75	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days <input type="text"/>	P14

76	How much time do you spend doing moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities on a typical day?	Hours : minutes <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> <div style="border-bottom: 1px solid black; width: 20px; height: 15px;"></div> : <div style="border-bottom: 1px solid black; width: 20px; height: 15px;"></div> </div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px; margin-top: 5px;"> hrs mins </div>	P15 (a-b)
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Physical Activity			
Sedentary behaviour			
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in car, bus, reading, playing cards or watching television, but do not include time spent sleeping.			
77	How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes <div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> <div style="border-bottom: 1px solid black; width: 20px; height: 15px;"></div> : <div style="border-bottom: 1px solid black; width: 20px; height: 15px;"></div> </div> <div style="display: flex; justify-content: center; align-items: center; gap: 10px; margin-top: 5px;"> hrs mins </div>	P16 (a-b)

History of Raised Blood Pressure			
Question	Response	Code	
78	Have you ever had your blood pressure measured by a doctor or other health worker? Yes 1 No 2 <i>If No, go to H6</i>	H1	
79	Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension? Yes 1 No 2 <i>If No, go to H6</i>	H2a	
80	Have you been told in the past 12 months? Yes 1 No 2	H2b	
81	Are you currently receiving any of the following treatments/advice for high blood pressure prescribed by a doctor or other health worker? Drugs (medication) that you have taken in the past two weeks Advice to reduce salt intake Advice to lose weight Advice or treatment to stop smoking Advice to start or do more exercise	Yes 1 No 2 Yes 1 No 2 Yes 1 No 2 Yes 1 No 2 Yes 1 No 2	H3a H3b H3c H3d H3e
82	Have you ever seen a traditional healer for raised blood pressure or hypertension? Yes 1 No 2	H4	
83	Are you currently taking any herbal or traditional remedy for your raised blood pressure? Yes 1 No 2	H5	

History of Diabetes			
Question	Response	Code	
84	Have you ever had your blood sugar measured by a doctor or other health worker? Yes 1 No 2 <i>If No, go to M1</i>	H6	

85	Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	Yes 1 No 2 <i>If No, go to M1</i>	H7a
86	Have you been told in the past 12 months?	Yes 1 No 2	H7b
87	Are you currently receiving any of the following treatments/advice for diabetes prescribed by a doctor or other health worker?		
	Insulin	Yes 1 No 2	H8a
	Drugs (medication) that you have taken in the past two weeks	Yes 1 No 2	H8b
	Special prescribed diet	Yes 1 No 2	H8c
	Advice to lose weight	Yes 1 No 2	H8d
	Advice or treatment to stop smoking	Yes 1 No 2	H8e
88	Have you ever seen a traditional healer for diabetes or raised blood sugar?	Yes 1	H9
		No 2	
89	Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	H10

Step 2 Physical Measurements

Height and Weight			
Question	Response	Code	
90	Interviewer ID	_ _ _ _	M1
91	Device IDs for height and weight	Height _ _ _	M2a
		Weight _ _ _	M2b
92	Height	in Centimetres (cm) _ _ _ _ . _	M3
93	Weight <i>If too large for scale 666.6</i>	in Kilograms (kg) _ _ _ _ . _	M4
94	For women: Are you pregnant?	Yes 1 <i>If Yes, go to M 8</i>	M5
		No 2	
Waist			
95	Device ID for waist	_ _ _	M6
96	Waist circumference	in Centimetres (cm) _ _ _ _ . _	M7
Blood Pressure			
97	Interviewer ID	_ _ _ _	M8
98	Device ID for blood pressure	_ _ _	M9
99	Cuff size used	Medium 1	M10
		Large 2	
100	Reading 1	Systolic (mmHg) _ _ _ _	M11a
		Diastolic (mmHg) _ _ _ _	M11b
101	Reading 2	Systolic (mmHg) _ _ _ _	M12a
		Diastolic (mmHg) _ _ _ _	M12b
102	Reading 3	Systolic (mmHg) _ _ _ _	M13a
		Diastolic (mmHg) _ _ _ _	M13b
103	During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?	Yes 1	M14
		No 2	
104	Hip circumference	in Centimeters (cm) _ _ _ _ . _	M15
105	Heart Rate		M16a
	Reading 1	Beats per minute _ _ _ _	
	Reading 2	Beats per minute _ _ _ _	
	Reading 3	Beats per minute _ _ _ _	

Step 3 Biochemical Measurements

Blood Glucose			
Question		Response	Code
106	During the past 12 hours have you had anything to eat or drink, other than water?	Yes 1 No 2	B1
107	Technician ID	_ _ _ _	B2
108	Device ID	_ _ _	B3
109	Time of day blood specimen taken (24 hour clock)	Hours : minutes _ _ : _ _ hrs mins	B4
110	Fasting blood glucose	mmol/l _ _ . _ _	B5
111	Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker for raised blood glucose?	Yes 1 No 2	B6
Blood Lipids			
112	Device ID	_ _ _	B7
113	Total cholesterol	mmol/l _ _ . _ _	B8
114	During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker?	Yes 1 No 2	B9

Appendix 3 Vanuatu STEPS Survey Data Book



WHO STEPS
Chronic Disease
Risk Factor Surveillance

DATA BOOK

VANUATU

Table of Contents

Table of Contents.....	57
Demographic Information Results	58
Tobacco Use.....	63
Betel Nut Use.....	68
Alcohol Consumption.....	69
Fruit and Vegetable Consumption	75
Physical Activity	79
Blood Pressure and Diabetes History.....	88
Physical Measurements	94
Biochemical Measurements.....	98
Raised Risk.....	102

Demographic Information Results

Age group by sex

Description: Summary information by age group and sex of the respondents.

Instrument question:

- Sex
- What is your date of birth?

Age group and sex of respondents						
Age Group (years)	Men		Women		Both Sexes	
	n	%	n	%	n	%
25-34	725	47	819	53	1544	33.2
35-44	690	49.7	697	50.3	1387	29.8
45-54	497	49.6	506	50.4	1003	21.6
55-64	421	58.9	294	41.1	715	15.4
25-64	2333	50.2	2316	49.8	4649	100

Ethnicity

Description: Summary results for the ethnicity of the respondents.

Instrument Question:

- What is your [insert relevant ethnic group/racial group/cultural subgroup/others] background?

Ethnic group of respondents					
Age Group (years)	Both Sexes				
	n	1) Ni-Vanuatu	2) Part Ni-Van	3) Other Pacific Islander	4) Other
25-34	1531	98.7	0.8	0.3	0.2
35-44	1376	99.0	0.4	0.4	0.1
45-54	994	99.0	0.4	0.2	0.4
55-64	711	97.5	1.1	0.8	0.6
25-64	4612	98.7	0.7	0.4	0.3

Education

Description: Mean number of years of education among respondents

Instrument question:

- In total, how many years have you spent at school or in full-time study (excluding pre-school)?

Mean number of years of education						
Age Group (years)	Men		Women		Both Sexes	
	n	Mean	n	Mean	n	Mean
25-34	693	7.6	777	7.5	1470	7.5
35-44	656	7.2	649	6.4	1305	6.8
45-54	467	6.7	469	5.7	936	6.2
55-64	384	5.5	262	4.4	646	5.0
25-64	2200	6.9	2157	6.4	4357	6.6

Highest level of education

Description: Highest level of education achieved by the survey respondents.

Instrument question:

- What is the highest level of education you have completed?

Highest level of education							
Age Group (years)	Men						
	n	% No formal schooling	% Less than Primary	% Primary school comp.	% Secondary School comp.	% University comp.	% Post graduate degree
25-34	715	4.5	21	43.2	23.4	7.1	0.8
35-44	683	5.3	19.8	51	18.3	5.1	0.6
45-54	492	6.9	23.6	51.4	13.2	4.5	0.4
55-64	420	16.7	33.6	36	9.3	3.8	0.7
25-64	2310	7.4	23.5	45.9	17.1	5.4	0.6

Highest level of education							
Age Group (years)	Women						
	n	% No formal schooling	% Less than Primary	% Primary school comp.	% Secondary School comp.	% University comp.	% Post graduate degree
25-34	809	5.6	16.7	47.8	22.9	6.4	0.6
35-44	690	8.8	20.6	53.5	14.5	2.5	0.1
45-54	500	12.6	25.6	49.6	9.2	2.6	0.4
55-64	293	24.6	36.2	33.4	3.1	2.4	0.3
25-64	2292	10.5	22.3	48.1	14.8	3.9	0.4

Highest level of education							
Both Sexes							
Age Group (years)	n	% No formal schooling	% Less than Primary	% Primary school comp.	% Secondary School comp.	% University comp.	% Post graduate degree
25-34	1524	5.1	18.7	45.7	23.1	6.8	0.7
35-44	1373	7.1	20.2	52.2	16.4	3.8	0.4
45-54	992	9.8	24.6	50.5	11.2	3.5	0.4
55-64	713	19.9	34.6	34.9	6.7	3.2	0.6
25-64	4602	9	22.9	47	16	4.6	0.5

Employment status

Description: Proportion of respondents in paid employment and those who are unpaid. Unpaid includes persons who are non-paid, students, homemakers, retired, and unemployed.

Instrument question:

- Which of the following best describes your main work status over the last 12 months?

Employment status						
Men						
Age Group (years)	n	% Government employee	% Non-government employee	% Farmer	% Self-employed	% Unpaid
25-34	718	8.2	19.8	49.2	13.5	9.3
35-44	686	9.0	19.0	45.5	18.2	8.3
45-54	484	9.1	16.5	46.3	17.1	11.0
55-64	410	4.1	9.8	52.0	16.6	17.6
25-64	2298	7.9	17.1	48.0	16.2	10.8

Employment status						
Men						
Age Group (years)	n	% Government employee	% Non-government employee	% Farmer	% Self-employed	% Unpaid
25-34	812	4.3	13.1	27.0	10.3	45.3
35-44	689	3.9	11.0	30.9	11.6	42.5
45-54	498	5.4	9.2	34.5	9.0	41.8
55-64	292	2.4	2.4	40.1	8.2	46.9
25-64	2291	4.2	10.3	31.5	10.2	43.9

Employment status						
Age Group (years)	Men					
	n	% Government employee	% Non-government employee	% Farmer	% Self-employed	% Unpaid
25-34	1530	6.1	16.2	37.4	11.8	28.4
35-44	1375	6.5	15.0	38.2	14.9	25.5
45-54	982	7.2	12.8	40.3	13.0	26.6
55-64	702	3.4	6.7	47.0	13.1	29.8
25-64	4589	6.1	13.7	39.7	13.2	27.3

Unpaid work and unemployed

Description: Proportion of respondents in unpaid work.

Instrument question:

- Which of the following best describes your main work status over the last 12 months?

