Federated States of Micronesia (Chuuk)

NCD Risk Factors STEPS REPORT

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Federated States of Micronesia (Chuuk) NCD Risk Factors STEPS REPORT

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LIST OF ABBREVIATIONS

BMI	Body Mass Index
BP	Blood Pressure
CHD	Coronary Heart Disease
CI	Confidence Interval
CVD	Cardiovascular Diseases
DBP	Diastolic Blood Pressure
DM	Diabetes Mellitus
FBS	Fasting Blood Sugar
FSM	Federated States of Micronesia
HTN	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)
NCDs	Noncommunicable diseases
PICs	Pacific island countries and areas
SBP	Systolic Blood Pressure
WHO	World Health Organization

FOREWORD

In the world today, a dramatic increase in chronic noncommunicable diseases (NCDs) that leads to death has been experienced in almost every country. In order to address this growing problem effectively and efficiently, we must have accurate information regarding the risk factors that contribute to the development of NCDs. We also must have scientific NCD data to identify the intervention on NCDs and their risk factors. A "Risk factor" of NCDs refers to any characteristic or exposure that increases a person's likelihood of developing a NCD. These risk factors include tobacco use, harmful alcohol use, physical inactivity, obesity, high blood pressure, a raised level of cholesterol, a raised level of blood glucose, and an unbalanced diet. Each country needs to establish its capacity in order to conduct population risk surveillance over time for the planning of program activities and services.

We are pleased that the World Health Organization (WHO) has been working with us to strengthen our national and state capacity in population risk factors survey and analysis. The Federated States of Micronesia (Chuuk) NCD STEPS survey was specifically designed to assess the prevalence of the common NCDs and their risk factors in our population. The information from this survey provides an important platform for the development and implementation of strategic plans and programs to address the growing epidemic of NCDs in Chuuk, FSM.

This report showed a high prevalence of NCDs and their risk factors among our population and suggests actions to: control and prevent NCDs; provide a supportive physical environment and infrastructure, and improved health service delivery.

This is the first state-wide population-based survey on the prevalence of NCDs and their risk factors in the history of the State of Chuuk, FSM. It is a milestone to address the increasing NCD epidemic affecting our people and marks an increased commitment by the FSM Department of Health and Social Affairs and the Chuuk Department of Health Services to tackle the NCD challenge.

The survey results and recommendations will enable us to develop more effective health policies and programs in primary and secondary NCD prevention and in monitoring and evaluating our ongoing efforts in NCD prevention and control, so as to deal with the emergency declared on NCD in Chuuk.

We would like to thank all the staff of the Ministry of Health, partners for completing the first ever NCD population survey in Chuuk, FSM, thank WHO for its strong and excellent technical support, and thank AusAID and NZAID for the financial support. This report is dedicated to the hard work and commitment evidenced from the inception to the completion of the NCD Risk Factors STEPS survey in Chuuk.

We hope that the findings and recommendations in this report will guide our actions for preventing and controlling NCDs and improving health for all in Chuuk, FSM.

Dr Vita A. Skilling
Secretary
Department of Health and Social Affairs
Federated States of Micronesia

The WHO STEPwise Approach to Surveillance of Risk Factors for NCDs (STEPS) is the WHO recommended surveillance tool for chronic disease risk factors and chronic disease-specific morbidity and mortality at national level. To date, more than 147 countries and areas throughout the world utilize WHO STEPS to conduct national surveys on risk factors of chronic disease and morbidity of NCDs. The publication of the "Federated States of Micronesia (Chuuk) NCD Risk Factors STEPS REPORT" marks a milestone as it provides the scientific, updated and comparable data that will assist the government in addressing the escalating issue of NCDs.

The 10 published NCD STEPS reports across the Pacific have identified the extremely high prevalence of NCDs over the past decade occurred in the Pacific island countries and areas (PICs), causing up to 75% of all deaths and a similar percentage of long term illness and disability. Declared at the 9th Health Ministers' Meeting held in June, 2011 that the Pacific island countries and areas is in a NCD crisis requiring urgent attention and action.

The Federated States of Micronesia (Chuuk) STEPS Survey was conducted in 2006. Some of the key results of the survey and the report, for the age group of 25-64 years old, include the following:

- 28.7% of the population smoked tobacco daily.
- 12.8% of population chewed betel nuts daily, among them men (17.7%) were significantly higher than women (8.1%).

- 49.6% of men drank an average of 5 or more standard drinks of alcohol, 43.5% of women drank an average of 4 or more standard drinks of alcohol per day in the past week.
- 90.4% of the population consumed less than five combined servings of fruit and vegetables per day.
- 63.1% of the population was with low level of physical activity.
- The prevalence of overweight in the population was 76.5%, the prevalence of obesity was 47.3%.
- The prevalence of diabetes in the population was 35.4%.
- The prevalence of hypertension was 15.2%.

These results clearly document that NCDs are a major problem in Federated States of Micronesia (Chuuk). The STEPS results can be used for formulating or updating the national and state-level NCD strategy, evaluating the impact of integrated NCD intervention activities, monitoring trends and comparing the NCD data with Pohnpei, FSM, other PICs and many countries in the world.

Future priorities need to be given to both primary and secondary prevention activities to prevent and control key NCDs, including diabetes, cardiovascular diseases, cancer, and their risk factors including smoking use, unhealthy diet, physical inactivity and harmful use of alcohol.

WHO is honoured to be a critical part of the collaborative efforts between the Federated States of Micronesia Department of Health and Social Affairs, Chuuk State Department of Health Services, Australian Agency for International Development and New Zealand Agency for International Development to complete the Federated States of Micronesia (Chuuk) STEPS survey and the report.

WHO is proud to collaborate with the Federated States of Micronesia in publishing this first Federated States of Micronesia (Chuuk) NCD Risk Factors STEPS Report, and will continue to work with health authorities, health workers and the public to address the issues raised in this report.

Dr Dongil Ahn
Director, Pacific Technical Support
Representative, South Pacific
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EXECUTIVE SUMMARY

The Federated States of Micronesia (Chuuk) NCD STEPS survey provides the baseline assessment of the risk factors of noncommunicable diseases (NCDs) and their associated risk factors among Chuuk Islanders.

The key objectives of the NCD STEPS survey were:

- To document the prevalence and magnitude of key NCDs among adults
- To document the prevalence and magnitude of major modifiable risk factors for NCDs including tobacco use, betel nut use, harmful use of alcohol, poor eating patterns, physical inactivity, obesity, high blood pressure, raised blood glucose and cholesterol levels
- To compare NCDs and their risk factors across different age groups and between men and women.

A total of 2,831 individuals aged 15-64 participated in the survey. The sample was equally distributed across age groups. Educational levels were consistent across sex and age groups, apart from females aged 55-64, who had received marginally less years of education. This report's main tables present data and commentary on the sample aged 25-64 years (n=2,034), following the standard age group reporting for WHO STEPS surveys. Additional results for 797 respondents aged 15-24 years are also provided at the end of each section of Step 1.

Step 1. Behavioural risk factors

Overall, the prevalence of current smokers among those aged 25-64 years was 32.4%. More than half of men (51%) were current smokers compared to only 14% of women. Among the total population, 28.7% smoked daily, with a gender difference of 47% of men and 10.6% of women. The mean age of smoking uptake was 18 years, although people in the 15-24 years age group reported starting at 15.5 years, suggestive of a recent reduction in the age of smoking uptake. The mean duration of smoking in both sexes combined was 22.9 years, and 84% of current smokers smoked manufactured cigarettes.

Betel nuts were chewed by 31.8% of men and 13.3% of women, mostly in the age group 25-34 after which chewing betel use declined. Of males and females combined 22.5% chewed betel in the last 12 months and 12.8% on a daily basis. Importantly, the proportion chewing betel nut (54.8%) among those aged 15-24 was more than double the older groups.

A significant gender difference was found in alcohol consumption between males and females, with 34.3% of males and only 1.3% of females consuming alcohol in the past 12 months. Combined, 17.7% of the population had consumed alcohol in the past 12 months while 11% of the population (n=222) was classified as current drinkers (drank in the last 12 months) of whom 73% were males and 27% females. Drinking was highest in the age group of 25-34 (23.7%) mostly due to men (43.3%). Half (49.6%) of male current drinkers reported drinking more than 5 standard drinks on a drinking day and 16.7% reported drinking 20+ drinks in the past 7 days. The highest proportion of binge drinking among men was in the oldest age group 55-64 although drinking levels were not

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statistically different among men of all age groups. Of those aged 15-24 alcohol consumption status did not differ significantly from older age groups.

Just over ninety percent (90.4%) of Chuuk Islanders consumed fruit and vegetables at a rate below the recommended levels of 5 combined servings of fruit and vegetables per day. The mean number of days per week fruit and vegetables were consumed was 2.6 and 3.1 days, respectively. When fruit and vegetables were both consumed on those days, the self-reported mean number of combined fruit and vegetables servings was 2 serves per average day with no difference between sexes.

The survey found that 63% of the population reported a low level of total physical activity, that is, less than 600 METminutes per week. 600 METminutes per week are equivalent to 30 minutes of moderate-intensity physical activity for 5 days per week, or 20 minutes of vigorous activity for 3 days per week. A greater proportion of women (68%) undertook low level of physical activity than men (59%). Conversely, a higher proportion of men reported a high level of total physical activity than women (31% and 20% respectively) largely due to work-related activities. The greatest part of physical activity in Chuuk was undertaken as part of work, followed by transport and then recreation-related activities. Young people aged 15-24 partook in less work related physical activity than older cohorts, while young males did significantly more recreation related physical activity than young females.

Step 2: Physical risk factors

Males were significantly taller (169.2cm) than females (158.9cm). Mean weights for females were higher than for males in age groups 25-34 and 35-44 and lower in the older age groups but the overall difference was not statistically significant.

More than three quarters of the population was classified as overweight. The overall prevalence of overweight (BMI ≥25kg/m^2) was 76.5% (65% of males and 88% of females). Those considered obese (BMI ≥30kg/m^2) was 47% overall (31% of males and 63% of females). Less than a quarter (23%) of the population (34.4% of males and 11.8% of females) had a normal body mass index (18.5 ≤ BMI< 25kg/m^2).

Mean waist circumference was statistically different between the sexes overall (94.3cm in males and 101.4cm in females) due to large differences in age groups 25-34 and 45-54 but were not significantly different in older groups. Women in all age groups had mean waist circumference values exceeding 88cm, a cut-off value for women considered to increase cardiovascular disease risk. Mean waist circumference for males in all age groups remained below 102cm where the risk of cardiovascular disease increases.

The results showed that 15.2% of the population was hypertensive (defined as having SBP ≥140 mmHg and/or DBP ≥90 mmHg or on medication for raised blood pressure). Hypertension increased with age in both genders, increased significantly in the 45-54 years age group and was highest (43%) in men in the 55-64 years age group.

Step 3. Biochemical risk factors

Based on measures of fasting capillary whole blood, the overall prevalence of diabetes (fasting glucose level ≥6.1 mmol/L or on medication for raised blood glucose) in the population aged 25-64 years was 35.4% with no statistical differences between sexes but with statistically significant increases from age 35-44 to 45-54 in both sexes. The highest rate is among both men and women aged 55-64 (69.4% and 63% respectively).

Overall, 19.2% of the sample was found to have raised total blood cholesterol levels exceeding 5.0 mmol/L (≥190 mg/dl) increasing by age in both sexes. The increase in women in age group 55-64, where almost half (47.1%) of the population had raised cholesterol, is statistically significantly different from the rate in males of the same age and from the preceding female age group.

Combined risk factors

As the number of NCD risk factors for an individual increases, so does the risk of developing a NCD. STEPS reports classify the surveyed population into three NCD risk categories: High Risk (with 3-5 risk factors), Moderate Risk (with 1-2 risk factors) or Low Risk (with no risk factor). The combined NCD risk factors included in the computation of NCD risk categories were current daily smokers, overweight (BMI ≥25 kg/m^2), raised blood pressure (SBP ≥140 and/or DBP≥90 mmHg or currently on medication), consuming less than five combined servings of fruit and vegetables per day, and a low level of physical activity (<600 METminutes per week).

This survey found that overall 62.4% of the population was at High Risk of NCDs, shared equally among males and females, but significantly increased in the age group 45-64.

Conclusion

The survey has provided strong evidence that NCDs and related modifiable risk factors are prevalent in Chuuk to the degree where overall 62% of the sample population was classed as being at High Risk of NCDs. The Chuuk STEPS survey represents a significant step forward in gathering information for the national and state strategy for the prevention, control and management of NCDs.

While rates of overweight for males is a concern and prevalence of diabetes are similar, differences between the sexes indicate that males are more likely to smoke, drink alcohol to excess, chew betel nut while young and, among older men, eat less fruit and vegetables than others. Females are more at risk from lower levels of physical activity, being overweight or obese and having a high waist circumference, and, particularly, higher levels of blood cholesterol at older age.

These factors identify potential to target health promotion and disease prevention programs to alter behavioural and lifestyle factors that contribute to NCD risks.

Accordingly, the following recommendations are outlined as priority actions for the State of Chuuk:

Addressing Information needs

That the Department of Health:

- Use the opportunity of the publication of this Chuuk NCD Risk Factors STEPS Report to initiate a new NCD risk factor awareness and reduction campaign in the State of Chuuk
- Establish strong leadership and secure political and financial commitment to maintain a systematic and rigorous approach to STEPS data collection supported by a workforce trained in implementing the survey, in order to create an ongoing and robust STEPS surveillance system in Chuuk.
- Repeat the NCD STEPwise surveys periodically to determine the effectiveness, or otherwise, of NCD prevention and control measures implemented in Chuuk.
- Participate in the comparison of NCD STEPS data across other Pacific Island countries and areas that have completed the NCD STEPS surveys, in order to identify the risk factors that are particular to and most amenable to modification, as well as to identify the evidence-based prioritized intervention in Chuuk, FSM.

Addressing policy, organizational and environmental factors

That government of FSM:

- Earmark funds for ongoing NCD strategy implementation and monitoring
- Implement the WHO Framework Convention on Tobacco Control
- Consider the potential for manufacturers and importers of cigarettes and alcohol to be taxed to the degree that they subsidize health promotion initiatives.
- Generate resources for ongoing national health education programs aimed at national and personal productivity
- Develop policies supporting the growth and importation of healthy foods
- Improve the availability of fruit and vegetables
- Increase tax on certain imported unhealthy food items, like turkey tails, corned beef and spam
- Develop policies to establish physical activity-friendly environments, such as walking tracks, sports facilities and workplace fitness programs

Addressing NCD behavioural risk factors

That government, Department of Health and NGOs create and provide:

- Comprehensive no-smoking and no-betel nut use campaigns to reduce tobacco use rates, particularly targeting teenagers and the younger adult age groups to prevent smoking uptake, and smoking cessation programs to reduce smoking rates across all age groups
- Comprehensive health promotion campaigns to reduce alcohol consumption, particularly targeted at young people and binge drinking
- Integrated health promotion campaigns promoting the consumption of the recommended levels of fruit and vegetables, inclusive of an expressed strategy to ensure proper nutrition in older age
- Public awareness of the adverse effects of excessive consumption of high-fat, high-salt, and high-sugar foods
- Culturally-appropriate and diverse programs to promote daily physical activity

- Include walk ways to improve physical activity in planning new road design in Chuuk
- Public awareness campaigns on the importance of regular monitoring and screening of blood pressure, blood cholesterol and blood sugar levels
- Public awareness programs targeted to increase awareness of the multipliers of NCD risk associated with combining the 5 major NCD risk factors (current daily smoking, being overweight, having raised blood pressure, eating less than five combined servings of fruit and vegetables per day, and having a low level of physical activity)
- A system of community-based care for the management of individuals with diagnosed NCDs

1. INTRODUCTION

1.1 Background and Rationale

In all countries, noncommunicable 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. NCDs caused an estimated 60% of deaths in the world and 43% of the global burden of diseases in 1999. Based on current trends, by the year 2020 these diseases are predicted to account for 73% of deaths and 60% of the disease burden. Most of these increases will reflect the epidemiological transition in developing countries; from communicable to noncommunicable diseases. Unless increasing prevalence can be reversed the disability and dependency that accompanies NCDs will present an increasing burden on health facilities and on families.

Despite such observations that NCDs are an increasing health burden to the country, to date there is no in-depth knowledge of the prevalence of the common risk factors contributing to NCDs in the Chuuk State. In FSM, 75% of death was due to NCD[1] There is a need for a clearer understanding of the production, trade, cultural and behavioural factors that contribute to NCDs in order to improve prevention and control programs.

This STEPS survey, being the first in Chuuk, provides a baseline for future STEPS surveys to assist in determining the effectiveness, or otherwise, of prevention and control measures. It also provides the basis for comparison with other countries. In the immediate term, this STEPS report provides information for national policy development, health education programs and health protection and promotion initiatives, as ultimately, the improvements in diet and physical activity and the control of risk laden consumptions are vested with the nation, the community and the individual.

1.2 The National Context

1.2.1 Geography

The Federated States of Micronesia (FSM) are located in Oceania, and comprise an island group in the North Pacific Ocean, about three-quarters of the way from Hawaii to Indonesia. Chuuk has a land area of 49 square miles and encompasses fifteen large islands, 192 outer islands and 80 islets. Chuuk State comprises 5 regions: North Namoneas, South Namoneas, Faichuk, Mortlock and Northwest. The weather is tropical with heavy year-round rainfall, especially in the eastern islands. Chuuk is located on southern edge of the typhoon belt and occasionally sustains severe damage, including landslides. The islands of Chuuk vary from mountainous islands with volcanic outcroppings to low coral atolls[2].

1.2.2 Population and Living Environment

The populations of the 5 regions of Chuuk were estimated in 2010 to be 14,611 (30%) in North Namoneas, 10,233 (21%) in South Namoneas, 9,807 (20.2%) in Faichuk, 7,181 (14.8%) in Mortlock and 6,819 (14%) in Northwest.

The 47,871 persons in Chuuk State in 1989 lived in 5,982 households, an average of 8.00 persons per household. The size of households in Chuuk is large even by Pacific Island standards, and is getting larger. Almost 3 out of every 10 households in Chuuk had 10 or more persons

1.2.3 Government, Culture and the Economy

Chuuk is one of four island states that comprise the Federated States of Micronesia, the other three being Pohnpei, Kosrae and Yap. FSM is a semi-independent nation under a Compact of Free Association with the United States allowing its citizens to work and live in the US. The compact and its subsidiary agreements commit the US to continue to provide, at no cost to the FSM, many services including defence, air safety, weather prediction, health services and assistance in the event of natural disasters until the end of the compact[3].

Chuuk's GDP in 2007 was $53.6 million with GDP per capita estimated to be $1,006 annually[4]. Most (91.5%) of households in Chuuk have a cash income, but average USD 6,195 per annum, less than other FSM Sates and rely to a large degree on subsistence farming and fishing.

The Chuukese language is within the Austronesian linguistic group. All 3 dialects in the Chuuk group are mutually understood. The extended family is the most common form of household, where fathers are the head and where first-born male children inherit the responsibilities of the father.

The nation's economic performance is still heavily dependent on government spending, funded by the Compact with the U.S. The industries of fisheries, tourism and commercial agriculture combined account for only a small percent of the total FSM economy. There is no manufacturing industry, although cold storage facilities and fish processing plants are in development. The main revenue earned from fishing has been from the annual license fees that FSM negotiates with outside nations wanting to fish in its waters, and fishing generates 85% of export revenue.

Tourism, the second targeted area of development, is constrained by high airfares and limited tourist facilities, but the potential exists for growth in this area[5]. Commercial agriculture accounts for only 1% of the economy[6].

1.2.4 Noncommunicable Disease, Health Status and Health Infrastructure

The Chuuk State Department of Health and Hospital compiles information on hospital presentations and on morbidity and mortality. In 2009 the leading causes of morbidity included Diseases of the Respiratory System, Certain Infectious and Parasitic Diseases,

Diseases of the Skin and Subcutaneous Tissues, Diseases of the Musculoskeletal System and Connective Tissues and Diseases of the Circulatory System.

Leading causes of Mortality were Diseases of the Circulatory System, Diseases of Endocrine, Nutrition and Metabolism, Diseases of the Respiratory System, Neoplasms and Certain Infectious and Parasitic Diseases.

Premature adult mortality is high, with an average life expectancy of 66 years. The 2000 census estimated the following rates of birth, fertility, mortality and life expectancy indicate that Chuuk does not differ significantly from the other states of FSM.

Indicator	All FSM	Chuuk State
Crude Birth Rate, per 1000	28.1	28.7
Total Fertility Rate (TFR)	4.44	4.51
Crude Death Rate, per 1000	6.7	7.1
Child Mortality Rate, per 1000	12	13
Infant Mortality Rate	40	43
Life expectancy at birth	67	66

Source: 2000 FSM Census

There are 65 public sector and 6 private sector health facilities in FSM, which include the only hospital at Weno (with 125 beds) and 64 Dispensaries. Each of the FSM States has a Department of Health that provides clinical services and coordinates public health programs comprising dispensaries and various vertical programs through municipal governments. The private sector services include 3 health clinics and 3 pharmacies. Medical referrals abroad are to the Philippines, Hawaii and Guam[7].

The reliance on primary health care approaches challenges the nation to provide adequate services for the prevention and management of NCDs at the local level.

1.3   Developing WHO STEPS Survey in Chuuk State

Before this STEPS survey, no state-wide epidemiological data on NCD risk factors was collected in the State of Chuuk, Federated States of Micronesia. Recognizing the gap in knowledge on the magnitude of major NCDs and their risk factors for planning and policy development, STEPS survey was conducted in 2006.

2. OBJECTIVES

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

The STEPS survey:

- Documents the prevalence and magnitude of key NCDs among adults
- 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
- Compare NCDs and their risk factors by age and gender groups.

3. METHODOLOGY

3.1 Survey Structure

With the technical assistance of the FSM Census Office, the FSM (Chuuk) STEPS survey followed a sequential three-step process as follows (Figure 1):

Step 1: A questionnaire-based (interview) survey on tobacco use, betel nut use, alcohol drinking, fruit and vegetable consumption, and physical activity.

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

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

Similar to other STEPS surveys conducted in the Pacific region, the Chuuk survey collected core information across all three steps. STEPS standardized survey methodology was followed. This approach ensures that Chuuk has available population-wide and representative data for between-country comparisons as well as within-country comparisons. In future surveys, Chuuk could add more questions or measurements to the core questions, depending on local needs.
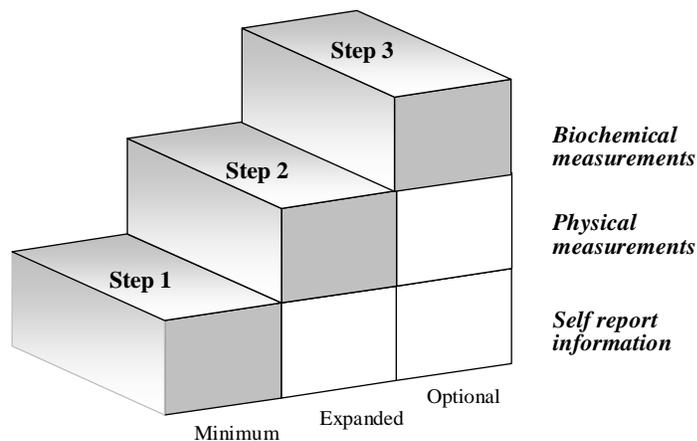
Figure 1. The WHO STEPwise approach to surveillance of NCD Risk Factors

3.2 Sample Size

The STEPS guidelines require a minimum sample size of 2000 participants, with at least 300 participants in each of 10 age-gender categories. Accordingly, 2,831 participants were selected from the age group 15-64 years to undergo STEP 1 and STEP 2. This

sample comprised 2,034 people in the age group 25-64 and 797 people in the age group 15-24. Thirty precent of the sample aged 25-64 was selected to participate in STEP 3 .