Unpaid work and unemployed							
Age Group (years)	Men						
	n	% Home-maker	% Non-paid	% Retired	% Student	Unemployed	
						% Able to work	% Not able to work
25-34	67	6.0	7.5	23.9	0.0	62.7	0.0
35-44	58	3.4	3.4	32.8	0.0	58.6	1.7
45-54	61	4.9	0.0	16.4	29.5	36.1	13.1
55-64	81	1.2	0.0	18.5	46.9	22.2	11.1
25-64	267	3.7	2.6	22.5	21.0	43.4	6.7

Unpaid work and unemployed							
Age Group (years)	Women						
	n	% Home-maker	% Non-paid	% Retired	% Student	Unemployed	
						% Able to work	% Not able to work
25-34	368	1.9	1.6	85.1	0.0	11.4	0.0
35-44	293	1.4	0.3	89.1	0.7	8.5	0.0
45-54	211	1.4	0.5	87.7	2.4	6.6	1.4
55-64	138	0.7	0.0	86.2	10.1	2.2	0.7
25-64	1010	1.5	0.8	86.9	2.1	8.3	0.4

Unpaid work and unemployed							
Age Group (years)	Both Sexes						
	n	% Home-maker	% Non-paid	% Retired	% Student	Unemployed	
						% Able to work	% Not able to work
25-34	435	2.5	2.5	75.6	0.0	19.3	0.0
35-44	351	1.7	0.9	79.8	0.6	16.8	0.3
45-54	272	2.2	0.4	71.7	8.5	13.2	4.0
55-64	219	0.9	0.0	61.2	23.7	9.6	4.6
25-64	1277	2.0	1.2	73.5	6.0	15.7	1.7

Per capita annual income

Description: Mean reported per capita annual income of respondents in local currency.

Instrument question:

- How many people older than 18 years, including yourself, live in your household?
- Taking the past year, can you tell me what the average earning of the household has been?

Mean annual per capita income	
n	Mean
3397	134348.6

Estimated household earnings

Description: summary of participant household earnings by quintile.

Instrument question:

- If you don't know the amount, can you give an estimate of the annual household income if I read some options to you?

Estimated household earnings					
n	% Quintile 1: Under \$.....	% Quintile 2: \$.....-\$.....	% Quintile 3: \$.....-\$.....	% Quintile 4: \$.....-\$.....	% Quintile 5: Over \$.....
1072	40.8	21.7	14.3	8.3	14.9

Tobacco Use

Current smoking

Description: Current smokers among all respondents.

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?

Age Group (years)	Percentage of current smokers								
	Men			Women			Both Sexes		
	n	% Current smoker	95% CI	n	% Current smoker	95% CI	n	% Current smoker	95% CI
25-34	722	56.0	51.3-60.7	815	6.2	4.0-8.4	1537	29.3	26.0-32.5
35-44	689	46.7	42.2-51.1	692	2.6	1.4-3.8	1381	23.0	20.5-25.5
45-54	493	34.2	30.0-38.5	505	2.1	0.8-3.4	998	17.5	15.1-19.9
55-64	420	29.8	24.3-35.3	292	2.6	0.2-5.0	712	16.2	12.6-19.9
25-64	2324	45.8	43.1-48.6	2304	4.0	2.9-5.2	4628	23.7	21.8-25.6

Description: Smoking status of all respondents.

Smoking Status

Instrument questions:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?

Age Group (years)	Smoking status								
	Men								
	n	Current smoker				Non-smokers			
% Daily		95% CI	% Non-daily	95% CI	% Past smoker	95% CI	% Never smoker	95% CI	
25-34	722	32.6	28.1-37.2	23.4	19.5-27.2	21.1	17.7-24.5	22.9	19.1-26.7
35-44	689	23.0	18.7-27.4	23.6	19.2-28.0	26.9	23.4-30.4	26.4	22.6-30.3
45-54	493	18.2	14.2-22.3	16.0	12.7-19.3	33.3	28.2-38.3	32.5	27.3-37.7
55-64	420	12.2	8.6-15.9	17.6	13.1-22.1	42.0	36.0-48.0	28.2	22.4-34.0
25-64	2324	24.6	22.0-27.2	21.2	18.9-23.5	27.7	25.4-30.1	26.5	24.0-28.9

Frequency of smoking

Description: Percentage of current daily smokers among smokers.

Instrument question:

- Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
- Do you currently smoke tobacco products daily?

Current daily smokers among smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI
25-34	401	58.3	52.1-64.5	48	33.3	19.0-47.5	449	55.4	49.7-61.2
35-44	324	49.4	41.3-57.4	18	46.4	22.4-70.5	342	49.2	41.4-57.0
45-54	169	53.2	44.4-62.0	13	68.7	46.1-91.3	182	54.2	45.9-62.5
55-64	118	41.1	31.1-51.0	6	25.1	0.0-66.2	124	39.8	29.8-49.8
25-64	1012	53.7	49.3-58.1	85	38.7	28.1-49.3	1097	52.3	48.3-56.4

Smoking status									
Age Group (years)	Women								
	n	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Past smoker	95% CI	% Never smoker	95% CI
25-34	815	2.1	1.0-3.1	4.2	2.4-5.9	21.2	18.0-24.3	72.6	69.0-76.2
35-44	692	1.2	0.4-2.0	1.4	0.5-2.3	11.5	8.5-14.4	85.9	82.9-88.9
45-54	505	1.4	0.4-2.5	0.7	0.1-1.3	11.2	7.9-14.5	86.7	83.3-90.2
55-64	292	0.7	0.0-2.0	2.0	0.0-4.0	14.2	9.6-18.9	83.1	77.9-88.4
25-64	2304	1.6	1.0-2.1	2.5	1.6-3.3	15.8	13.8-17.7	80.2	77.9-82.5

Smoking status									
Age Group (years)	Both Sexes								
	n	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Past smoker	95% CI	% Never smoker	95% CI
25-34	1537	16.2	13.8-18.7	13.0	10.8-15.3	21.1	18.8-23.5	49.6	46.3-52.8
35-44	1381	11.3	9.2-13.5	11.7	9.4-13.9	18.6	16.1-21.2	58.4	55.3-61.5
45-54	998	9.5	7.5-11.5	8.0	6.3-9.8	21.8	18.8-24.8	60.7	57.3-64.2
55-64	712	6.5	4.5-8.4	9.8	6.8-12.7	28.1	24.0-32.2	55.7	50.3-61.0
25-64	4628	12.4	11.0-13.8	11.3	10.0-12.6	21.4	19.7-23.0	54.9	52.8-57.1

Manufactured cigarette smokers

Description: Percentage of smokers who use manufactured cigarettes among daily smokers.

Instrument question:

- On average, how many of the following do you smoke each day?

Manufactured cigarette smokers among daily smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI
25-34	228	53.1	44.3-62.0	15	87.0	68.8-100.0	243	55.5	46.9-64.1
35-44	162	47.8	37.6-58.0	8	86.9	60.6-100.0	170	50.0	40.3-59.7
45-54	87	51.6	38.5-64.6	8	74.8	41.6-100.0	95	53.4	41.3-65.5
55-64	50	30.6	14.5-46.7	2	0.0	0.0-0.0	52	29.1	13.3-44.8
25-64	527	50.2	43.6-56.7	33	80.7	66.5-95.0	560	52.2	45.9-58.6

Amount of tobacco used among smokers by type

Description: Mean amount of tobacco used by daily smokers per day, by type.

Instrument question:

- On average, how many of the following do you smoke each day?

Mean amount of tobacco used by daily smokers by type												
Age Group (years)	Men											
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI	n	Mean # of other type of tobacco	95% CI
25-34	166	4.1	2.5-5.6	147	0.5	0.1-0.9	203	3.0	2.4-3.6	145	0.2	0.0-0.5
35-44	113	3.5	2.0-4.9	98	0.2	0.0-0.5	144	3.1	2.3-3.9	99	0.1	0.0-0.3
45-54	63	4.9	3.2-6.7	53	0.0	0.0-0.1	76	3.0	2.2-3.8	53	0.2	0.0-0.4
55-64	32	2.2	0.6-3.8	29	0.5	0.0-1.2	44	3.4	2.5-4.3	30	0.3	0.0-0.6
25-64	374	4.0	2.9-5.0	327	0.4	0.2-0.6	467	3.1	2.6-3.5	327	0.2	0.1-0.3

Mean amount of tobacco used by daily smokers by type												
Women												
Age Group (years)	Manufactured cig.			Hand-rolled cig.			Pipes of tobacco			Other type of tobacco		
	n	Mean #	95% CI	n	Mean #	95% CI	n	Mean #	95% CI	n	Mean #	95% CI
25-34	14	5.6	--	14	0.0	--	15	1.9	--	14	0.0	--
35-44	7	8.3	--	7	0.2	--	8	1.5	--	7	0.0	--
45-54	7	6.3	--	6	0.0	--	6	0.2	--	6	0.0	--
55-64	2	0.0	--	2	0.0	--	2	2.0	--	2	0.0	--
25-64	30	6.0	--	29	0.0	--	31	1.6	--	29	0.0	--

Mean amount of tobacco used by daily smokers by type												
Both Sexes												
Age Group (years)	Manufactured cig.			Hand-rolled cig.			Pipes of tobacco			Other type of tobacco		
	n	Mean #	95% CI	n	Mean #	95% CI	n	Mean #	95% CI	n	Mean #	95% CI
25-34	180	4.2	2.6-5.9	161	0.5	0.1-0.9	218	2.9	2.3-3.5	159	0.2	0.0-0.4
35-44	120	3.8	2.4-5.2	105	0.2	0.0-0.4	152	3.0	2.3-3.7	106	0.1	0.0-0.3
45-54	70	5.0	3.4-6.7	59	0.0	0.0-0.1	82	2.8	2.1-3.6	59	0.2	0.0-0.4
55-64	34	2.1	0.6-3.6	31	0.4	0.0-1.1	46	3.3	2.4-4.2	32	0.2	0.0-0.5
25-64	404	4.1	3.0-5.3	356	0.4	0.2-0.6	498	3.0	2.5-3.4	356	0.2	0.1-0.3

Initiation of smoking

Description: Mean age of initiation and mean duration of smoking, in years, among daily smokers (no total age group for mean duration of smoking as age influences these values).

Instrument questions:

- How old were you when you first started smoking daily?
- How long ago did you stop smoking daily?

Mean age started smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean age started smoking	95% CI	n	Mean age started smoking	95% CI	n	Mean age started smoking	95% CI
25-34	205	18.8	18.1-19.5	13	19.6	--	218	18.8	18.2-19.5
35-44	134	21.1	20.0-22.2	8	20.9	--	142	21.1	19.9-22.3
45-54	76	23.2	21.4-25.0	7	22.0	--	83	23.1	21.4-24.8
55-64	39	22.0	19.7-24.4	2	33.0	--	41	22.7	20.2-25.2
25-64	454	20.2	19.7-20.7	30	21.0	--	484	20.2	19.7-20.8

Mean duration of smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean yrs of smoking	95% CI	n	Mean yrs of smoking	95% CI	n	Mean yrs of smoking	95% CI
25-34	205	9.8	9.0-10.5	13	9.8	--	218	9.8	9.0-10.5
35-44	134	17.4	16.2-18.6	8	19.1	--	142	17.5	16.3-18.7
45-54	76	25.7	23.8-27.6	7	25.8	--	83	25.7	23.9-27.5
55-64	39	37.9	35.2-40.6	2	30.0	--	41	37.4	34.8-40.0
25-64	454	15.6	14.6-16.6	30	15.7	--	484	15.6	14.6-16.6

Betel Nut Use

Description: Percentage of participants who chew betel nut.

Betel Nut Use

Betel Nut Use							
Men							
Age Group (years)	n	Current User			% Does not use	95% CI	
		% Daily	95% CI	% Non-daily			95% CI
25-34	719	0.2	0.0-0.6	2.6	1.2-4.0	97.2	95.8-98.6
35-44	689	0.0	0.0-0.0	1.5	0.4-2.6	98.5	97.4-99.6
45-54	492	0.0	0.0-0.0	0.9	0.1-1.7	99.1	98.3-99.9
55-64	420	0.0	0.0-0.0	0.5	0.0-1.1	99.5	98.9-100.0
25-64	2320	0.1	0.0-0.2	1.7	1.1-2.3	98.2	97.6-98.9

Betel Nut Use							
Women							
Age Group (years)	n	Current User			% Does not use	95% CI	
		% Daily	95% CI	% Non-daily			95% CI
25-34	814	--	--	0.2	0.0-0.5	99.8	99.5-100.0
35-44	695	--	--	0.1	0.0-0.2	99.9	99.8-100.0
45-54	505	--	--	0.2	0.0-0.7	99.8	99.3-100.0
55-64	291	--	--	0.6	0.0-1.9	99.4	98.1-100.0
25-64	2305	--	--	0.2	0.0-0.5	99.8	99.5-100.0

Betel Nut Use							
Both Sexes							
Age Group (years)	n	Current User			% Does not use	95% CI	
		% Daily	95% CI	% Non-daily			95% CI
25-34	1533	0.1	0.0-0.3	1.3	0.6-2.1	98.6	97.9-99.3
35-44	1384	0.0	0.0-0.0	0.7	0.3-1.2	99.3	98.8-99.7
45-54	997	0.0	0.0-0.0	0.5	0.1-1.0	99.5	99.0-99.9
55-64	711	0.0	0.0-0.0	0.5	0.0-1.5	99.5	98.5-100.0
25-64	4625	0.0	0.0-0.1	0.9	0.6-1.3	99.0	98.7-99.4

Alcohol Consumption

Alcohol consumption status

Description: Alcohol consumption status of all respondents.

Instrument questions:

- Have you ever consumed alcohol?
- Have you consumed alcohol (such as beer, wine, spirits, fermented cider, or (add other local examples) within the past 12 months?

Alcohol consumption status									
Men									
Age Group (years)	n	% Lifetime Abstainer	95% CI	% Past 12 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI	% Current drinker (drank in past 30 days)	95% CI
25-34	691	18.5	14.9-22.0	36.3	31.9-40.7	27.9	24.0-31.9	17.3	13.7-20.9
35-44	673	23.5	19.9-27.0	42.8	37.9-47.8	21.9	17.9-26.0	11.8	8.0-15.6
45-54	482	28.0	23.7-32.3	48.5	43.2-53.8	16.3	12.1-20.6	7.1	4.2-10.0
55-64	412	22.9	18.4-27.4	62.7	57.0-68.4	11.3	6.6-16.0	3.1	1.4-4.8
25-64	2258	22.3	20.0-24.6	43.9	40.8-46.9	21.9	19.3-24.4	11.9	9.8-14.1

Alcohol consumption status									
Men									
Age Group (years)	n	% Lifetime Abstainer	95% CI	% Past 12 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI	% Current drinker (drank in past 30 days)	95% CI
25-34	691	65.8	61.1-70.6	23.5	19.8-27.2	2.9	1.3-4.5	2.9	1.3-4.5
35-44	673	73.5	69.3-77.7	18.4	14.8-22.1	2.5	1.0-4.0	2.5	1.0-4.0
45-54	482	76.6	72.8-80.4	18.5	14.7-22.3	1.9	0.5-3.3	1.9	0.5-3.3
55-64	412	82.5	76.9-88.2	14.8	9.6-19.9	1.3	0.0-2.6	1.3	0.0-2.6
25-64	2258	71.9	68.9-74.9	20.2	17.7-22.6	2.4	1.3-3.5	2.4	1.3-3.5

Alcohol consumption status									
Age Group (years)	Men								
	n	% Lifetime Abstainer	95% CI	% Past 12 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI	% Current drinker (drank in past 30 days)	95% CI
25-34	691	44.3	40.7-47.8	29.4	26.7-32.0	9.5	7.5-11.4	9.5	7.5-11.4
35-44	673	50.6	46.8-54.4	29.6	26.0-33.2	6.7	4.7-8.7	6.7	4.7-8.7
45-54	482	53.4	49.7-57.1	32.8	29.0-36.6	4.4	2.8-6.0	4.4	2.8-6.0
55-64	412	52.8	48.3-57.3	38.6	34.2-43.1	2.2	1.1-3.3	2.2	1.1-3.3
25-64	2258	48.8	46.4-51.3	31.2	28.9-33.4	6.8	5.5-8.2	6.8	5.5-8.2

Frequency of alcohol consumption

Description: Frequency of alcohol consumption in the last year among those respondents who have drunk in the last 12 months.

Instrument question:

- In the past 12 months, how frequently have you had at least one drink?

Frequency of alcohol consumption in the last 12 months											
Age Group (years)	Men										
	n	% less than once a month	95% CI	% 1-3 days per month	95% CI	% 1-4 days per week	95% CI	% 5-6 days per week	95% CI	% Daily	95% CI
25-34	295	60.4	52.8-67.9	34.4	27.4-41.4	3.1	1.0-5.1	1.1	0.0-2.8	1.0	0.0-2.6
35-44	204	62.1	52.6-71.6	30.3	22.0-38.7	3.6	0.9-6.3	1.8	0.0-3.8	2.2	0.0-4.7
45-54	97	72.9	61.6-84.2	18.7	10.4-27.1	0.9	0.0-2.7	3.9	0.0-8.7	3.6	0.0-8.0
55-64	45	67.2	52.8-81.5	24.6	11.4-37.8	4.3	0.0-9.7	3.9	0.0-11.5	0.0	0.0-0.0
25-64	641	62.9	56.7-69.2	30.6	25.2-36.1	3.0	1.5-4.4	1.8	0.6-3.1	1.6	0.4-2.9

Frequency of alcohol consumption in the last 12 months											
Women											
Age Group (years)	n	% less than once a month	95% CI	% 1-3 days per month	95% CI	% 1-4 days per week	95% CI	% 5-6 days per week	95% CI	% Daily	95% CI
25-34	80	65.3	52.2-78.3	25.1	15.6-34.7	8.5	1.4-15.5	--	--	1.2	0.0-3.5
35-44	54	73.2	61.8-84.7	20.8	10.6-31.0	5.2	0.1-10.3	--	--	0.8	0.0-2.3
45-54	28	65.5	41.1-89.8	25.6	2.3-48.9	8.9	0.0-20.4	--	--	0.0	0.0-0.0
55-64	8	66.1	31.9-100.0	14.0	0.0-40.1	0.0	0.0-0.0	--	--	19.9	0.0-48.5
25-64	170	67.6	57.8-77.3	23.5	16.6-30.5	7.3	2.8-11.8	--	--	1.6	0.0-3.4

Frequency of alcohol consumption in the last 12 months											
Both Sexes											
Age Group (years)	n	% less than once a month	95% CI	% 1-3 days per month	95% CI	% 1-4 days per week	95% CI	% 5-6 days per week	95% CI	% Daily	95% CI
25-34	375	61.4	54.5-68.3	32.4	26.3-38.4	4.3	1.8-6.7	0.9	0.0-2.2	1.0	0.0-2.4
35-44	258	64.6	56.5-72.7	28.2	21.0-35.4	3.9	1.7-6.2	1.4	0.0-2.9	1.9	0.0-3.9
45-54	125	71.5	61.5-81.5	20.1	11.6-28.5	2.5	0.0-4.9	3.1	0.0-7.0	2.9	0.0-6.5
55-64	53	67.0	52.2-81.8	22.9	9.7-36.0	3.6	0.0-8.2	3.3	0.0-9.7	3.3	0.0-8.3
25-64	811	63.9	58.0-69.9	29.1	24.3-33.9	3.9	2.4-5.4	1.4	0.5-2.4	1.6	0.6-2.7

Description: Number of standard drinks consumed on a drinking day among those respondents who have drunk in the last 12 months.

Instrument question:

- When you drink alcohol, on average, how many drinks do you have during one day?

Standard drinks per drinking day

Number of standard drinks consumed on a drinking day											
Men											
Age Group (years)	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI	Mean # of standard drinks	95% CI
25-34	101	19.4	10.2-28.6	30.9	20.6-41.2	19.9	9.9-29.8	29.9	19.6-40.1	6.0	4.5-7.4
35-44	68	19.3	8.5-30.0	45.4	33.3-57.5	8.9	2.3-15.5	26.4	14.4-38.4	5.1	3.6-6.6
45-54	28	17.6	1.2-33.9	29.1	15.5-42.8	36.2	18.3-54.0	17.1	0.0-34.2	3.9	2.7-5.1
55-64	12	22.5	0.0-51.7	34.3	6.3-62.4	22.3	0.0-46.7	20.9	0.0-44.9	4.6	2.2-6.9
25-64	209	19.2	12.6-25.8	34.7	27.6-41.9	19.0	12.1-25.9	27.1	19.3-34.9	5.5	4.5-6.5

Number of standard drinks consumed on a drinking day											
Women											
Age Group (years)	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI	Mean # of standard drinks	95% CI
25-34	23	40.1	17.3-62.9	22.1	0.0-46.9	23.5	4.2-42.8	14.3	0.0-30.9	4.0	1.7-6.3
35-44	18	36.7	9.1-64.3	35.4	2.0-68.7	9.4	0.0-22.8	18.5	0.0-39.6	4.4	0.8-8.0
45-54	11	24.1	2.7-45.4	51.7	22.5-80.9	12.5	0.0-38.0	11.8	0.0-25.3	2.9	1.8-4.1
55-64	4	32.4	0.0-87.5	56.8	1.0-100.0	10.7	0.0-34.4	0.0	0.0-0.0	2.0	1.0-3.0
25-64	56	36.2	16.3-56.1	32.6	11.3-53.9	17.0	5.9-28.2	14.2	4.8-23.7	3.8	2.2-5.5

Number of standard drinks consumed on a drinking day											
Both Sexes											
Age Group (years)	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI	Mean # of standard drinks	95% CI
25-34	124	23.0	13.7-32.3	29.4	19.8-38.9	20.5	12.0-29.1	27.1	17.6-36.6	5.6	4.3-6.9
35-44	86	22.8	12.0-33.6	43.4	30.7-56.1	9.0	3.0-15.0	24.8	14.5-35.1	5.0	3.6-6.4
45-54	39	19.1	5.2-33.0	34.4	22.3-46.5	30.7	14.6-46.7	15.9	3.0-28.8	3.7	2.7-4.7
55-64	16	25.8	0.0-52.6	41.8	12.2-71.3	18.5	0.0-37.0	13.9	0.0-30.9	3.7	1.9-5.5
25-64	265	22.5	15.2-29.9	34.3	26.6-42.0	18.6	12.6-24.6	24.6	17.5-31.6	5.1	4.2-6.1

Heavy drinking

Description: Frequency and quantity of drinks consumed in the last 7 days by current (last 30 days) drinker, grouped into three categories.