3.3   Data Collection Procedures

Survey personnel obtained informed consent from survey participants and gave fasting instructions to those randomly selected for STEP 3 (excluding the 15-24 age group) and made appointment times for those who consented to participate in the survey. All study in Chuuk followed the same procedure for selecting eligible participants.
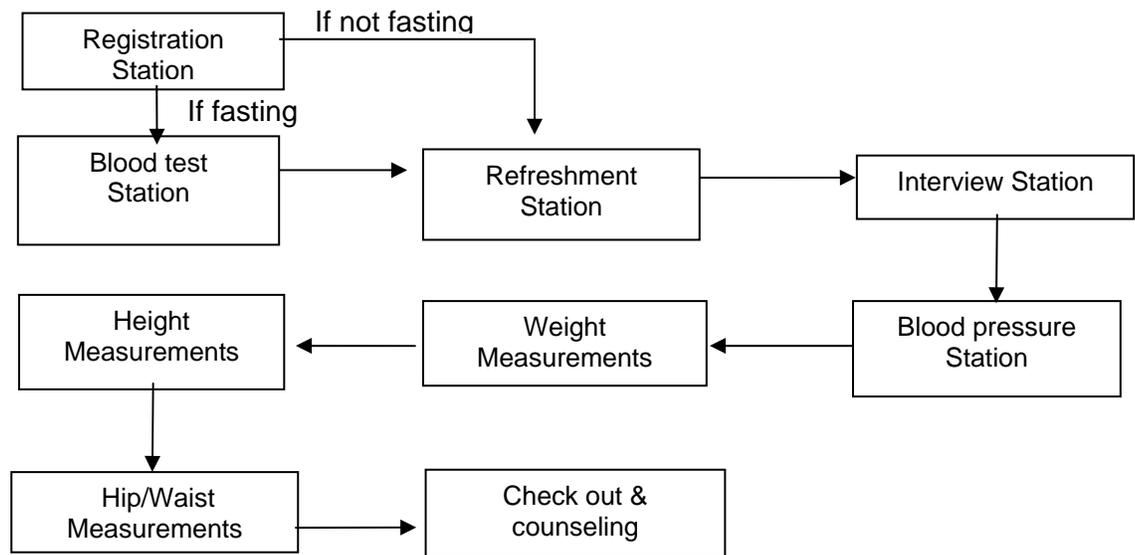
Figure 2: Sequence of data collection and stations at the survey base

3.3.1 Registration of Participants

At the registration station, survey personnel:

- Confirmed consent of the participant to be involved in the survey
- Ensured that participants understood Step1, 2 and 3 involved in the survey
- Obtained participant date of birth and confirmed that they were within the target age group
- Confirmed fasting status of the participant
- Directed the participant to the appropriate station depending on the fasting status of the participant

3.3.2 Step 1 - Behavioural Risk Factors Interviews

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

3.3.3 Step 2 - Physical Measurements

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. The three readings of the blood pressure were recorded, and the average of the second and third readings was used in the analysis.

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

3.3.4 Step 3 - Biochemical Measurements

The survey included assessments of fasting blood glucose, fasting total cholesterol and triglycerides. Participants fasted from 10:00pm the previous night until 7:00am the following morning, when their capillary blood samples were drawn using the method of finger prick.

3.3.5 Check-out Station and Counseling

All participants received health advice and counseling and were provided with literature about smoking, alcohol drinking, obesity and nutrition, physical activity, hypertension, diabetes, and heart diseases. Participants who were identified as being at high risk of developing, or with, advanced chronic conditions were referred for a follow-up clinical examination.

3.4 Data Management and Analyses

3.4.1 Data Entry

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

3.4.2 Data Weighting and Analysis

Post-stratification weights were calculated using the 2005 population projections based on Chuuk 2004 census of the population aged 15-64 years. 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 Division of Pacific Technical Support, WPRO/WHO Office in Suva, 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 Division of Pacific Technical Support, WPRO/WHO Office in Suva compiled the whole Data Book.

In this report, main data tables present findings for those aged 25-64 years, following the standard age group reporting for WHO STEPS surveys. However, as data for the age group of 15-24 years was also collected, additional commentary is presented at the end of each section of behavioural risk factors.

4. RESULTS

4.1 Characteristics of Survey Population

The study randomly selected and invited 3,000 Chuuk Islanders aged 15-64 years to participate in the survey. A total of 2,831 individuals participated (response rate of 94.4%). Data for those aged 25-64 years are reported here in the main tables, following the standard age group reporting for WHO STEPS surveys, and data for the age group 15-24 are presented in a separate paragraph at the end of each section for Step 1.

Table 1 presents the age and gender distribution of the survey sample aged 25-64. More women respondents participated in the survey than men (64.6% and 35.4%) respectively. The age range of the 25-64 sample is close to being equally distributed across age groups.

Percentages given in the text relate to the age groups 25-64, and commentary on the 15-24 age group is provided at the end of each section. Comparative reference is made to the findings of STEPwise surveys in Pohnpei[8] within the Federated States of

Micronesia, and other Pacific island countries and areas in particular, Kiribati[9], Cook Islands[10] and the Solomon Islands[11].

Table 1   Demographic description of study population

Age group and sex of respondents						
Age Group (years)	**Men**		**Women**		**Both Sexes**	
	n	%	n	%	n	%
25-34	209	35.0	388	65.0	597	29.4
35-44	189	34.4	360	65.6	549	27.0
45-54	186	33.3	373	66.7	559	27.5
55-64	137	41.6	192	58.4	329	16.2
25-64	721	35.4	1313	64.6	2034	100.0

Table 2 presents the mean years of education of the survey respondents. Both genders and all age groups have similar mean years of education, with men having only marginally more years of education than women in age group 45-54. The oldest age group (55-64) of women reported the shortest mean years of education.

Table 2   Mean number of years 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	205	9.7	379	9.5	584	9.6
35-44	187	9.5	355	9.2	542	9.3
45-54	185	10.3	370	9.5	555	9.8
55-64	134	9.6	186	7.4	320	8.3
25-64	711	9.8	1290	9.1	2001	9.4

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:

· 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.

· <u>Non-daily smokers</u> – those current smokers who do not smoke on a daily basis.

Table 3 shows that 32.4% of all respondents were current smokers. More than half of men (51% ±4.2) were current smokers, compared to just 14% ±3.3 of women respondents. This statistically significant gender difference was observed in all age groups. The highest proportion of current smokers among both genders was in the 35-44 years age group (35.9% ±4.4) although this was due to the highest proportion of all male current smokers being in that age group. Among women, current smoking was highest in the 45-54 group.

Table 3   Percentage of current smokers in the study population

		Percentage of current smokers								
Age Group (years)	**Men**				**Women**			**Both Sexes**		
	n	% Current smoker	95% CI		n	% Current smoker	95% CI	n	% Current smoker	95% CI
25-34	206	52.9	±5.7		381	9.7	±2.3	587	31.7	±4.3
35-44	186	57.0	±7.2		358	16.2	±5.8	544	35.9	±4.4
45-54	186	48.9	±5.9		371	18.3	±5.9	557	33.7	±4.6
55-64	135	37.0	±9.6		192	13.0	±5.9	327	24.8	±7.0
25-64	713	51.0	±4.2		1302	14.0	±3.3	2015	32.4	±3.2

Table 4 shows that 49% of male respondents were non-smokers. Of the balance (51%) who smoked, 47% ±4 smoked on a daily basis. More than half (52.7% ±6.7) of men aged 35-44 years were daily smokers. The proportion of daily smokers decreased thereafter to 35.6% ±8.4 of daily smokers in the age group 55-64 years, as did the proportion of non-daily smokers.

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

		Smoking status					
		Men					
Age Group (years)	n	Current smoker				% Does not smoke	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	206	46.6	±7.6	6.3	±3.6	47.1	±5.7
35-44	186	52.7	±6.7	4.3	±3.0	43.0	±7.2
45-54	186	47.3	±6.7	1.6	±2.3	51.1	±5.9
55-64	135	35.6	±8.4	1.5	±2.3	63.0	±9.6
25-64	713	47.0	±4.0	4.0	±1.7	49.0	±4.2

Table 5 shows that 86% of the female respondents were non-smokers. Of the 14% who smoked 10.6% ±3.2 smoked on a daily basis. The proportions of daily smokers increased with increasing age, from 5.2% ±2.7 in the youngest age group (25-34 years) to 15.1% ±5.5 in the age group (45-54 years), while the proportion of non-daily smokers was unchanged in age groups 35-44 and 45-54 and decreased in age 55-64 years.

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

Age Group (years)	Smoking status						
	Women						
	n	Current smoker				% Does not smoke	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	381	5.2	±2.7	4.5	±1.8	90.3	±2.3
35-44	358	13.1	±5.2	3.1	±1.6	83.8	±5.8
45-54	371	15.1	±5.5	3.2	±1.8	81.7	±5.9
55-64	192	11.5	±5.3	1.6	±1.9	87.0	±5.9
25-64	1302	10.6	±3.2	3.4	±1.2	86.0	±3.3

Table 6 presents the prevalence of daily smokers, non-daily smokers and non-smokers for men and women combined. Overall, 28.7% ±3 of survey respondents were daily smokers, 3.7% ±1.1 were non-daily smokers and 67.6% ±3.2 were non-smokers. The highest proportion of daily smokers (32.2% ±4.4) was among men in age group 35-44, and this was essentially sustained through age group 45-54 (31.3% ±4.9).

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

Age Group (years)	Smoking status						
	Both Sexes						
	n	Current smoker				% Does not smoke	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	587	26.3	±4.9	5.4	±1.9	68.3	±4.3
35-44	544	32.2	±4.4	3.7	±1.6	64.1	±4.4
45-54	557	31.3	±4.9	2.4	±1.6	66.3	±4.6
55-64	327	23.3	±5.9	1.5	±1.4	75.2	±7.0
25-64	2015	28.7	±3.0	3.7	±1.1	67.6	±3.2

Table 7 shows that among current daily smokers, the mean age of starting smoking for men was 17.2 ±0.7 years and for women was 21.6 ±1.9 years. This gender difference of women reporting uptake at an older age occurs in all age groups. Across both sexes, the youngest cohort of 25-34 years reported uptake earlier than the older cohorts. The highest mean age of smoking uptake (28.2 ±7.5) was reported among women in age groups 55-64.

Table 7   Mean age started smoking among current daily smokers

Age Group (years)	Men			Women			Both Sexes		
	n	Mean age	95% CI	n	Mean age	95% CI	n	Mean age	95% CI
25-34	90	16.6	±0.9	18	18.8	±1.6	108	16.8	±0.9
35-44	93	17.2	±0.9	43	20.7	±2.2	136	17.9	±1.0
45-54	85	17.9	±1.7	53	21.2	±1.6	138	18.7	±1.2
55-64	46	17.8	±1.8	19	28.2	±7.5	65	20.2	±2.5
25-64	314	17.2	±0.7	133	21.6	±1.9	447	18.0	±0.8

Table 8 shows that among current daily smokers overall, the mean number of years of smoking was 22.9 ±1 years. Men reported smoking for a mean of 23 ±1.1 years and women for a mean of 22.3 ±2.4 years. Respondents in age group 55-64 reported a mean duration of smoking as 40.6 ±2.3 years for men and 29.8 ±7.7 years for women.