Instrument question:

- During each of the past 7 days, how many standard drinks of any alcoholic drink did you have each day?

Frequency and quantity of drinks consumed in the last 7 days							
Men							
Age Group (years)	n	% Drank on 4+ days	95% CI	% 5+ drinks on any day	95% CI	% 20+ drinks in 7 days	95% CI
25-34	93	3.6	0.0-9.0	17.5	8.5-26.6	3.8	0.0-7.5
35-44	66	7.2	0.0-14.3	32.2	18.1-46.4	8.5	0.0-17.4
45-54	29	13.4	0.0-28.1	21.4	5.0-37.8	3.3	0.0-10.0
55-64	13	17.3	0.0-39.8	10.1	0.0-29.3	0.0	0.0-0.0
25-64	201	6.4	2.5-10.3	21.9	14.5-29.4	4.9	1.6-8.2

Frequency and quantity of drinks consumed in the last 7 days							
Age Group (years)	Women						
	n	% Drank on 4+ days	95% CI	% 4+ drinks on any day	95% CI	% 15+ drinks in 7 days	95% CI
25-34	23	1.9	0.0-5.9	15.0	0.0-33.7	4.4	0.0-13.7
35-44	19	11.2	0.0-25.6	18.0	0.0-38.0	9.9	0.0-23.3
45-54	11	0.0	0.0-0.0	12.5	0.0-38.0	0.0	0.0-0.0
55-64	4	10.7	0.0-34.4	10.7	0.0-34.4	10.7	0.0-34.4
25-64	57	4.8	0.0-9.8	15.2	1.7-28.7	5.7	0.0-12.7

Frequency and quantity of drinks consumed in the last 7 days			
Age Group (years)	Both Sexes		
	n	% Drank on 4+ days	95% CI
25-34	116	3.3	0.0-7.8
35-44	85	8.0	1.9-14.1
45-54	40	10.4	0.0-22.1
55-64	17	15.3	0.0-30.9
25-64	258	6.1	2.9-9.3

Hazardous and harmful drinking

Description: Percentage of current (last 30 days) drinker engaging in hazardous and harmful drinking in the last 7 days.

Harmful drinking is defined as ≥ 60 g of pure alcohol on average per day for men and ≥ 40 g for women.

Hazardous drinking is defined as 40-59.9g of pure alcohol on average per day for men and 20-39.9g for women.

A standard drink contains approximately 10g of pure alcohol.

Instrument question:

- During each of the past 7 days, how many standard drinks of any alcoholic drink did you have each day?

Hazardous and harmful drinking in the last 7 days					
Men					
Age Group (years)	n	% hazardous drinking	95% CI	% harmful drinking	95% CI
25-34	98	1.9	0.0-4.6	0.0	0.0-0.0
35-44	70	1.4	0.0-4.2	2.8	0.0-8.4
45-54	37	0.0	0.0-0.0	0.0	0.0-0.0
55-64	14	0.0	0.0-0.0	0.0	0.0-0.0
25-64	219	1.4	0.0-3.0	0.8	0.0-2.3

Hazardous and harmful drinking in the last 7 days					
Women					
Age Group (years)	n	% hazardous drinking	95% CI	% harmful drinking	95% CI
25-34	23	4.4	0.0-13.6	0.0	0.0-0.0
35-44	19	13.6	0.0-33.2	4.4	0.0-12.8
45-54	13	0.0	0.0-0.0	0.0	0.0-0.0
55-64	6	0.0	0.0-0.0	4.9	0.0-16.4
25-64	61	5.6	0.0-12.4	1.7	0.0-5.4

Fruit and Vegetable Consumption

Mean number of days of fruit and vegetable consumption

Description: mean number of days fruit and vegetables consumed.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- In a typical week, on how many days do you eat vegetables?

Mean number of days fruit consumed in a typical week									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	710	4.2	3.9-4.4	806	3.7	3.4-3.9	1516	3.9	3.7-4.1
35-44	681	4.0	3.8-4.2	684	3.7	3.5-3.9	1365	3.9	3.7-4.0
45-54	494	3.9	3.7-4.1	495	3.8	3.5-4.1	989	3.9	3.7-4.1
55-64	411	4.0	3.7-4.3	287	3.7	3.3-4.0	698	3.9	3.6-4.1
25-64	2296	4.0	3.9-4.2	2272	3.7	3.5-3.9	4568	3.9	3.7-4.0

Mean number of days vegetables consumed in a typical week									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	714	5.6	5.4-5.8	801	5.4	5.2-5.6	1515	5.5	5.3-5.6
35-44	679	5.5	5.3-5.7	685	5.5	5.3-5.6	1364	5.5	5.4-5.6
45-54	488	5.6	5.3-5.8	493	5.6	5.4-5.8	981	5.6	5.4-5.8
55-64	414	5.7	5.5-5.9	283	5.6	5.3-5.8	697	5.6	5.5-5.8
25-64	2295	5.6	5.5-5.7	2262	5.5	5.3-5.6	4557	5.5	5.4-5.6

Mean number of servings of fruit and vegetable consumption

Description: mean number of fruit, vegetable, and combined fruit and vegetable servings on average per day.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- How many servings of fruit do you eat on one of those days?
- In a typical week, on how many days do you eat vegetables?
- How many servings of vegetables do you eat on one of those days?

Mean number of servings of fruit on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	697	2.1	1.8-2.4	791	1.6	1.4-1.8	1488	1.8	1.6-2.0
35-44	662	2.0	1.7-2.3	663	1.8	1.6-2.0	1325	1.9	1.7-2.1
45-54	487	2.0	1.6-2.3	484	2.0	1.6-2.3	971	2.0	1.7-2.3
55-64	406	2.1	1.7-2.6	282	1.7	1.5-2.0	688	1.9	1.6-2.2
25-64	2252	2.0	1.8-2.3	2220	1.7	1.6-1.9	4472	1.9	1.7-2.1

Mean number of servings of vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	697	3.3	2.9-3.6	784	2.8	2.5-3.0	1481	3.0	2.7-3.3
35-44	663	3.3	3.0-3.6	668	3.1	2.8-3.5	1331	3.2	3.0-3.5
45-54	478	3.2	2.8-3.6	480	3.2	2.9-3.6	958	3.2	2.9-3.5
55-64	405	3.5	3.1-4.0	276	3.2	2.9-3.5	681	3.4	3.1-3.7
25-64	2243	3.3	3.0-3.6	2208	3.0	2.8-3.2	4451	3.1	2.9-3.4

Mean number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	711	5.2	4.7-5.8	803	4.3	3.9-4.6	1514	4.7	4.3-5.1
35-44	675	5.2	4.7-5.7	683	4.8	4.4-5.3	1358	5.0	4.6-5.4
45-54	493	5.1	4.4-5.8	496	5.1	4.4-5.7	989	5.1	4.5-5.6
55-64	414	5.6	4.7-6.4	284	4.9	4.4-5.3	698	5.2	4.7-5.7
25-64	2293	5.2	4.7-5.8	2266	4.6	4.3-5.0	4559	4.9	4.5-5.3

Fruit and vegetable consumption per day

Description: Frequency of fruit and/or vegetable consumption.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- How many servings of fruit do you eat on one of those days?
- In a typical week, on how many days do you eat vegetables?
- How many servings of vegetables do you eat on one of those days?

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Men								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	711	5.6	3.5-7.8	26.0	21.2-30.9	25.8	21.7-30.0	42.5	36.8-48.2
35-44	675	4.7	2.8-6.5	28.4	24.2-32.5	25.7	21.5-30.0	41.3	35.6-46.9
45-54	493	8.5	5.5-11.5	29.0	23.9-34.1	23.7	19.3-28.1	38.9	32.1-45.7
55-64	414	6.7	3.9-9.6	21.0	16.2-25.8	26.4	21.3-31.4	45.9	38.5-53.3
25-64	2293	6.1	4.5-7.7	26.7	23.3-30.0	25.4	22.7-28.1	41.8	37.0-46.6

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Women								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	803	8.5	5.8-11.1	34.7	30.3-39.2	23.7	20.3-27.2	33.0	28.7-37.4
35-44	683	6.2	4.0-8.4	32.5	27.5-37.4	25.4	21.5-29.2	36.0	30.8-41.2
45-54	496	9.0	5.6-12.3	30.5	24.8-36.1	24.5	20.4-28.7	36.0	29.9-42.2
55-64	284	7.6	3.7-11.5	28.0	21.1-34.8	26.0	20.0-31.9	38.5	31.9-45.1
25-64	2266	7.8	6.0-9.7	32.5	28.9-36.1	24.6	22.1-27.0	35.0	31.3-38.8

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Both Sexes								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	1514	7.2	5.3-9.1	30.7	27.0-34.4	24.7	21.7-27.7	37.4	33.4-41.5
35-44	1358	5.5	3.8-7.1	30.6	27.0-34.2	25.5	22.4-28.7	38.4	33.8-43.0
45-54	989	8.7	6.0-11.4	29.7	25.6-33.9	24.1	21.1-27.1	37.4	32.0-42.9
55-64	698	7.2	4.5-9.8	24.4	20.0-28.9	26.2	21.8-30.5	42.2	36.4-48.0
25-64	4559	7.0	5.5-8.6	29.8	26.8-32.7	25.0	22.9-27.1	38.2	34.4-42.1

Fruit and vegetable consumption per day

Description: Percentage of those eating less than five servings of fruit and/or vegetables on average per day.

Instrument questions:

- In a typical week, on how many days do you eat fruit?
- How many servings of fruit do you eat on one of those days?
- In a typical week, on how many days do you eat vegetables?
- How many servings of vegetables do you eat on one of those days?

Less than five servings of fruit and/or vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI
25-34	711	57.5	51.8-63.2	803	67.0	62.6-71.3	1514	62.6	58.5-66.6
35-44	675	58.7	53.1-64.4	683	64.0	58.8-69.2	1358	61.6	57.0-66.2
45-54	493	61.1	54.3-67.9	496	64.0	57.8-70.1	989	62.6	57.1-68.0
55-64	414	54.1	46.7-61.5	284	61.5	54.9-68.1	698	57.8	52.0-63.6
25-64	2293	58.2	53.4-63.0	2266	65.0	61.2-68.7	4559	61.8	57.9-65.6

Physical Activity

Introduction

Analysis physical activity data can be very complicated and the result confusing. The following guidelines will help clarify the results of the physical activity data and will also provide valuable information on the classifications. Make sure you use some of these guidelines when you report physical activity data.

- MET values are applied to vigorous and moderate intensity variables in the work, transport and recreation domains. These have been calculated using an average of the typical types of activity undertaken. Different types of activities have been grouped together and given a MET value based on the intensity of the activity. Applying MET values to types of activities allows us to calculate total physical activity. For more information regarding MET values go the STEPS website at www.who.int/chp/steps.
- The calculations below use multiple questions in the physical activity section. To simplify this a bit the questions have been clustered into four groups (as they appear in the Instrument). In the Instrument questions section of the table, only the group label appears. The specific questions for each group are presented below.

Activity at work:

- Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like [examples] for at least 10 minutes continuously?
- In a typical week, on how many days do you do vigorous-intensity activities as part of your work?
- How much time do you spend doing vigorous-intensity activities at work on a typical day?
- Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking for at least 10 minutes continuously?
- In a typical week, on how many days do you do moderate-intensity activities as part of your work?
- How much time do you spend doing moderate-intensity activities at work on a typical day?

Travel to and from places:

- Do you walk or use a bicycle for at least 10 minutes continuously to get to and from places?
- In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?

Continued on next page

Physical Activity, Continued

Introduction (cont.)

- How much time do you spend walking or bicycling for travel on a typical day?
-
- Recreational activities:
 - Do you do any involve vigorous-intensity sports, fitness or recreational activities that cause large increases in breathing or heart rate like [examples] for at least 10 minutes continuously?
 - In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational activities?
 - How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?
 - Do you do any involve moderate-intensity sports, fitness or recreational activities that cause large increases in breathing or heart rate like [examples] for at least 10 minutes continuously?
 - In a typical week, on how many days do you do moderate--intensity sports, fitness or recreational activities?
 - How much time do you spend doing moderate--intensity sports, fitness or recreational activities on a typical day?
-
- Sedentary behaviour :
 - How much time do you usually spend sitting or reclining on a typical day?

Levels of total physical activity

Description: Percentage of respondents classified into three categories of total physical activity.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

Level of total physical activity							
Age Group (years)	Men						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	699	8.0	5.5-10.5	4.7	2.6-6.7	87.3	84.1-90.5
35-44	663	9.0	6.6-11.3	7.9	5.5-10.2	83.2	79.7-86.7
45-54	478	13.1	9.1-17.0	10.1	6.7-13.5	76.8	71.3-82.4
55-64	408	14.2	9.6-18.8	17.7	13.4-22.1	68.0	61.9-74.2
25-64	2248	10.1	8.4-11.7	8.3	6.6-9.9	81.7	79.2-84.2

Level of total physical activity							
Age Group (years)	Women						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	772	14.2	11.3-17.2	20.8	17.4-24.2	65.0	60.7-69.3
35-44	661	11.9	9.1-14.7	17.0	13.7-20.3	71.1	66.9-75.3
45-54	490	10.7	7.3-14.1	20.8	16.4-25.3	68.5	62.9-74.2
55-64	286	17.2	11.7-22.7	21.9	16.6-27.3	60.9	54.6-67.2
25-64	2209	13.2	11.2-15.2	19.9	17.7-22.0	66.9	63.8-70.0

Level of total physical activity							
Age Group (years)	Both Sexes						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	1471	11.3	9.3-13.3	13.2	10.8-15.7	75.4	72.3-78.6
35-44	1324	10.5	8.5-12.6	12.7	10.7-14.8	76.7	73.7-79.8
45-54	968	11.8	9.1-14.6	15.6	12.6-18.6	72.5	68.2-76.9
55-64	694	15.7	12.1-19.4	19.8	16.1-23.6	64.5	59.9-69.0
25-64	4457	11.7	10.3-13.1	14.4	12.7-16.0	73.9	71.5-76.3

Total physical activity-mean

Description: Mean minutes of total physical activity on average per day.

Instrument questions

- activity at work
- travel to and from places
- recreational activities

Mean minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	699	367.3	336.5-398.2	772	230.9	210.7-251.0	1471	294.8	274.6-315.0
35-44	663	341.7	318.0-365.5	661	239.5	221.9-257.1	1324	287.1	271.4-302.9
45-54	478	311.0	277.7-344.2	490	236.3	216.1-256.5	968	272.4	251.3-293.5
55-64	408	263.5	234.9-292.2	286	214.0	187.8-240.2	694	238.7	218.2-259.2
25-64	2248	336.0	317.1-355.0	2209	232.5	218.8-246.1	4457	281.6	268.5-294.7

Total physical activity-median

Description: Median minutes of total physical activity on average per day.

Instrument questions

- activity at work
- travel to and from places
- recreational activities

Median minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	699	317.1	156.4 – 510.0	772	162.9	77.1 – 325.7	1471	222.9	102.9 – 428.6
35-44	663	282.9	139.3 – 462.9	661	180.0	94.3 – 349.3	1324	231.4	107.1 – 402.9
45-54	478	248.6	107.1 – 428.6	490	180.7	85.7 – 316.4	968	214.3	94.3 – 377.1
55-64	408	214.3	85.7 – 385.7	286	145.7	64.3 – 308.6	694	171.4	68.6 – 351.4
25-64	2248	278.6	132.9 – 471.4	2209	171.4	81.4 – 325.7	4457	214.3	98.6 – 402.9

Domain-specific physical activity-mean

Description: Mean minutes spent in work-, transport- and recreation-related physical activity on average per day.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

Mean minutes of work-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	699	249.1	226.1-272.2	772	164.0	149.9-178.0	1471	203.8	189.5-218.2
35-44	663	248.7	229.9-267.6	661	180.2	165.5-195.0	1324	212.1	199.3-225.0
45-54	478	231.8	205.7-257.8	490	178.4	161.2-195.5	968	204.2	187.4-221.0
55-64	408	188.6	166.3-210.8	286	159.0	138.5-179.5	694	173.8	158.4-189.1
25-64	2248	238.0	223.7-252.3	2209	170.8	160.6-181.0	4457	202.7	192.9-212.4

Mean minutes of transport-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	699	62.4	54.3-70.5	772	39.7	33.7-45.8	1471	50.3	45.7-54.9
35-44	663	55.7	49.8-61.7	661	38.6	34.1-43.1	1324	46.6	42.7-50.5
45-54	478	53.2	43.9-62.5	490	41.3	34.5-48.1	968	47.1	41.3-52.9
55-64	408	52.3	44.4-60.1	286	40.3	33.2-47.3	694	46.2	40.4-52.0
25-64	2248	57.5	52.6-62.3	2209	39.8	36.4-43.2	4457	48.2	45.1-51.2

Mean minutes of recreation-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	699	55.8	47.3-64.4	772	27.2	22.4-32.0	1471	40.6	35.3-45.9
35-44	663	37.3	31.0-43.6	661	20.7	15.6-25.7	1324	28.4	24.2-32.6
45-54	478	26.0	20.5-31.4	490	16.6	12.7-20.6	968	21.1	17.7-24.6
55-64	408	22.7	16.5-29.0	286	14.7	9.2-20.2	694	18.7	13.9-23.5
25-64	2248	40.6	35.6-45.6	2209	21.9	18.6-25.1	4457	30.8	27.5-34.0

Domain-specific physical activity

Description: Median minutes spent on average per day in work-, transport- and recreation-related physical activity.

Instrument questions:

median

- activity at work
- travel to and from places
- recreational activities

Median minutes of work-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	699	205.7	85.7-377.1	772	111.4	51.4-222.9	1471	150.0	60.0-308.6
35-44	663	205.7	85.7-360.0	661	128.6	60.0-257.1	1324	162.9	64.3-342.9
45-54	478	201.4	68.6-342.9	490	132.9	60.0-257.1	968	154.3	60.0-308.6
55-64	408	154.3	51.4-274.3	286	120.0	42.9-214.3	694	128.6	42.9-257.1
25-64	2248	205.7	72.9-360.0	2209	120.0	51.4-240.0	4457	154.3	60.0-308.6

Median minutes of transport-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	699	30.0	8.6-85.7	772	17.1	2.1-50.0	1471	21.4	6.4-60.0
35-44	663	30.0	8.6-60.0	661	17.1	4.3-51.4	1324	25.7	8.6-60.0
45-54	478	25.7	8.6-60.0	490	21.4	7.1-51.4	968	21.4	7.1-60.0
55-64	408	25.7	8.6-60.0	286	17.1	2.1-51.4	694	25.7	6.4-60.0
25-64	2248	25.7	8.6-68.6	2209	17.1	4.3-51.4	4457	21.4	7.1-60.0

Median minutes of recreation-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	699	25.7	0.0-81.4	772	0.0	0.0-25.7	1471	8.6	0.0-51.4
35-44	663	0.0	0.0-42.9	661	0.0	0.0-17.1	1324	0.0	0.0-25.7
45-54	478	0.0	0.0-30.0	490	0.0	0.0-8.6	968	0.0	0.0-17.1
55-64	408	0.0	0.0-17.1	286	0.0	0.0-8.6	694	0.0	0.0-11.4
25-64	2248	8.6	0.0-51.4	2209	0.0	0.0-17.1	4457	0.0	0.0-34.3

No physical activity by domain

Description: Percentage of respondents classified as doing no work-, transport- or recreational-related physical activity.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

No work-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at work	95% CI	n	% no activity at work	95% CI	n	% no activity at work	95% CI
25-34	699	5.9	3.8-7.9	772	7.9	5.4-10.4	1471	6.9	5.1-8.7
35-44	663	7.7	5.0-10.4	661	8.6	6.1-11.1	1324	8.2	6.2-10.2
45-54	478	9.0	5.5-12.4	490	7.1	4.1-10.0	968	8.0	5.5-10.5
55-64	408	8.9	4.6-13.1	286	6.8	3.7-9.8	694	7.8	5.0-10.6
25-64	2248	7.4	5.7-9.0	2209	7.8	6.0-9.5	4457	7.6	6.1-9.1

No transport-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI
25-34	699	14.0	11.1-17.0	772	23.1	19.4-26.8	1471	18.9	16.5-21.2
35-44	663	13.5	10.4-16.5	661	22.0	18.5-25.4	1324	18.0	15.6-20.5
45-54	478	17.9	13.5-22.3	490	17.8	13.8-21.8	968	17.9	14.4-21.4
55-64	408	15.9	11.4-20.4	286	23.7	17.7-29.8	694	19.8	15.8-23.8
25-64	2248	14.9	12.7-17.2	2209	21.8	19.6-24.0	4457	18.5	16.7-20.4

No recreation-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI
25-34	699	32.6	27.7-37.5	772	55.5	51.0-60.0	1471	44.8	41.0-48.6
35-44	663	51.1	46.2-56.0	661	64.6	60.1-69.2	1324	58.3	54.8-61.8
45-54	478	57.1	51.3-63.0	490	68.6	63.6-73.5	968	63.0	58.9-67.2
55-64	408	62.0	55.2-68.8	286	71.4	65.5-77.2	694	66.7	61.8-71.6
25-64	2248	46.3	42.7-49.8	2209	62.4	59.3-65.5	4457	54.8	52.1-57.4

Composition of total physical activity

Description: Percentage of work, transport and recreational activity contributing to total activity.