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

Age Group (years)	Men			Women			Both Sexes		
	n	Mean duration	95% CI	n	Mean duration	95% CI	n	Mean duration	95% CI
25-34	90	12.9	±0.9	18	10.7	±2.0	108	12.7	±0.8
35-44	93	22.9	±1.1	43	19.3	±2.2	136	22.2	±1.1
45-54	85	31.2	±1.9	53	28.2	±1.5	138	30.5	±1.4
55-64	46	40.6	±2.3	19	29.8	±7.7	65	38.1	±2.6
25-64	314	23.0	±1.1	133	22.3	±2.4	447	22.9	±1.0

Table 9 shows that manufactured cigarettes were commonly smoked by current daily smokers: 84.5% ±4.6 of men and 82% ±6.2 of women. The smoking of manufactured cigarettes was high in all age groups of both genders, the lowest occurring among men age 45-54.

Table 9   Percentage of current daily smokers who smoke manufactured cigarettes

Age Group (years)	\multicolumn{3}{c}{Men}			\multicolumn{3}{c}{Women}			\multicolumn{3}{c}{Both Sexes}		
	n	% Manu-factured cigarette smoker	95% CI	n	% Manu-factured cigarette smoker	95% CI	n	% Manu-factured cigarette smoker	95% CI
25-34	96	89.6	±6.9	20	80.0	±17.7	116	88.6	±6.7
35-44	98	82.7	±7.5	47	83.0	±12.1	145	82.7	±7.1
45-54	88	77.3	±8.4	56	82.1	±10.7	144	78.4	±6.6
55-64	48	89.6	±7.1	22	81.8	±13.4	70	87.6	±7.3
25-64	330	84.5	±4.6	145	82.0	±6.2	475	84.1	±3.9

Among those aged 15-24 years, 27.6% ±4.6 were current smokers (45.8% ±7.1 male and 7.7% ±2.7 female). Among the total population aged 15-24, 35.1% ±6.8 of males and 2.6% ±1.4 of females reported smoking on a daily basis, averaging to 19.6% ±3.9 for the overall population. Males aged 15-24 reported started smoking at age 15.4 ±0.6 years and having smoked for a mean of 5 ±0.6 years. Women reported starting at age 16.9 ±0.9 years and having smoked for a mean of 3.6 ±1.9 years. Notably, the age of smoking uptake in both genders of this age group was younger than in older cohorts. The majority (83.4% ±6.7) of the population in age group 15-24 smoked manufactured cigarettes, similar to all other age groups.

4.3 Betel Nut Use

Table 10 shows that 68.2% ±7.0 of male respondents were abstainers from chewing betel nut. Of the 31.8% ±7.0 of men who chewed betel nut in the past 12 months the largest proportion (59.5% ±10.8) was in the age group 25-34. Rates of betel nut use among men declined significantly in subsequent age groups.

Table 10   Percentage of current betel nut chewers among men during the past 12 months by age group

Age Group (years)	Betel nut chewing status				
	Men				
	n	% Chewed in last 12 months	95% CI	% Abstainer	95% CI
25-34	205	59.5	±10.8	40.5	±10.8
35-44	186	23.7	±7.9	76.3	±7.9
45-54	185	11.4	±4.8	88.6	±4.8
55-64	137	7.3	±5.7	92.7	±5.7
25-64	713	31.8	±7.0	68.2	±7.0

Table 11 shows that 86.7% ±2.5 of female respondents were abstainers from chewing betel nut. Of the 13.3% ±2.5 of women who chewed betel nut in the past 12 months the largest proportion (29.4% ±5) was in the age group 25-34. Rates of betel nut use among females declined significantly thereafter.

Table 11   Percentage of current betel nut chewers among women during the past 12 months by age group

Betel nut chewing status					
Age Group (years)	Women				
	n	% Chewed in last 12 months	95% CI	% Abstainer	95% CI
25-34	384	29.4	±5.0	70.6	±5.0
35-44	357	7.6	±2.5	92.4	±2.5
45-54	371	2.2	±2.1	97.8	±2.1
55-64	191	1.6	±1.8	98.4	±1.8
25-64	1303	13.3	±2.5	86.7	±2.5

Table 12 shows that 77.5% ±3.9 of all respondents were abstainers from chewing betel nut. Of the 22.5%±3.9 who chewed betel nut in the past 12 months the largest proportion (44.6% ±6.4) was in the age group 25-34. Rates of betel use declined significantly for both sexes in subsequent age groups.

Table 12   Percentage of current betel nut chewers among both sexes during the past 12 months by age group

Betel nut chewing status					
Age Group (years)	Both Sexes				
	n	% Chewed in last 12 months	95% CI	% Abstainer	95% CI
25-34	589	44.6	±6.4	55.4	±6.4
35-44	543	15.3	±4.2	84.7	±4.2
45-54	556	6.8	±2.9	93.2	±2.9
55-64	328	4.4	±2.9	95.6	±2.9
25-64	2016	22.5	±3.9	77.5	±3.9

Table 13 presents the current prevalence of daily betel nut users, non-daily users and non-users among men. Overall, 17.7 % ±4.7 of male respondents were daily chewers, 14.1% ±3.2 were non-daily chewers and 68.2% ±7 were non-betel nut chewers. The highest proportion of daily betel nut chewers (36.6% ±8.1) was reported in the age group 25-34.

Table 13 Current chewing status among men in the study population by age group

Age Group (years)	n	Chewing status						
		Men						
		Current chewer				% Does not chew	95% CI	
		% Daily	95% CI	% Non-daily	95% CI			
25-34	205	36.6	±8.1	22.9	±4.9	40.5	±10.8	
35-44	186	10.2	±5.4	13.4	±5.9	76.3	±7.9	
45-54	185	4.3	±4.1	7.0	±3.1	88.6	±4.8	
55-64	137	3.7	±3.8	3.7	±3.0	92.7	±5.7	
25-64	713	17.7	±4.7	14.1	±3.2	68.2	±7.0	

Table 14 presents the current prevalence of daily betel nut users, non-daily users and non-users among women. Overall, 8.1% ±2.8 of female respondents were daily chewers, 5.2% ±1.6 were non-daily chewers and 86.7% ±2.5 were non-betel nut chewers. The highest proportion of daily betel nut chewers (19.5% ±5.3) was reported in the age group 25-34.

Table 14   Current chewing status among women in the study population by age group

Age Group (years)	n	Chewing status						
		Women						
		Current chewer				% Does not chew	95% CI	
		% Daily	95% CI	% Non-daily	95% CI			
25-34	384	19.5	±5.3	9.9	±3.6	70.6	±5.0	
35-44	357	2.8	±1.7	4.8	±2.1	92.4	±2.5	
45-54	371	1.1	±1.6	1.1	±1.1	97.8	±2.1	
55-64	191	0.5	±1.1	1.0	±1.5	98.4	±1.8	
25-64	1303	8.1	±2.8	5.2	±1.6	86.7	±2.5	

Table 15 presents the current prevalence of daily betel users, non-daily users and non-users among both men and women combined. Overall, 77.5% ±3.9 were non-betel nut users, 12.8% ±2.5 were daily chewers, 9.7% ±2.1 were non-daily chewers. The highest proportion of daily betel nut chewers (28.1% ±4.6) was reported in the age group 25-34.

**Table 15   Current chewing status among both sexes
in the study population by age group**

Age Group (years)	n	Both Sexes					
		Chewing status					
		Current chewer				% Does not chew	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	589	28.1	±4.6	16.5	±4.1	55.4	±6.4
35-44	543	6.4	±2.6	9.0	±3.2	84.7	±4.2
45-54	556	2.7	±2.4	4.1	±1.8	93.2	±2.9
55-64	328	2.1	±1.9	2.3	±1.6	95.6	±2.9
25-64	2016	12.8	±2.5	9.7	±2.1	77.5	±3.9

Among those aged 15-24, 65.8% ±8.2 of males and 42.7% ±6.2 of females were current betel nut chewers, giving and average of 54.8% ±4.8 overall. Almost half (49.7% ±8.6) of males and 31.8% ±5.2 of females chewed betel nuts on a daily basis, averaging to 41.2% ±4.7 overall.

4.4 Alcohol Consumption

This section describes patterns of alcohol consumption in Chuuk. To assess patterns and prevalence of alcohol consumption, respondents were asked if they ever consumed alcohol, and the frequency and quantity of alcohol consumed. Those who had consumed an alcoholic drink in the past 12 months were classified as current drinkers. Tables 16-18 summarise the prevalence of alcohol consumption during the past 12 months among men, women and both sexes respectively.

There was a statistically significant gender difference in alcohol consumption behavior, with more than a third of males (34.3% ±5.9) (Table 16) and just over 1% of females (1.3% ±0.6) (Table 17) classified as current drinkers.

Among male current drinkers the largest proportion (43.3% ±8.6) occurs in the age group 25-34 and declines thereafter.

**Table 16   Percentage of alcohol consumption among men
during the past 12 months by age group**

Age Group (years)	Alcohol consumption status						
	Men						
	n	% Lifetime Abstainer	95% CI	% Past 12 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI
25-34	208	37.0	±9.8	19.7	±7.8	43.3	±8.6
35-44	186	39.2	±8.9	24.7	±8.6	36.0	±8.4
45-54	184	45.1	±9.7	27.2	±8.3	27.7	±7.3
55-64	137	51.1	±7.6	32.1	±9.1	16.8	±7.2
25-64	715	41.3	±7.0	24.4	±5.8	34.3	±5.9

Among female current drinkers the largest proportion (3.4% ±1.5) occurs in the age group 25-34, declines significantly thereafter and ceases in age groups 45-54 and over.

**Table 17   Percentage of alcohol consumption among women
during the past 12 months by age group**

Age Group (years)	Alcohol consumption status						
	Women						
	n	% Lifetime Abstainer	95% CI	% Past 12 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI
25-34	383	93.2	±2.7	3.4	±2.1	3.4	±1.5
35-44	358	98.6	±1.2	1.1	±1.1	0.3	±0.6
45-54	367	96.5	±2.3	3.5	±2.3	----	±0.0
55-64	191	99.5	±1.0	0.5	±1.0	----	±0.0
25-64	1299	96.3	±1.3	2.4	±1.0	1.3	±0.6

Table 18 shows that consistent in all age groups more than two thirds (68.9% ±3.9) of the population reported being lifetime abstainers from alcohol. The highest proportion of current drinkers among both genders was in the 25-34 years age group (23.7% ±3.3). Thereafter, the proportion of current drinkers decreased with increasing age.

Table 18   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 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI
25-34	591	64.6	±6.6	11.7	±4.3	23.7	±5.5
35-44	544	70.0	±5.4	12.5	±4.4	17.5	±4.4
45-54	551	70.6	±5.0	15.4	±4.2	13.9	±3.8
55-64	328	75.5	±4.5	16.2	±4.7	8.3	±3.6
25-64	2014	68.9	±3.9	13.4	±2.9	17.7	±3.3

Table 19 presents 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 of the sample that drank more than 20 alcoholic drinks in the past 7 days. It shows that among male current drinkers (9.4% ±4.5) consumed alcohol on 4 of the past 7 days, almost half (49.6% ±5.4) consumed 5 or more drinks on any drinking day and 16.7% ±5 drank 20 or more drinks over a 7 day period. The highest proportions of males who drank 5 or more standard drinks on any day were in the age groups 55-64 (65% ±19.4) and 45-54 (55.6% ±14.2).