Instrument questions:

- activity at work
- travel to and from places
- recreational activities

Composition of total physical activity							
Age Group (years)	Men						
	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
25-34	689	64.2	61.6-66.7	19.4	17.4-21.5	16.4	14.4-18.5
35-44	649	69.4	66.6-72.2	21.3	18.9-23.8	9.3	7.8-10.8
45-54	469	69.9	66.4-73.4	22.4	18.9-25.8	7.7	6.2-9.3
55-64	399	66.2	62.7-69.7	26.4	22.8-30.0	7.4	5.5-9.3
25-64	2206	67.0	65.0-69.0	21.4	19.5-23.2	11.6	10.4-12.8

Composition of total physical activity							
Women							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
25-34	751	68.4	65.9-71.0	20.2	17.9-22.5	11.4	9.7-13.0
35-44	640	71.6	68.7-74.5	21.1	18.6-23.5	7.3	5.8-8.8
45-54	483	72.1	68.5-75.6	21.9	18.8-25.0	6.0	4.8-7.3
55-64	279	72.1	68.0-76.2	22.4	19.0-25.9	5.5	3.6-7.4
25-64	2153	70.4	68.6-72.3	21.0	19.4-22.7	8.5	7.5-9.5

Composition of total physical activity							
Both Sexes							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
25-34	1440	66.4	64.4-68.4	19.8	18.1-21.5	13.7	12.3-15.2
35-44	1289	70.6	68.4-72.8	21.2	19.3-23.1	8.2	7.2-9.3
45-54	952	71.0	68.2-73.8	22.1	19.4-24.8	6.9	5.9-7.9
55-64	678	69.2	66.0-72.4	24.4	21.5-27.4	6.4	5.0-7.9
25-64	4359	68.8	67.1-70.5	21.2	19.7-22.7	10.0	9.1-10.9

No vigorous physical activity

Description: Percentage of respondents not engaging in vigorous physical activity.

Instrument questions:

- activity at work
- recreational activities

No vigorous physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI
25-34	699	14.5	10.7-18.3	772	42.5	37.0-48.0	1471	29.4	25.2-33.6
35-44	663	19.7	14.6-24.8	661	40.7	34.8-46.6	1324	30.9	26.1-35.7
45-54	478	24.6	18.9-30.3	490	43.1	36.4-49.9	968	34.2	28.7-39.7
55-64	408	35.4	28.5-42.3	286	50.9	44.1-57.6	694	43.1	37.7-48.6
25-64	2248	20.6	17.0-24.1	2209	43.1	38.4-47.7	4457	32.4	28.5-36.3

Sedentary

Description: Minutes spent in sedentary activities on a typical day.

Instrument question:

- sedentary behaviour

Minutes spent in sedentary activities on average per day					
Men					
Age Group (years)	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
25-34	713	160.9	145.2-176.6	120	60-180
35-44	670	153.1	139.8-166.3	120	60-180
45-54	487	162.0	144.5-179.5	120	60-240
55-64	414	173.4	151.5-195.3	120	60-240
25-64	2284	160.6	149.4-171.8	120	60-240

Minutes spent in sedentary activities on average per day					
Women					
Age Group (years)	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
25-34	798	144.8	129.6-160.1	120	60-180
35-44	677	148.0	130.9-165.1	120	60-180
45-54	500	131.1	116.0-146.2	120	60-180
55-64	279	152.1	130.0-174.2	120	60-180
25-64	2254	143.8	132.0-155.5	120	60-180

Minutes spent in sedentary activities on average per day					
Both Sexes					
Age Group (years)	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
25-34	1511	152.3	141.3-163.3	120	60-180
35-44	1347	150.3	138.8-161.8	120	60-180
45-54	987	146.0	134.1-157.9	120	60-180
55-64	693	162.9	144.0-181.7	120	60-210
25-64	4538	151.7	142.6-160.8	120	60-180

Blood Pressure and Diabetes History

Blood pressure diagnosis and treatment

Description: Raised blood pressure diagnosis and treatment results among all respondents.

Instrument questions:

- During the past 12 months have you been told by a doctor or other health worker that you have elevated blood pressure or hypertension?
- Are you currently receiving any of the following treatments/advice for high blood pressure prescribed by a doctor or other health worker?
- Drugs (medication) that you have taken in the last 2 weeks?

Raised blood pressure diagnosed by doctor or health worker in last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	% diagnosed	95% CI	n	% diagnosed	95% CI	n	% diagnosed	95% CI
25-34	721	0.9	0.3-1.4	814	1.5	0.7-2.4	1535	1.2	0.7-1.8
35-44	682	3.0	1.3-4.6	694	3.8	1.9-5.7	1376	3.4	2.2-4.7
45-54	494	5.0	3.0-7.0	505	7.4	5.2-9.7	999	6.3	4.7-7.8
55-64	419	5.5	2.8-8.3	290	12.2	8.0-16.4	709	8.8	6.2-11.5
25-64	2316	2.8	2.1-3.6	2303	4.5	3.5-5.5	4619	3.7	3.0-4.4

Currently taking blood pressure drugs prescribed by doctor or health worker									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
25-34	19	12.7	0.0-30.7	23	10.4	0.0-23.4	42	11.3	0.5-22.0
35-44	30	17.0	3.3-30.8	40	26.4	11.5-41.4	70	22.9	12.0-33.9
45-54	46	31.4	14.9-47.9	60	44.5	29.1-59.9	106	39.4	28.5-50.3
55-64	42	39.7	23.2-56.2	46	56.0	39.5-72.4	88	49.6	37.4-61.8
25-64	137	27.2	18.6-35.7	169	37.6	29.3-45.9	306	33.6	28.0-39.2

Blood pressure lifestyle advice

Description: Percentage of respondents who received lifestyle advice from a doctor or health worker to treat raised blood pressure.

Instrument question:

- Are you currently receiving any of the following treatments/advice for high blood pressure prescribed by a doctor or other health worker?

Advised by doctor or health worker to reduce salt intake									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	18	72.6	52.2-93.0	23	57.9	35.6-80.1	41	63.6	46.6-80.6
35-44	30	80.6	63.5-97.8	39	84.7	75.5-93.9	69	83.2	74.4-91.9
45-54	45	80.5	69.6-91.4	60	89.9	82.7-97.0	105	86.2	79.3-93.2
55-64	42	78.8	65.8-91.7	46	95.7	90.2-100.0	88	89.1	82.7-95.5
25-64	135	78.9	71.0-86.7	168	85.1	80.0-90.2	303	82.7	78.0-87.4

Advised by doctor or health worker to lose weight									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	18	76.4	56.0-96.8	23	56.7	33.6-79.9	41	64.4	47.1-81.7
35-44	30	66.2	44.0-88.4	39	73.0	58.3-87.8	69	70.5	56.8-84.1
45-54	46	73.5	60.5-86.6	58	83.6	74.0-93.1	104	79.6	71.5-87.7
55-64	42	80.0	60.7-99.3	46	94.4	88.3-100.0	88	88.7	80.0-97.4
25-64	136	74.0	64.7-83.2	166	79.5	73.0-86.0	302	77.3	71.4-83.3

Advised by doctor or health worker to stop smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	18	65.5	41.9-89.2	21	38.7	15.7-61.6	39	50.1	32.5-67.6
35-44	30	48.2	28.9-67.4	33	52.1	31.7-72.4	63	50.4	35.9-65.0
45-54	46	57.3	43.9-70.7	53	64.5	51.6-77.4	99	61.5	51.8-71.2
55-64	42	73.7	53.7-93.8	43	70.8	56.4-85.2	85	72.0	59.5-84.4
25-64	136	60.7	51.5-69.8	150	59.5	51.0-68.1	286	60.0	53.1-66.9

Advised by doctor or health worker to start or do more exercise									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	19	85.9	72.7-99.0	23	65.5	43.3-87.6	42	73.6	57.6-89.6
35-44	30	68.3	46.5-90.0	39	70.5	54.8-86.1	69	69.6	56.0-83.2
45-54	46	73.3	59.9-86.6	60	79.0	68.1-89.8	106	76.7	67.5-86.0
55-64	42	79.9	60.6-99.2	46	96.7	92.8-100.0	88	90.1	81.6-98.6
25-64	137	75.8	66.2-85.4	168	79.2	72.5-85.9	305	77.9	71.9-84.0

Blood pressure advice by a traditional healer

Description: Percentage of respondents who have sought advice or received treatment from traditional healers for raised blood pressure.

Instrument questions:

- During the past 12 months have you seen a traditional healer for raised blood pressure?
- Are you currently taking any herbal or traditional remedy for your high blood pressure?

Seen a traditional healer in the last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	19	6.7	0.0-19.7	23	20.4	1.0-39.9	42	15.0	1.8-28.2
35-44	30	10.3	0.0-29.5	39	5.7	0.0-14.6	69	7.5	0.0-16.8
45-54	46	16.4	5.9-26.9	59	17.0	4.7-29.2	105	16.7	8.5-25.0
55-64	42	11.8	0.3-23.4	46	13.7	1.4-25.9	88	13.0	4.1-21.8
25-64	137	12.3	5.5-19.1	167	14.0	7.2-20.8	304	13.3	8.6-18.1

Currently taking herbal or traditional remedy for high blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	19	6.7	0.0-19.7	23	7.8	0.0-19.1	42	7.4	0.0-16.0
35-44	30	10.3	0.0-29.5	39	11.4	0.0-24.1	69	11.0	0.4-21.6
45-54	45	12.8	2.8-22.8	59	12.4	0.8-24.1	104	12.6	4.6-20.6
55-64	42	10.7	0.0-22.6	46	13.5	1.4-25.7	88	12.4	3.7-21.1
25-64	136	10.7	4.1-17.4	167	11.7	5.8-17.7	303	11.3	7.0-15.6

Diabetes diagnosis and treatment

Description: Diabetes diagnosis and treatment results among all respondents.

Instrument questions:

- During the past 12 months, have you ever been told by a doctor or other health worker that you have diabetes?
- Are you currently taking any of the following treatments/advice for diabetes prescribed by a doctor or other health worker?

Diabetes diagnosed by doctor or health worker in last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	% diagnosed	95% CI	n	% diagnosed	95% CI	n	% diagnosed	95% CI
25-34	719	0.7	0.0-1.5	810	0.6	0.0-1.2	1529	0.6	0.1-1.1
35-44	682	1.1	0.2-1.9	693	1.4	0.3-2.6	1375	1.3	0.4-2.2
45-54	494	4.3	2.0-6.7	502	3.7	1.9-5.6	996	4.0	2.5-5.6
55-64	417	2.6	1.0-4.1	290	5.3	1.9-8.8	707	4.0	1.9-6.0
25-64	2312	1.8	1.0-2.5	2295	2.0	1.2-2.8	4607	1.9	1.2-2.5

Currently taking insulin prescribed for diabetes by doctor or health worker									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking insulin	95% CI	n	% taking insulin	95% CI	n	% taking insulin	95% CI
25-64	76	33.4	20.9-45.8	70	35.2	24.5-45.9	146	34.4	25.2-43.6

Currently taking oral drugs prescribed for diabetes by doctor or health worker									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
25-64	77	40.5	27.6-53.4	69	50.9	38.2-63.5	146	46.2	37.1-55.3

**Diabetes
lifestyle
advice**

Description: Percentage of respondents who received lifestyle advice from a doctor or health worker to diabetes.

Instrument question:

- Are you currently taking any of the following treatments/advice for diabetes prescribed by a doctor or other health worker?

Advised by doctor or health worker to have special prescribed diet									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	4	95.0	83.6-100.0	8	82.4	57.1-100.0	12	87.0	70.2-100.0
35-44	14	80.1	62.1-98.2	17	76.5	56.7-96.3	31	77.8	63.1-92.5
45-54	31	80.6	67.0-94.1	25	78.2	61.9-94.5	56	79.5	68.3-90.7
55-64	28	89.2	80.3-98.1	20	77.0	57.9-96.2	48	81.7	69.2-94.3
25-64	77	84.1	76.7-91.5	70	78.1	69.3-86.8	147	80.8	73.4-88.1

Advised by doctor or health worker to lose weight									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	4	95.0	83.6-100.0	8	69.6	41.4-97.9	12	78.9	56.5-100.0
35-44	14	80.1	62.1-98.2	17	64.4	43.3-85.6	31	70.2	53.1-87.3
45-54	31	83.9	71.8-96.0	24	78.0	60.6-95.5	55	81.4	70.8-92.0
55-64	28	76.0	60.0-92.1	20	81.5	64.2-98.8	48	79.4	66.7-92.1
25-64	77	82.5	74.7-90.4	69	74.4	65.2-83.5	146	78.1	71.2-84.9

Advised by doctor or health worker to stop smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	4	57.9	0.0-100.0	6	20.6	0.0-56.1	10	39.2	1.1-77.4
35-44	14	66.2	37.8-94.6	15	57.7	35.8-79.6	29	61.0	41.7-80.4
45-54	29	64.1	44.8-83.5	24	66.0	46.2-85.7	53	64.9	49.5-80.3
55-64	27	67.2	48.1-86.3	19	72.8	53.8-91.9	46	70.7	55.7-85.6
25-64	74	64.5	50.4-78.6	64	61.7	52.4-71.0	138	63.0	53.0-73.0

Advised doctor or health worker to start or do more exercise									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	4	95.0	83.6-100.0	8	82.4	57.1-100.0	12	87.0	70.2-100.0
35-44	14	80.1	62.1-98.2	17	80.1	64.0-96.3	31	80.1	68.3-92.0
45-54	31	80.5	67.9-93.1	24	75.0	56.8-93.2	55	78.2	66.6-89.9
55-64	28	81.8	68.8-94.8	19	83.3	69.8-96.9	47	82.7	73.2-92.3
25-64	77	82.3	75.1-89.6	68	80.0	71.5-88.5	145	81.1	73.9-88.3

**Diabetes
advice by
traditional
healer**

Description: Percentage of respondents who are have sought advice or treatment from traditional healers for diabetes.

Instrument questions:

- During the past 12 months have you seen a traditional healer for diabetes?
- Are you currently taking any herbal or traditional remedy for your diabetes?

Seen a traditional healer for diabetes in the last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-64	77	20.4	8.3-32.5	69	7.4	1.2-13.6	146	13.2	7.1-19.4

Currently taking herbal or traditional treatment for diabetes									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-64	75	7.6	0.0-17.0	69	5.1	0.2-10.0	144	6.2	1.3-11.1

Physical Measurements

Height, weight and BMI

Description: Mean height, weight, and body mass index among all respondent (excluding pregnant women for weight and BMI).

Instrument questions:

- Height
- Weight

Mean height (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	698	167.8	167.0-168.7	789	159.0	158.2-159.9
35-44	669	168.5	167.7-169.3	673	159.4	158.8-160.1
45-54	483	167.9	167.0-168.8	497	158.1	157.4-158.9
55-64	407	166.0	165.1-166.8	285	157.1	156.4-157.8
25-64	2257	167.8	167.2-168.4	2244	158.7	158.3-159.2

Mean weight (kg)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	706	69.6	68.1-71.1	758	64.8	63.7-65.8
35-44	677	74.3	72.8-75.8	661	69.9	68.5-71.3
45-54	483	75.5	73.6-77.4	498	70.6	68.8-72.3
55-64	413	70.7	68.6-72.8	285	66.7	64.6-68.8
25-64	2279	72.2	71.1-73.4	2202	67.6	66.7-68.5

Mean BMI (kg/m ²)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	691	24.6	24.2-25.0	745	25.5	25.1-25.9	1436	25.1	24.8-25.4
35-44	664	25.8	25.5-26.2	651	27.2	26.7-27.6	1315	26.5	26.2-26.9
45-54	480	26.7	26.1-27.3	492	28.1	27.4-28.7	972	27.4	26.9-27.9
55-64	407	25.5	24.9-26.0	283	27.1	26.2-27.9	690	26.3	25.7-26.8
25-64	2242	25.5	25.2-25.8	2171	26.7	26.4-27.0	4413	26.1	25.9-26.4

BMI categories

Description: Percentage of respondents (excluding pregnant women) in each BMI category.

Instrument questions:

- Height
- Weight

BMI classifications									
Men									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
25-34	691	0.4	0.0-1.0	65.5	61.0-70.1	25.9	22.1-29.7	8.2	5.6-10.7
35-44	664	0.8	0.1-1.5	47.4	43.6-51.2	37.3	33.5-41.0	14.5	11.2-17.9
45-54	480	0.6	0.0-1.4	41.4	36.4-46.4	34.9	30.1-39.6	23.1	18.2-28.0
55-64	407	2.4	0.7-4.0	49.8	43.7-56.0	32.2	27.1-37.2	15.6	11.0-20.2
25-64	2242	0.8	0.4-1.2	53.6	50.9-56.4	31.6	29.5-33.6	13.9	11.9-15.9

BMI classifications									
Women									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
25-34	745	2.7	1.5-3.8	53.3	49.4-57.2	27.6	24.1-31.2	16.4	13.6-19.3
35-44	651	1.7	0.6-2.7	36.0	31.6-40.4	37.4	33.7-41.1	24.9	21.4-28.5
45-54	492	2.6	1.0-4.3	29.3	24.2-34.3	35.7	30.9-40.4	32.4	26.7-38.1
55-64	283	5.4	2.7-8.1	34.7	28.6-40.8	32.9	25.8-40.0	27.0	20.2-33.7
25-64	2171	2.7	1.9-3.5	41.5	38.8-44.1	32.6	30.4-34.8	23.3	20.7-25.8

BMI classifications									
Both Sexes									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
25-34	1436	1.6	0.9-2.3	59.1	55.9-62.2	26.8	24.2-29.5	12.5	10.5-14.6
35-44	1315	1.3	0.6-1.9	41.3	38.3-44.3	37.4	34.8-39.9	20.1	17.6-22.5
45-54	972	1.7	0.7-2.6	35.1	31.2-39.0	35.3	31.8-38.8	28.0	23.7-32.2
55-64	690	3.9	2.1-5.7	42.2	37.7-46.8	32.5	28.3-36.7	21.3	16.8-25.9
25-64	4413	1.8	1.3-2.3	47.3	45.1-49.4	32.1	30.5-33.8	18.8	16.9-20.8

Waist circumference

Description: Mean waist circumference among all respondents (excluding pregnant women).

Instrument question:

- Waist circumference measurement

Waist circumference (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	644	72.5	70.2-74.8	711	75.9	74.1-77.8
35-44	652	75.6	73.6-77.6	648	80.8	78.6-82.9
45-54	469	78.8	76.1-81.5	482	83.6	80.8-86.3
55-64	398	75.0	71.9-78.2	276	83.0	80.0-86.0
25-64	2163	75.0	73.6-76.4	2117	79.7	78.2-81.1

Blood pressure

Description: Mean blood pressure among all respondents.

Instrument question:

- Reading 1-3 systolic and diastolic blood pressure

Mean systolic blood pressure (mmHg)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	708	126.7	125.3-128.1	801	118.8	117.5-120.1	1509	122.5	121.4-123.6
35-44	677	130.8	129.4-132.2	678	125.9	124.4-127.4	1355	128.2	127.2-129.2
45-54	486	135.6	133.3-137.8	499	136.6	134.7-138.5	985	136.1	134.5-137.6
55-64	412	143.1	140.1-146.1	285	145.4	141.9-149.0	697	144.3	141.7-146.9
25-64	2283	131.7	130.4-132.9	2263	127.2	126.0-128.4	4546	129.3	128.3-130.3

Mean diastolic blood pressure (mmHg)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	708	76.7	75.6-77.9	801	75.8	74.8-76.9	1509	76.2	75.3-77.2
35-44	677	80.9	79.8-82.0	678	79.8	78.8-80.9	1355	80.3	79.5-81.2
45-54	486	82.7	81.0-84.5	499	82.8	81.4-84.3	985	82.8	81.5-84.0
55-64	412	82.5	80.7-84.2	285	83.9	82.2-85.5	697	83.2	81.8-84.5
25-64	2283	79.8	78.9-80.7	2263	79.2	78.3-80.0	4546	79.5	78.7-80.3

**Raised
blood
pressure**

Description: Percentage of respondents with raised blood pressure.