Table 19   Frequency and quantity of drinks consumed in the last 7 days by current (last 30 days) drinker, grouped into three categories

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	60	16.7	±7.7	46.7	±10.7	16.7	±8.1
35-44	46	2.2	±4.1	45.7	±14.0	15.2	±10.9
45-54	36	2.8	±5.2	55.6	±14.2	19.4	±9.7
55-64	20	10.0	±12.2	65.0	±19.4	15.0	±13.1
25-64	162	9.4	±4.5	49.6	±5.4	16.7	±5.0

Table 20 presents information on the number of standard drinks consumed per drinking day by male current drinkers (average of 10.3 ±1.1 standard drinks) on a drinking day and shows that heavy drinking is common among all age groups from 35-64 but is most common among older men in age group 55-64.

Table 20   Number of drinks per day among men who are current drinkers by age group

	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	82	3.7	±4.0	13.4	±10.2	11.0	±6.7	72.0	±11.8	9.5	±1.7
35-44	56	1.8	±3.5	3.6	±5.2	10.7	±7.5	83.9	±10.5	10.4	±1.7
45-54	50	2.0	±4.2	6.0	±7.0	10.0	±8.4	82.0	±9.5	11.1	±2.5
55-64	21	----	±0.0	----	±0.0	----	±0.0	100.0	±0.0	13.4	±3.1
25-64	209	2.6	±2.3	8.5	±4.4	10.0	±3.6	78.9	±5.3	10.3	±1.1

Table 21 shows that current drinkers of both genders combined drink an average of 10.1 ±1 standard drinks on a drinking day, but with the low number of females in the sample of current drinkers the overall population averages just below the male rate.

Table 21   Number of drinks per day among both sexes who are current drinkers by age group

	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	93	5.2	±4.6	14.3	±9.3	11.4	±6.6	69.0	±11.8	9.1	±1.6
35-44	57	1.8	±3.5	3.5	±5.2	10.6	±7.4	84.1	±10.3	10.5	±1.6
45-54	51	2.0	±4.2	6.9	±7.1	9.9	±8.3	81.2	±9.3	11.0	±2.4
55-64	21	----	±0.0	----	±0.0	----	±0.0	100.0	±0.0	13.4	±3.1
25-64	222	3.4	±2.5	9.3	±4.0	10.2	±3.4	77.1	±5.2	10.1	±1.0

Among those aged 15-24, 31.5% ±7.2 of males and 2.7% ±1.4 of females were current drinkers. Among males, 12.3% ±8.7 consumed alcohol on 4 of the past 7 days, 60.4% ±14.6 consumed 6+ drinks on any drinking day and 15.1% ±7.2 drank 20+ standard drinks in the past 7 days. Both sexes combined consumed an average of 8.5 ±1.3 standard drinks on a drinking day, although not statistically less than the average for all older age groups.

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 and women reported similar mean days of fruit consumed in a typical week (2.6 ±0.2) overall and across all age groups.

**Table 22   Mean number of days in a week that fruits are consumed
by gender and age group**

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
Mean number of days fruit consumed in a typical week									
25-34	197	2.5	±0.3	366	2.6	±0.2	563	2.5	±0.2
35-44	180	2.6	±0.4	346	2.6	±0.3	526	2.6	±0.2
45-54	178	2.6	±0.3	358	2.8	±0.3	536	2.7	±0.2
55-64	135	2.3	±0.4	185	2.7	±0.4	320	2.5	±0.4
25-64	690	2.5	±0.2	1255	2.6	±0.2	1945	2.6	±0.2

Table 23 shows that both sexes reported similar mean days of vegetable consumption in a typical week (3.3 ±0.3 for women and 2.9 ±0.3 for men) overall and across all age groups.

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

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
Mean number of days vegetables consumed in a typical week									
25-34	199	3.0	±0.4	360	3.4	±0.3	559	3.2	±0.3
35-44	182	3.1	±0.4	348	3.4	±0.4	530	3.2	±0.3
45-54	177	2.8	±0.3	356	3.1	±0.4	533	3.0	±0.3
55-64	134	2.6	±0.4	183	3.2	±0.6	317	2.9	±0.4
25-64	692	2.9	±0.3	1247	3.3	±0.3	1939	3.1	±0.3

Table 24 shows the reported consumption of servings of fruit on a day when fruit was eaten as being similar across all categories of age and sex.

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	197	1.0	±0.3	366	1.0	±0.2	563	1.0	±0.2
35-44	180	1.0	±0.3	346	1.0	±0.2	526	1.0	±0.1
45-54	178	1.1	±0.2	358	1.1	±0.2	536	1.1	±0.1
55-64	135	0.8	±0.2	185	1.1	±0.2	320	0.9	±0.2
25-64	690	1.0	±0.2	1255	1.0	±0.1	1945	1.0	±0.1

Table 25 shows the reported consumption of servings of vegetables on a day when vegetables were eaten as being similar across all categories of age and sex.

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

Age Group (years)	Mean number of servings of vegetables 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	199	1.0	±0.2	360	1.2	±0.2	559	1.1	±0.1
35-44	182	1.1	±0.2	348	1.2	±0.2	530	1.1	±0.2
45-54	177	0.9	±0.2	356	1.0	±0.2	533	1.0	±0.1
55-64	134	0.8	±0.2	183	1.0	±0.2	317	0.9	±0.1
25-64	692	1.0	±0.1	1247	1.1	±0.1	1939	1.1	±0.1

Table 26 shows the reported average consumption of combined servings of fruit and vegetables on an average day and shows that overall respondents reported an average of 2 ±0.2 combined servings of fruit and vegetables consistently across all age groups, although males in age group 55-64 reported consuming the least (1.6 ±0.3).

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

| Age Group (years) | Mean number of servings of fruit and/or vegetables 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	202	2.0	±0.3		376	2.2	±0.3		578	2.1	±0.2
35-44	186	2.0	±0.4		351	2.2	±0.3		537	2.1	±0.2
45-54	180	2.0	±0.3		367	2.1	±0.2		547	2.1	±0.2
55-64	136	1.6	±0.3		189	2.0	±0.3		325	1.8	±0.2
25-64	704	2.0	±0.2		1283	2.1	±0.2		1987	2.0	±0.2

Table 27 shows that 90.4% ±1.8 of respondents of both genders consumed less than five combined servings of fruit and vegetables on an average day with no difference between men (91.4% ±2.3) and women (89.4% ±2.5), although males in age group 55-64 presented the highest proportion of those eating less than 5 combined servings per average day.

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

| Age Group (years) | Less than five servings of fruit and vegetables on average per day |||||||||
| | **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	202	92.6	±2.8		376	90.4	±3.5		578	91.5	±2.3
35-44	186	89.2	±5.5		351	88.3	±4.9		537	88.8	±3.4
45-54	180	90.6	±4.3		367	89.6	±3.3		547	90.1	±2.8
55-64	136	94.1	±3.8		189	88.4	±5.9		325	91.2	±3.8
25-64	704	91.4	±2.3		1283	89.4	±2.5		1987	90.4	±1.8

Those aged 15-24 consumed fruit and vegetables at similar rates to the other age groups and showed similar proportions of those receiving less than 5 combined servings of fruit and vegetables on an average day.

4.6 Physical Activity

4.6.1 Measurements

In Step 1 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 proportion of activity undertaken in each domain as a component of total physical activity. For each domain, three levels of activity were recorded: low, moderate, and high. In each domain, the total time participants spent in an activity per 7 day week was computed by multiplying the number of days by the duration of the activity. To account for the different levels of energy expenditure required for the activities (i.e. low, moderate or high), the daily duration of activity was converted into METminutes per week. 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, the following MET values were allocated to the three physical activity domains:

    Moderate physical activity (work and leisure domain)   = 4.0 METS
    High 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 is combined 58.6% ±6.2 of men reported a low level of total physical activity. Moderate physical activity was reported by 9.8% ±2.4 of men and a high level of physical was reported by 31.6% ±5.8. The proportions of low total physical activity increased in age group 45-54, while the proportions reporting moderate and high levels of physical activity varied little, although a high level of total physical activity decreased in age group 45-54 and further decreased in age group 55-64.

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

| Age Group (years) | Level of total physical activity |
| | Men |
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	188	56.4	±6.6	10.1	±4.1	33.5	±8.3
35-44	170	52.9	±8.9	9.4	±3.4	37.6	±7.6
45-54	170	63.5	±10.7	8.2	±5.4	28.2	±9.4
55-64	125	67.2	±9.9	12.8	±6.2	20.0	±7.3
25-64	653	58.6	±6.2	9.8	±2.4	31.6	±5.8

Table 29 shows that when physical activity done as part of work, transport and leisure time is combined 67.5% ±4.9 of women reported a low level of total physical activity. Moderate physical activity was reported by 12.5% ±2.2 of women and a high level of physical was reported by 20.1% ±3.9. The proportions of low total physical activity varied little among the age groups of women. A high level of total physical activity decreased in the age group 55-64.

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

| Age Group (years) | Level of total physical activity |
| | Women |
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	358	69.6	±4.7	10.9	±3.2	19.6	±4.2
35-44	336	65.5	±7.2	13.4	±4.2	21.1	±6.3
45-54	350	64.9	±7.1	13.7	±3.5	21.4	±6.2
55-64	166	71.1	±8.9	12.7	±5.3	16.3	±7.3
25-64	1210	67.5	±4.9	12.5	±2.2	20.1	±3.9

Table 30 shows that when physical activity done as part of work, transport and leisure time is combined almost two thirds (63.1% ±4.9) of both genders reported a low level of total physical activity. Moderate physical activity was reported by 11.2% ±1.7 and a high level of physical was reported by 25.8% ±4.4. The proportions of low total physical activity increased and high activity decreased in age group 45-54 and again in age group 55-64, while the proportions reporting a moderate level of physical activity changed little.

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

Age Group (years)	Level of total physical activity						
	Both Sexes						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	546	63.0	±5.0	10.5	±2.3	26.5	±5.3
35-44	506	59.5	±6.2	11.5	±2.6	29.0	±5.3
45-54	520	64.2	±6.9	11.0	±3.0	24.8	±5.9
55-64	291	69.1	±7.6	12.7	±4.0	18.2	±5.9
25-64	1863	63.1	±4.9	11.2	±1.7	25.8	±4.4

Table 31 presents the mean minutes of total physical activity across all three domains per day by gender and age. Overall, respondents reported an average of 85.6 ±13.7 mean minutes per day spent in total physical activity, although there was a statistically significant gender difference with men engaged in physical activity for a mean of 104.3 ±18.2 minutes per day and women for a mean of 67.4 ±11 minutes per day. In both sexes physical activity peaked in the 35-44 groups and declined thereafter.

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

Age Group (years)	Mean minutes of total physical activity on average per day											
	Men				Women				Both Sexes			
	n	Mean minutes	95% CI		n	Mean minutes	95% CI		n	Mean minutes	95% CI	
25-34	188	105.7	±22.0		358	65.4	±15.7		546	85.6	±16.6	
35-44	170	123.2	±32.1		336	77.1	±20.4		506	99.0	±18.0	
45-54	170	91.9	±28.2		350	68.1	±15.6		520	79.9	±17.1	
55-64	125	84.1	±28.2		166	49.0	±17.6		291	66.8	±19.9	
25-64	653	104.3	±18.2		1210	67.4	±11.0		1863	85.6	±13.7	

Tables 32-34 present results on mean minutes per day engaged in work-related (Table 32) transport-related (Table 33) and recreation-related (Table 34) physical activity. Overall, and in both sexes, work accounted for the greatest part of all physical activity followed by transport and recreation.

Table 32 shows that work-related physical activities comprised 70.1 ±13 mean minutes/day for men and 48.7 ±9 mean minutes/day for women. Across all age groups men reported engaging in more mean minutes of work-related physical activity than women.