Instrument question:

- Reading 1-3 systolic and diastolic blood pressure

SBP \geq140 and/or DBP \geq 90 mmHg									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	700	20.9	16.5-25.3	795	11.5	9.0-14.0	1495	15.8	13.1-18.5
35-44	675	28.0	23.8-32.2	672	25.2	21.6-28.9	1347	26.5	23.9-29.1
45-54	480	36.6	31.0-42.3	488	40.4	35.7-45.1	968	38.6	34.8-42.3
55-64	405	51.6	45.6-57.7	273	56.0	48.8-63.2	678	53.8	48.8-58.7
25-64	2260	29.8	27.1-32.5	2228	25.7	23.3-28.1	4488	27.6	25.5-29.7

SBP \geq160 and/or DBP \geq 100 mmHg									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	700	2.6	1.5-3.8	795	2.5	1.2-3.8	1495	2.6	1.6-3.5
35-44	675	7.3	4.9-9.7	672	5.6	3.8-7.4	1347	6.4	4.8-7.9
45-54	480	13.6	9.2-17.9	488	13.5	9.9-17.1	968	13.5	10.6-16.4
55-64	405	22.6	17.5-27.7	273	25.0	18.9-31.1	678	23.8	19.6-28.0
25-64	2260	8.6	6.9-10.2	2228	7.9	6.4-9.4	4488	8.2	7.0-9.5

Biochemical Measurements

Mean fasting blood glucose

Description: mean fasting blood glucose results excluding those currently on medication for diabetes (Non-fasting recipients excluded).

Instrument questions:

- Are you currently receiving any of the following treatments for diabetes prescribed by a doctor or other health worker?
 - Insulin?
 - Oral drugs (medication) that you have taken in the last 2 weeks?
- During the last 12 hours have you had anything to eat or drink, other than water?
- Blood glucose measurement

Mean fasting blood glucose (mmol/L)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	690	5.4	5.4-5.5	779	5.4	5.3-5.5	1469	5.4	5.3-5.5
35-44	654	5.7	5.5-5.8	662	5.7	5.6-5.9	1316	5.7	5.6-5.8
45-54	473	6.0	5.7-6.2	486	6.1	5.8-6.3	959	6.0	5.9-6.2
55-64	391	6.3	6.0-6.6	284	6.1	5.9-6.4	675	6.2	6.0-6.4
25-64	2208	5.7	5.6-5.8	2211	5.7	5.6-5.8	4419	5.7	5.6-5.8

Mean fasting blood glucose (mg/dl)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	690	98.1	96.4-99.8	779	96.7	95.1-98.3	1469	97.3	96.1-98.6
35-44	654	102.1	99.5-104.6	662	103.2	100.5-105.9	1316	102.7	100.7-104.7
45-54	473	107.8	103.5-112.2	486	109.6	105.0-114.2	959	108.8	105.5-112.1
55-64	391	112.8	107.4-118.2	284	110.0	105.7-114.4	675	111.4	107.8-115.0
25-64	2208	102.9	101.2-104.7	2211	102.5	100.9-104.2	4419	102.7	101.4-104.1

**Raised
blood
glucose**

Description: Categorization of respondents into blood glucose level categories and percentage currently on medication for raised blood glucose (non-fasting recipients excluded).

Instrument questions:

- Are you currently receiving any of the following treatments for diabetes prescribed by a doctor or other health worker?
 - Insulin?
 - Oral drugs (medication) that you have taken in the last 2 weeks?
- During the last 12 hours have you had anything to eat or drink, other than water?
- Blood glucose measurement

Impaired Fasting Glycaemia*									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	690	20.1	16.5-23.7	779	15.6	12.7-18.6	1469	17.7	15.5-19.9
35-44	654	17.8	14.3-21.3	663	18.2	15.0-21.5	1317	18.1	15.4-20.7
45-54	473	17.6	13.2-22.1	487	22.0	18.0-26.0	960	19.9	16.7-23.2
55-64	392	20.4	15.8-25.0	284	24.7	18.3-31.2	676	22.6	18.4-26.8
25-64	2209	19.0	16.6-21.5	2213	18.6	16.6-20.7	4422	18.8	17.1-20.5

Raised blood glucose or currently on medication for diabetes**									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	690	16.3	13.0-19.7	779	13.7	10.9-16.4	1469	14.9	12.6-17.2
35-44	654	21.5	17.0-26.0	663	23.4	19.7-27.1	1317	22.5	19.1-25.9
45-54	473	26.3	22.3-30.4	487	26.1	21.0-31.3	960	26.2	22.9-29.5
55-64	392	30.0	24.0-36.0	284	32.9	25.9-39.9	676	31.5	26.5-36.5
25-64	2209	21.4	18.8-24.0	2213	21.0	18.5-23.5	4422	21.2	19.0-23.3

Currently on medication for diabetes									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	725	0.4	0.0-1.0	819	0.5	0.0-1.0	1544	0.5	0.1-0.8
35-44	690	0.8	0.0-1.5	697	1.8	0.6-3.0	1387	1.3	0.5-2.1
45-54	497	2.5	1.2-3.9	506	2.6	0.9-4.2	1003	2.5	1.5-3.6
55-64	421	3.7	1.8-5.7	294	5.5	2.2-8.8	715	4.6	2.5-6.7
25-64	2333	1.4	0.9-1.9	2316	1.8	1.0-2.6	4649	1.6	1.0-2.2

* Impaired fasting glycaemia is defined as either

- plasma venous value: ≥ 6.1 mmol/L (110mg/dl) and < 7.0 mmol/L (126mg/dl)
- capillary whole blood value: ≥ 5.6 mmol/L (100mg/dl) and < 6.1 mmol/L (110mg/dl)

** Raised blood glucose is defined as either

- plasma venous value: ≥ 7.0 mmol/L (126 mg/dl)
- capillary whole blood value: ≥ 6.1 mmol/L (110 mg/dl)

Total cholesterol

Description: Mean total cholesterol among all respondents and percentage of respondents with raised total cholesterol.

Instrument question:

- Total cholesterol measurement

Mean total cholesterol (mmol/L)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	666	4.8	4.8-4.9	747	4.7	4.6-4.8	1413	4.8	4.7-4.8
35-44	637	5.1	5.0-5.2	631	4.9	4.8-4.9	1268	5.0	4.9-5.1
45-54	462	5.1	5.0-5.2	471	5.1	5.0-5.2	933	5.1	5.1-5.2
55-64	385	4.9	4.8-5.0	273	5.1	5.0-5.2	658	5.0	4.9-5.1
25-64	2150	5.0	4.9-5.1	2122	4.9	4.8-4.9	4272	4.9	4.9-5.0

Mean total cholesterol (mg/dl)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	666	187.4	184.0-190.7	747	181.6	179.4-183.8	1413	184.3	182.2-186.4
35-44	637	198.1	194.1-202.0	631	188.5	185.7-191.3	1268	193.0	190.3-195.6
45-54	462	198.0	194.3-201.7	471	198.5	195.2-201.8	933	198.2	195.9-200.6
55-64	385	190.2	186.7-193.7	273	196.7	192.6-200.8	658	193.5	190.7-196.2
25-64	2150	192.8	190.3-195.3	2122	188.6	186.8-190.3	4272	190.6	188.9-192.2

Total cholesterol \geq 5.0 mmol/L or \geq 190 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	666	31.5	26.9-36.0	747	24.8	21.0-28.5	1413	27.9	24.8-31.0
35-44	637	43.5	38.6-48.3	631	35.0	30.4-39.6	1268	38.9	35.4-42.5
45-54	462	46.2	40.8-51.6	471	49.1	43.9-54.3	933	47.7	44.2-51.2
55-64	385	37.1	31.5-42.6	273	44.9	38.9-51.0	658	41.0	36.8-45.3
25-64	2150	38.4	35.3-41.6	2122	34.7	32.1-37.3	4272	36.5	34.2-38.7

Total cholesterol \geq 6.2 mmol/L or \geq 240 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	666	8.2	5.5-10.9	747	5.4	3.9-6.9	1413	6.7	5.2-8.2
35-44	637	12.9	9.5-16.3	631	7.4	5.1-9.7	1268	10.0	7.7-12.2
45-54	462	13.2	9.0-17.5	471	12.9	9.4-16.4	933	13.1	10.3-15.8
55-64	385	6.7	4.2-9.1	273	14.0	9.2-18.8	658	10.4	7.4-13.3
25-64	2150	10.3	8.5-12.2	2122	8.4	7.0-9.8	4272	9.3	8.0-10.6

Raised Risk

Raised risk

Description: Percentage of respondents with 0, 1-2, or 3-5 of the following risk factors:

- current daily smoker
- less than 5 servings of fruits & vegetables per day
- low level of activity (<600 MET -minutes)
- overweight or obese (BMI \geq 25 kg/m²)
- raised BP (SBP \geq 140 and/or DBP \geq 90 mmHg or currently on medication for raised BP).

Instrument questions: combined from Step 1 and Step 2

Raised Risk							
Men							
Age Group (years)	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	1272	14.2	11.3-17.1	66.9	64.1-69.8	18.9	15.8-21.9
45-64	839	9.6	7.2-12.1	63.4	59.6-67.3	27.0	22.6-31.3
25-64	2111	12.7	10.2-15.1	65.8	63.3-68.2	21.6	18.5-24.6

Raised Risk							
Women							
Age Group (years)	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	1283	12.9	10.7-15.1	75.3	72.6-77.9	11.8	9.6-14.0
45-64	727	8.6	6.1-11.2	63.8	59.4-68.1	27.6	23.4-31.8
25-64	2010	11.5	9.6-13.5	71.6	69.1-74.1	16.9	14.5-19.3

Raised Risk							
Both Sexes							
Age Group (years)	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	2555	13.5	11.5-15.6	71.3	69.2-73.4	15.2	13.0-17.3
45-64	1566	9.1	7.1-11.1	63.6	60.5-66.8	27.3	23.7-30.8
25-64	4121	12.1	10.2-14.0	68.8	66.8-70.8	19.1	16.8-21.5

Appendix 4 NCD STEP Survey Facilitators

Ministry of Health – STEPS survey coordinating team at national level

1. Len Tarivonda, Director of Public Health
2. Dr Willie Tokon, Clinical Services Manager, Vila Central Hospital
3. Andy Calo, Statistician, National Statistics Office
4. Ben Garae, STEP Survey Coordinator
5. Jean Jacques Rory, Health Promotion Manager
6. Ben Taura, Provincial Health Manager, Shefa Province
7. Jerry Iaruel, NCD Officer
8. Graham Tabi, Acting NCD Coordinator
9. Marie Woleg, Public health nurse/IMCI
10. Enneth Ilaisa, Acting Nutrition Coordinator
11. Kalli Babcock, Nutritionist/Peace Corp

WHO country office – Support for survey coordinating team

1. Dr Bernard Fabre-Teste, Country Liaison Officer
2. Dr Rufina Latu, Medical Officer, Health Systems Development
3. Ms Agrina Willie, Secretary

Ministry of Health – STEPS survey field supervisors and team leaders in six provinces

1. Tafea province: Saimon Saika, Provincial Health Manager,
2. Sanma province: Jivi Mele, Provincial Health Manager
3. Sanma province: Dominique Laissa, Public Health Nurse
4. Shefa province: Bill Lancey, Public Health Officer/Peace Corp
5. Malampa province: Guenola Lessines, NCD Nurse
6. Penama province: Matheas Tabeva, Provincial Health Manager
7. Torba province: Fracklin Dihn, Provincial Health Manager

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