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

Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	188	66.0	±17.1	358	47.8	±13.5	546	57.0	±11.4
35-44	170	84.5	±22.5	336	57.3	±19.2	506	70.2	±14.7
45-54	170	65.0	±25.5	350	49.0	±12.6	520	56.9	±15.4
55-64	125	61.7	±21.8	166	30.4	±16.1	291	46.3	±16.3
25-64	653	70.1	±13.0	1210	48.7	±9.0	1863	59.3	±10.1

Mean minutes of work-related physical activity on average per day

Table 33 shows that transport-related physical activities comprised 25.5 ±6.8 mean minutes/day for men and 16.9 ±2.5 mean minutes/day for women. Across all age groups men reported engaging in more mean 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

Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	188	27.5	±9.2	358	14.6	±3.7	546	21.0	±5.7
35-44	170	29.3	±9.6	336	17.8	±3.9	506	23.3	±4.8
45-54	170	21.0	±7.6	350	18.6	±4.7	520	19.8	±4.1
55-64	125	20.4	±10.6	166	18.6	±7.9	291	19.5	±8.3
25-64	653	25.5	±6.8	1210	16.9	±2.5	1863	21.2	±4.2

Mean minutes of transport-related physical activity on average per day

Table 34 shows that recreation-related physical activities comprised 8.7 ±3.7 mean minutes/day for men and 1.7 ±1 mean minutes/day for women. In all age groups men reported engaging in more mean 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**

Age Group (years)	Mean minutes of recreation-related physical activity on average per day								
	\multicolumn{3}{c}{**Men**}			\multicolumn{3}{c}{**Women**}			\multicolumn{3}{c}{**Both Sexes**}
	n	Mean minutes	95% CI	n	Mean Minutes	95% CI	n	Mean minutes	95% CI
25-34	188	12.2	±5.5	358	2.9	±2.2	546	7.6	±3.2
35-44	170	9.4	±7.7	336	2.0	±2.3	506	5.5	±3.9
45-54	170	6.0	±5.1	350	0.5	±0.4	520	3.2	±2.6
55-64	125	2.0	±2.8	166	0.0	±0.1	291	1.0	±1.4
25-64	653	8.7	±3.7	1210	1.7	±1.0	1863	5.1	±2.1

Among those aged 15-24 years, 63.3% ±6.3 of males reported a low level of physical activity as did 71.2% ±5.7 of females. Males reported more mean minutes of total physical activity than females (70.3 ±16.2 mean minutes and 52.6 ±15.8 respectively) largely due to more recreation-related activity.

4.7 Overweight and Obesity

4.7.1 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 (metres^2). BMI risk categories are defined as follows:

Underweight	BMI < 18.5
Normal weight	18.5 ≤ BMI ≤ 24.9
Overweight	BMI ≥ 25.0
Obese	BMI ≥ 30.0

Tables 35 and 36 show that men were significantly taller (169.2cm ±0.9) than women (158.9cm ±0.4) and women were marginally heavier (82.8kg ±1.6) than men (80.9kg ±2.6) although the difference is not statistically significant.

Table 35   Mean height by gender and age group

Age Group (years)	Mean height (cm)					
	\multicolumn{3}{c}{**Men**}			\multicolumn{3}{c}{**Women**}
	n	Mean	95% CI	n	Mean	95% CI
25-34	174	169.9	±1.2	343	158.9	±0.5
35-44	166	168.4	±1.3	336	159.4	±0.9
45-54	166	170.1	±1.7	356	158.8	±0.6
55-64	128	167.6	±1.2	177	157.6	±1.0
25-64	634	169.2	±0.9	1212	158.9	±0.4

Among both sexes weight increased after age 35-44 but decreased in the oldest age group. Weight peaked in women in age group 34-44 and in men age group 45-54.

Table 36   Mean weight by gender and age group

Mean weight (kg)						
Age Group (years)	**Men**			**Women**		
	n	Mean	95% CI	n	Mean	95% CI
25-34	172	76.6	±3.5	312	80.3	±2.0
35-44	165	81.1	±3.9	319	85.1	±2.4
45-54	166	86.0	±3.7	354	84.8	±2.3
55-64	126	82.7	±3.5	176	79.9	±3.5
25-64	629	80.9	±2.6	1161	82.8	±1.6

Among those aged 15-24 both males and females had achieved the all age group average height, yet both sexes were yet to achieve the all age group average weight.

4.7.2 Body Mass Index Categories

Table 37 presents the mean BMI scores for both genders, individually and combined. The overall mean BMI was 30.5kg/m^2 ±0.7. Women had a higher mean BMI (32.7kg/m^2 ±0.6) than men (28.2 kg/m^2 ±0.8) and in all age groups. The mean BMI for both men and women varied little across age groups. Among those aged 15-24 of both genders the BMI was lower than the average BMI in age group 25-34.

Table 37   Mean body mass index (kg/m^2) by gender and age group

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	171	26.3	±1.2	310	31.8	±0.8	481	29.0	±0.8
35-44	162	28.8	±1.3	316	33.4	±0.9	478	31.2	±1.0
45-54	165	29.4	±1.1	353	33.4	±0.9	518	31.5	±1.0
55-64	126	29.5	±1.1	175	32.0	±1.1	301	30.8	±0.9
25-64	624	28.2	±0.8	1154	32.7	±0.6	1778	30.5	±0.7

Tables 38, 39 and 40 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 38 shows that 65.2% ±6.2 of men are classified as overweight, 34.4% ±6.2 as normal and 0.4% ±0.5 as underweight.

Table 38   BMI classifications among men by age group

Age Group (years)		BMI classifications					
		Men					
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight ≥25.0	95% CI
25-34	171	----	±0.0	50.9	±9.2	49.1	±9.2
35-44	162	1.2	±1.7	30.2	±9.3	68.5	±9.2
45-54	165	----	±0.0	22.4	±9.1	77.6	±9.1
55-64	126	0.8	±1.7	21.4	±8.9	77.8	±9.3
25-64	624	0.4	±0.5	34.4	±6.2	65.2	±6.2

Table 39 shows that 87.6% ±2.5 of women are classified as overweight, 11.8% ±2.4 as normal and 0.6% ±0.5 as underweight.

Table 39   BMI classifications among women by age group

Age Group (years)		BMI classifications					
		Women					
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight ≥25.0	95% CI
25-34	310	0.6	±0.9	17.1	±5.6	82.3	±5.6
35-44	316	0.9	±1.1	9.2	±3.5	89.9	±3.4
45-54	353	----	±0.0	7.6	±3.5	92.4	±3.5
55-64	175	0.6	±1.2	12.6	±5.2	86.9	±5.4
25-64	1154	0.6	±0.5	11.8	±2.4	87.6	±2.5

Table 40 shows that the proportion of males and females combined classified as being overweight was 76.5% ±3.6, as normal 23% ±3.6 and 0.5% ±0.3 as underweight.

Table 40   BMI classifications among both sexes by age group

Age Group (years)		BMI classifications					
		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	481	0.3	±0.5	34.4	±4.5	65.3	±4.6
35-44	478	1.1	±0.9	19.3	±5.2	79.7	±5.4
45-54	518	----	±0.0	14.8	±6.1	85.2	±6.1
55-64	301	0.7	±1.0	17.0	±5.5	82.3	±5.5
25-64	1778	0.5	±0.3	23.0	±3.6	76.5	±3.6

Table 41 presents rates of obesity (BMI ≥30kg/m^2) for both genders, individually and combined. The overall prevalence of obesity was 47.3% ±4.9. The obesity rate was significantly higher among women (63% ±4.5) than among men (31.3% ±6.3). The

highest prevalence of obesity was in the 45-54 age group (women 68.8% ±5.1 and men 40% ±7.5).

Table 41 Percentage of obesity (BMI≥30 kg/m^2) by gender and age group

Age Group (years)	Men			Women			Both Sexes		
	n	% BMI≥30	95% CI	n	% BMI≥30	95% CI	n	% BMI≥30	95% CI
25-34	171	21.6	±10.5	310	57.7	±5.3	481	39.2	±5.8
35-44	162	32.1	±8.2	316	65.8	±7.4	478	49.7	±7.4
45-54	165	40.0	±7.5	353	68.8	±5.1	518	54.8	±6.2
55-64	126	38.9	±8.5	175	58.9	±8.5	301	48.9	±7.6
25-64	624	31.3	±6.3	1154	63.0	±4.5	1778	47.3	±4.9

4.7.3 Waist Circumference

Waist circumference was assessed as a measure of central obesity, a measure of risk of cardiovascular diseases. Table 42 shows the mean waist circumference for both men and women. Women had a significantly higher mean waist circumference (101.4cm ±1.7) than men (94.3cm ±2.7). The mean waist circumference varied by age to a greater degree among men than women.

Table 42 Mean waist circumference (cm) by gender and age group

Waist circumference (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	173	87.9	±3.5	306	97.0	±2.0
35-44	165	93.9	±3.3	314	102.5	±2.4
45-54	161	100.3	±3.0	351	104.3	±2.3
55-64	125	101.4	±4.1	176	103.8	±2.9
25-64	624	94.3	±2.7	1147	101.4	±1.7

4.8 Blood Pressure and Hypertension

As part of the Step 2 protocol, all survey participants aged 25-64 years had their blood pressure measured and were 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 high blood pressure.

The STEPS protocol reports the presence of hypertension to include people with:

- a mean 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 mean 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 mean 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 high blood pressure.

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

Table 43 presents mean resting systolic blood pressure and Table 44 mean resting diastolic blood pressure for both sexes, and for men and women separately. Table 43 shows a statistically higher mean systolic blood pressure in males than in females (121.5 ±2.0 and 115.2 ±1.4 respectively). Systolic blood pressure increases with age in both sexes, particularly in the age group 55-64.

Table 43   Mean resting systolic blood pressure (mmHg) by gender and age group

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	174	117.9	±2.2	343	107.7	±1.7	517	112.7	±1.4
35-44	167	118.8	±2.9	337	113.4	±1.8	504	115.9	±1.8
45-54	166	124.4	±4.2	356	121.5	±2.9	522	122.9	±2.7
55-64	128	131.5	±4.3	177	127.4	±3.3	305	129.4	±3.0
25-64	635	121.5	±2.0	1213	115.2	±1.4	1848	118.3	±1.3

Table 44 shows a similar mean diastolic blood pressure in males and females (73.6 ±1.8 and 73.3 ±1.1 respectively), increasing with age in both genders from age group 45-54.

Table 44   Mean resting diastolic blood pressure (mmHg) by gender and age group

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	174	68.2	±2.4	343	70.0	±1.1	517	69.1	±1.5
35-44	167	74.0	±2.3	337	73.1	±1.5	504	73.5	±1.4
45-54	166	77.9	±2.7	356	76.2	±1.9	522	77.0	±2.0
55-64	128	78.9	±2.5	177	76.8	±1.6	305	77.8	±1.5
25-64	635	73.6	±1.8	1213	73.3	±1.1	1848	73.4	±1.2

Table 45 presents the prevalence of hypertension in the population, consistent with the above definition. Hypertension was found in 15.8% ±3.6 of men and 14.6% ±1.8 of women and 15.2% ±2 overall. The prevalence of hypertension increased with increasing age in both men and women. From the base of age group of 35-44, the male and female rates more than double in age group 45-54 (9.6% to 22.3% for males and 11% to 23.6% for females). In age group 55-64 the male rate doubles again and the female rate increases by half.

Table 45   Percentage with hypertension (SBP ≥140 and/or DBP ≥ 90 or currently on medication for raised blood pressure)

Age Group (years)	SBP ≥140 and/or DBP ≥ 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	174	5.7	±4.3	343	4.1	±2.3	517	4.9	±2.3
35-44	167	9.6	±4.0	337	11.0	±3.5	504	10.3	±2.5
45-54	166	22.3	±5.7	356	23.6	±4.0	522	23.0	±4.0
55-64	128	43.0	±10.8	177	33.9	±6.9	305	38.4	±7.8
25-64	635	15.8	±3.6	1213	14.6	±1.8	1848	15.2	±2.0

4.9 Fasting Blood Glucose and Diabetes

Survey participants 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 diabetes 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 (≥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 diabetes.

Table 46 summarizes results on mean fasting blood glucose for both genders individually and combined. The overall mean fasting blood glucose was 6 mmol/L ±0.2. Men reported a marginally lower mean fasting glucose level (5.9 mmol/L ±0.2) than

women (6.2 mmo/L ±0.3). For both men and women, mean fasting blood glucose levels increased with increasing age, peaked in males in the oldest age group and in females aged 45-54.

Table 46   Mean fasting blood glucose in mmol/L by gender and age group

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	50	5.4	±0.2	109	5.2	±0.2	159	5.3	±0.2
35-44	62	5.7	±0.2	128	6.2	±0.6	190	5.9	±0.3
45-54	58	6.3	±0.5	148	7.3	±0.8	206	6.9	±0.5
55-64	39	7.5	±1.0	76	6.8	±0.6	115	7.1	±0.6
25-64	209	5.9	±0.2	461	6.2	±0.3	670	6.0	±0.2

Table 47   Mean fasting blood glucose in mg/dl by gender and age group

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	50	96.5	±4.3	109	93.5	±3.6	159	95.0	±3.1
35-44	62	101.8	±3.6	128	112.1	±10.4	190	107.1	±6.3
45-54	58	113.9	±8.9	148	132.1	±14.2	206	123.4	±8.3
55-64	39	134.5	±18.2	76	122.5	±11.6	115	128.1	±11.1
25-64	209	106.1	±3.5	461	111.2	±5.7	670	108.8	±3.9

Table 48 shows the prevalence of diabetes for both genders individually and combined. The overall prevalence diabetes was 35.4% ±5.6. Diabetes prevalence was only marginally greater in women than in men (36.4% ±5.7 and 34.4% ±7 respectively). More than half of the sample in the age group 45-54 was diabetic (53.4% ±7.5). The onset of adult diabetes is evident in the increase in age group 35-44 thereafter both gender rates increase with increasing age.

Table 48   Prevalence of diabetes 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	54	14.8	±11.3	114	13.2	±6.0	168	14.0	±7.2
35-44	65	23.1	±10.7	143	35.0	±9.0	208	29.3	±8.5
45-54	74	52.7	±9.0	187	54.0	±11.7	261	53.4	±7.5
55-64	62	69.4	±10.7	100	63.0	±12.8	162	66.3	±8.8
25-64	255	34.4	±7.0	544	36.4	±5.7	799	35.4	±5.6

** capillary whole blood value: ≥ 6.1 mmol/L

4.10 Total Cholesterol

For elevated total blood 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 49 shows the overall mean cholesterol level for both genders individually and combined. The overall mean was 4.6 mmol/L ±0.1 and similar mean levels for men (4.5 mmol/L ±0.1) and women (4.7 mmol/L ±0.1) showed little variance across age groups.

**Table 49   Mean levels of total blood 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	22	4.3	±0.1	65	4.5	±0.2	87	4.4	±0.1
35-44	34	4.5	±0.2	108	4.7	±0.1	142	4.6	±0.1
45-54	55	4.7	±0.3	152	4.8	±0.1	207	4.8	±0.1
55-64	36	4.6	±0.2	85	5.1	±0.2	121	4.9	±0.2
25-64	147	4.5	±0.1	410	4.7	±0.1	557	4.6	±0.1

Table 50 shows the mean levels of blood cholesterol by age for both genders individually and combined. Mean total blood cholesterol in women was greater than in men (182.8mg/dl ±3.4 and 174.7mg/dl ±4.3 respectively) and in all age groups, although the differences were not statistically significant.

Table 50 Mean levels of total blood cholesterol (mg/dl) by gender and age group

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	22	164.6	±4.0	65	174.0	±6.7	87	170.1	±4.0
35-44	34	172.7	±7.8	108	180.1	±4.3	142	177.2	±4.1
45-54	55	182.9	±10.8	152	186.2	±4.5	207	184.7	±5.7
55-64	36	177.1	±9.4	85	196.2	±6.5	121	188.1	±7.6
25-64	147	174.7	±4.3	410	182.8	±3.4	557	179.4	±3.0

Table 51 shows that close to a fifth of the population (19.2% ±4.9) had raised blood cholesterol, a greater proportion in women than in men (24.2% ±5.2 and 12.4% ±8.6 respectively) and in all age groups, particularly in age group 55-64 where a statistical difference exists as almost half (47.1% ±11.5) of women but only 19.4% ±15.5 of men had raised blood cholesterol.

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

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	22	4.5	±9.2	65	7.7	±9.1	87	6.4	±6.2
35-44	34	5.9	±8.3	108	21.3	±7.2	142	15.3	±4.7
45-54	55	20.0	±19.4	152	29.6	±7.5	207	25.2	±9.5
55-64	36	19.4	±15.5	85	47.1	±11.5	121	35.4	±11.3
25-64	147	12.4	±8.6	410	24.2	±5.2	557	19.2	±4.9

4.11 Combined Risk Factors

To summarize the findings for the five important risk factors for NCDs, the following factors were combined and are presented in Tables 52, 53, and 54 in two age groups, 25-44 and 45-64.

- current daily smokers,
- overweight (BMI ≥25 kg/m^2),
- raised blood pressure (SBP ≥140 and/or DBP≥90 mmHg or currently on medication),
- consumed less than five combined servings of fruit and vegetables per day, and
- low level of activity (<600 METminutes per week).

These five risk factors were summed to indicate the overall risk for NCDs as follows:

- Low Risk: 0 of 5 risk factors
- Moderate Risk: 1 or 2 of 5 risk factors
- High Risk: 3 or more of 5 risk factors

Table 52 shows that almost two thirds of male respondents (62.4% ±6) were classified as at High Risk and more than a third (36.3% ±5.7) as at Moderate Risk.

Table 52   Percentage of NCD risk categories among men by age group

Age Group (years)	Raised Risk						
	Men						
	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	293	1.4	±1.2	44.4	±6.2	54.2	±6.6
45-64	260	1.3	±1.5	23.2	±7.4	75.5	±8.2
25-64	553	1.3	±0.9	36.3	±5.7	62.4	±6.0

Table 53 shows women at the same level of risk as men with 62.4% ±5.3 at High Risk and 36.9% ±5.1 at Moderate Risk.

Table 53   Percentage of NCD risk categories among women by age group

Age Group (years)	Raised Risk						
	Women						
	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	561	0.7	±0.7	40.3	±6.1	59.0	±6.3
45-64	475	0.4	±0.6	31.7	±5.8	67.8	±6.0
25-64	1036	0.6	±0.5	36.9	±5.1	62.4	±5.3

Table 54 shows that the highest level of risk (71.5% ±5.6) was in the older age group, although 56.6% ±5 in the younger group were also at high risk. Overall, 62.4% ±4.7 of the Chuuk population was at High Risk of NCDs.

Table 54   Percentage of NCD risk categories among both sexes by age group

Age Group (years)	Raised Risk						
	Both Sexes						
	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	854	1.0	±0.7	42.3	±4.9	56.6	±5.0
45-64	735	0.9	±0.9	27.6	±5.1	71.5	±5.6
25-64	1589	1.0	±0.5	36.6	±4.5	62.4	±4.7

5. DISCUSSION AND CONCLUSIONS

This section summarizes key findings from the STEPS survey and presents a range of recommendations to control and prevent NCDs in the State of Chuuk.

Behavioural risk factors for NCDs are common in the State of Chuuk and present a public health problem for both sexes at all ages of adulthood, with almost two thirds (62.4%) of the population aged 25-64 classified as being at High Risk of developing an NCD (with 3-5 concurrent risk factors). The highest level of combined risk factors is in the 45-64 age groups in both sexes. An additional third (36.6%) of the population was at Moderate Risk with 1-2 concurrent risk factors. As the combination of risk factors increase the risk of developing and dying from a NCD also increases. The prevalence of combined risk factors in Chuuk was marginally higher than in Pohnpei, significantly higher than in the Solomon Islands but lower than in the Cook Islands and in Kiribati[8-11].

Significantly more females abstain from smoking than males (86% and 49% respectively). This gender difference appears to have a socio-cultural significance which is worth investigating for its potential wider application. Those females that do smoke have similar duration of usage to men. For current smokers, smoking uptake occurred in the late teens for males and early 20s for females. Betel nut appears to be used only by younger people as the usage drops off to negligible levels in the older age groups reducing the risk of oral cancers.

Just over one third of males were classified as current drinkers and a negligible proportion of females. This gender difference has socio-cultural significance as most women declared themselves 'lifetime abstainers'. Interestingly, 41% of men also declared themselves 'lifetime abstainers'. The highest proportion of current drinkers and the highest frequency of drinking among men occur in the youngest age group, although men in the oldest age groups drank the highest number of standard drinks on any drinking day.

The majority (90.4%) of the population did not consume the recommended five combined servings of fruit and vegetables per day. The consumption of fruit and vegetables did not differ much across gender and age groups but suggest that males of the age group 55-64 were less well fed than the rest of the population. The low level of fruit and vegetable consumption is consistent with the low level of agriculture, which in turn suggests high levels of food importation.

That more than a half of males and over two thirds of females reported low levels of physical activity may also be consequent to the low level of agricultural productivity. As measured by METminutes, males engaged in more physical activity than females across all age groups and activity related groups (work, transport and recreation), but both genders scored low levels of physical activity per week.

Although low physical activity, in comparison with others, METminutes in Chuuk overall (428) were marginally higher than in Pohnpei (387) and in Kiribati (344.5) and significantly higher than Cook Islands (238.5), but less than in the Solomons (505). Young people in the age group 15-24 engaged in less METminutes per week than the 25-64 years age groups (351.5 METminutes for males and 263 for females). Work related physical activity accounted for significantly more physical activity among men.

BMI for females was significantly higher than for males in all age groups. Almost two thirds of women (63%) and one third of men (31.3%) were classified as obese. Obesity in males is significantly less prevalent than in Pohnpei, Kiribati and Cook Islands but more so than in the Solomon Islands[8-11]. The highest proportions of overweight and obese females were in the 35-44 and 45-54 year age groups, while the highest proportion of overweight and obese males were in the 45-54 age group. This decade difference may be explained by a combination of biological and social roles, where females are still in the reproductive years and males have decreased their level of physical activity and increased their waist circumference.

The mean waist circumference in women increased in the 35-44 age group to 102.5cm, exceeding 88cm, a cut-off value for women considered to increase cardiovascular disease risk. Mean waist circumference in men increased a decade later in the 45-54 age group to 100.3cm but remained below 102cm where the risk of cardiovascular disease increases.

Hypertension was estimated to be 15.2% of the population. Males in the 55-64 year group appear to have the highest rate. A substantial proportion (38%) of the older population either has hypertension and an elevated risk of developing cardiovascular disease or stroke, raising a significant risk of premature adult mortality.

Concurrently, over one third of the population (35.4%) and two thirds (66.3%) of those aged 55-64 has diabetes. Both sexes show the marked increase associated with adult onset in the 45-54 age group. In comparison to Pohnpei and other Kiribati, Cook Islands, and in particular the Solomon Islands[8-11], Chuuk shows the highest rate of diabetes, and, although it is not statistically different to Pohnpei, it is identified as a major threat to population health.

Almost one fifth (19.2%) of the population was found to have elevated fasting blood cholesterol, increasing in women in the 35-44 age group and in men a decade later in the 45-54 group. Rates in females continue to rise to a significantly degree to 47% in the 55-64 age group.

These behavioural, physiological and biochemical measures indicate the significant presence of NCDs and NCD risk factors in the Chuuk State, all of which increased markedly in the older age groups. While the behavioural risk factor data were collected from self-reports and, as such, the prevalence of some risk factors may be over-estimated or under-estimated, the key strength of the survey is its size and its population-wide characteristics. Most importantly, after weighting of the data, this STEPS survey can represent the whole population aged 25-64 years of the State of Chuuk.

The Chuuk STEPS survey has confirmed that NCDs pose a significant threat to public health and longevity, and a challenge to national productivity. A national strategy is required to address cross-sector contributing factors, such as the availability of fruit and vegetables for daily consumption, the licensing and regulation of products that impact adversely on health status, health education campaigns on the outcomes of risk laden behaviors, particularly among young people who may yet have the potential to avoid NCDs.

Importantly, all of the risk factors mentioned herein are modifiable. However, for such a strategy to be effective, the population has to recognize the risks and value the outcome of improved health. This change will need to be driven by information, such as that provided in this STEPS report and provided in a manner that is sensitive to the prevailing social, economic and cultural environments of Chuuk State and its people.

6. RECOMMENDATIONS

Addressing Information needs

That the Department of Health

- Use the opportunity of the publication of this FSM (Chuuk) NCD Risk Factors STEPS Report to initiate a new NCD risk factor prevention and reduction campaign in the State of Chuuk
- Establish strong leadership and secure political and financial commitment to maintain a systematic and rigorous approach to STEPS data collection supported by a workforce trained in implementing the survey, in order to create an ongoing and robust STEPS surveillance system in Chuuk
- Coordinate and conduct the 2nd-round NCD STEPS survey as a whole country (rather than individual state) to determine the effectiveness
- Participate in the comparison of NCD STEPS data across other Pacific Island countries that have completed the NCD STEPS surveys and published STEPS reports[8-11], in order to identify the risk factors that are particular to and most amenable to modification, as well as to identify the evidence-based prioritized intervention in Chuuk, FSM

Addressing policy, organizational and environmental factors

That government of FSM:

- Earmark funds for ongoing NCD strategy implementation and monitoring in Chuuk
- Implement the WHO Framework Convention on Tobacco Control
- Consider the potential for manufacturers and importers of cigarettes and alcohol to be taxed to the degree that they subsidize health promotion initiatives
- Generate resources for ongoing national health education programs aimed at national and personal productivity
- Develop policies supporting the growth and importation of healthy foods
- Improve the availability of fruit and vegetables
- Develop policies to establish physical activity-friendly environments, such as walking tracks, sports facilities and workplace fitness programs

Addressing NCD behavioural risk factors

That government, Department of Health and NGOs create and provide:

- Comprehensive no-smoking and no-betel nut use campaigns to reduce tobacco use rates, particularly targeting teenagers and the younger adult age groups to prevent

smoking uptake, and smoking cessation programs to reduce smoking rates across all age groups

- Integrated health promotion campaigns to reduce alcohol consumption, particularly targeted at young people and binge drinking
- Comprehensive health promotion campaigns promoting the consumption of the recommended levels of fruit and vegetables, inclusive of an expressed strategy to ensure proper nutrition in older age
- Public awareness of the adverse effects of excessive consumption of high-fat, high-salt, and high-sugar foods
- Culturally-appropriate and diverse programs to promote daily physical activity
- Public awareness campaigns on the importance of regular monitoring and screening of blood pressure, blood cholesterol and blood sugar levels
- Public awareness programs targeted to increase awareness of the multipliers of NCD risk associated with combining the 5 major NCD risk factors (current daily smoking, being overweight, having raised blood pressure, eating less than five combined servings of fruit and vegetables per day, and having a low level of physical activity)
- A system of community-based care for the management of individuals with diagnosed NCDs

APPENDICES

Respondent Identification Number ☐☐ ☐☐☐

The FSM Department of HESA and the Chuuk State Department of Health Services in collaboration with the World Health Organization & the World Health Organization

The WHO STEPwise approach to Surveillance of Non-Communicable Diseases (STEPS)

Check if the following are completed	(to be checked by:)	Yes	No	Signature
Fasting status	(Registration Station)	☐	☐	
Step 1, 2 & 3 data collection	(Checkout Station)	☐	☐	
First EpiData data entry	(Data entry personnel)	☐	☐	
Second EpiData data entry	(Data entry personnel)	☐	☐	
Data entry irregularities	(Data entry personnel)	☐	☐	

Identification Information:

I 1	Island code	☐
I 2	Island Name:	
I 3	Village code: (SEE NOTE BELOW)	☐☐☐
I 4	Village Name	
I 5	Interviewer code	☐☐
I 6	Date of completion of the questionnaire	☐☐/☐☐/200☐ Day Month Year

✂ - ✂

Respondent ID Number ☐☐-☐☐☐

	Consent			
I 7	Consent has been read out to respondent	Yes 1 No 2	☐	If NO, read consent
I 8	Consent has been obtained (verbal or written)	Yes 1 No 2	☐	If NO, END
I 9	Interview Language	Chuukese 1 English 2	☐	
I 10	Time of interview (24 hour clock)		☐☐:☐☐	
I 11	Family Name			
I 12	First Name			
I 13	Hospital Number		☐☐-☐☐-☐☐	
I 14	Contact phone number where possible		☐☐☐-☐☐☐	
I 15	Specify whose phone	Work 1 Home 2 Neighbour 3 Other (specify) 4	☐	

Note: Identification information I7 to I15 should be stored separately from the questionnaire because it contains confidential information. Please note: Village code is required as part of main instrument for data analyses.   Date of interview is required to calculate age.

Respondent Identification Number ☐☐ ☐☐☐

	Step 1	Demographic Information		
C1	Sex (*Record Male / Female as observed*)	Male 1 Female 2		☐
C2	What is your date of birth? *If Don't Know, See Note* below and Go to C3*	Day ☐☐ Month ☐☐ Year 19 ☐☐		
C3	How old are you?	Years		☐☐
C4	What is your *ethnic* background?	Chuukese 1 Pohnpei – O.I 6 Mortlockese 2 Yapese 7 Hallese 3 Yap - O.I 8 Westlockese 4 Kosraean 9 Pohnpeian 5 Filipino 10 Others 11		☐
C5	In total, how many years have you spent at school or in full-time study (excluding pre-school)?	Years		☐☐
C6	What is the highest level of education you have completed?	Never attended school 1 Elementary school (1-8 Grades) 2 High school (9-12Grades) 3 2 Year college 4 4 Year college 5 Postgraduate 6		☐
C7	Which of the following best describes your main work status over the last 12 months? USE SHOWCARD	Government employee 1 Non-government employee 2 Self-employed 3 Non-paid 4 Student 5 Homemaker 6 Retired 7 Unemployed (able to work) 8 Unemployed (unable to work) 9		☐
C8	How many people older than 18 years, including yourself, live in your household?	Number of people		☐☐
C9	Taking **the past year**, can you tell me what the average earnings of the household have been?	Per week ☐☐☐☐☐☐ OR per month ☐☐☐☐☐☐ OR per year ☐☐☐☐☐☐ *Go to Next Section (S1a) if given estimated earnings* Refused 8 ☐		*If Refused Go to C10*
C10	If you don't know the amount, can you give an estimate of the annual household income if I read some options to you? Is it	Less than $5,000 1 between $5,000 and $10,000 2 between $10,000 and $15,000 3 between $15,000 and $20,000 4 More than $20,000 5 Refused 8		☐
C11	For each of the following, indicate whether any immediate member of your family (siblings, parents, or children) has been affected by this health problem TICK all that apply	Heart disease ☐ Mental health disease ☐ Diabetes ☐ Stroke ☐ Asthma ☐ Kidney disease ☐ Liver disease ☐ Hypertension ☐ Cancer (specify site if possible) ☐ Hearing related ☐ Visual related ☐		

Note*: 1) The **Date of Birth** (C2) or the **age** (C3) or **both** (C2 and C3) have to be filled. If both C2 and C3 not available, then STOP.
 CODE "DK" FOR DON'T KNOW or DON'T REMEMBER

Respondent Identification Number ☐☐ ☐☐☐

Step 1 Behavioural Measures

Tobacco Use (Section S)

Now I am going to ask you some questions about various health behaviours. This includes things like smoking, drinking alcohol, eating fruits and vegetables and physical activity. Let's start with smoking.

S 1a	Do you currently smoke any **tobacco products**, such as cigarettes, cigars or pipes?	Yes 1 No 2	☐	If No, go to S5
S 1b	<u>If Yes,</u> Do you currently smoke tobacco products **daily**?	Yes 1 No 2	☐	If No, go to S5
S 2a	How old were you when you **first started** smoking <u>daily</u>?	Age (years) Don't remember D K	☐☐	If Known, go to S 3
S 2b	Do you remember how long ago it was?	In Years OR in Months OR in Weeks	Years ☐☐ Months ☐☐ Weeks ☐☐	
S 3	On average, **how many** of the following do you smoke each day? *(RECORD FOR EACH TYPE)* _____	Manufactured cigarettes Hand-rolled cigarettes Pipes full of tobacco Cigars, cheroots, cigarillos ← Other (please specify):	☐☐ ☐☐ ☐☐ ☐☐ ☐☐	

S 4	If you smoke, how useful would each of the following be in helping you to quit?
	(*code for each group as below*)
	    Not useful 1
	    Somewhat useful 2
	    Very useful 3
		Friends ☐
		Substance abuse & mental health program staff ☐
		Medical Doctor ☐
		Hang out with friends who don't smoke ☐
		Pastor/Minister/Priest ☐
		Youth groups ☐
		Teacher/Professor ☐
		Uncles, spouse or other relatives ☐
		Parents ☐
		Exercise/Increase participation in sports ☐
		Stay away from bars/night clubs ☐		

S 5	In the past did you ever smoke daily?	Yes 1 No 2	☐	If No, go to S7a
S 6a	How old were you when you stopped smoking daily?		☐☐	
S 6b	If you don't remember how old you were, how long ago?	In Years OR in Months OR in Weeks	☐☐ ☐☐ ☐☐	
S 7a	Do you currently use smokeless tobacco such as chewing tobacco or snuff?	Yes 1 No 2	☐☐	If No, go to S9
S 7b	if Yes, do you currently use smokeless tobacco products daily?	Yes 1 No 2	☐☐	
S 8	On average, how many times do you use smokeless tobacco on the days that you use it?	Number of times per day	☐☐	

Respondent Identification Number

S 9	In the past, did you ever use smokeless tobacco daily?	Yes 1 No 2	☐	*If No, go to N1a*

S 10	If you use smokeless tobacco, how useful would each of the following be in helping you to quit?
	 (*code for each group as below*)
	      Not useful 1
	      Somewhat useful 2
	      Very useful 3
		Friends ☐
		 Substance abuse & mental health program staff ☐
		 Medical Doctor ☐
		 Hang out with friends who don't smoke ☐
		 Pastor/Minister/Priest ☐
		 Youth groups ☐
		 Teacher/Professor ☐
		 Uncles, spouse or other relatives ☐
		 Parents ☐
		 Exercise/Increase participation in sports ☐
		 Stay away from bars/night clubs ☐		

Betel Nut Use (Section N)

The next questions ask about the use of betel nut

N 1a	Do you **currently** *chew betel* nut?	Yes 1 No 2	☐	*If No, go to N5*
N 1b	<u>If Yes,</u> Do you **currently chew betel nuts daily?**	Yes 1 No 2	☐	*If No, go to N5*
N 2	When you chew, how many nuts on average do you chew at one time?		☐☐	
N 3	On average, how many times each day do you chew?	Times per day	☐☐	
N 4	When you chew betel nut how often do you add cigarettes or tobacco	all the time 1 sometimes 2 Never 3	☐	
N 5	Have you ever chewed betel nut daily in the past?	Yes 1 No 2	☐	

N 6	If you chew betel but, how useful would each of the following be in helping you to quit?
	 (*code for each group as below*)
	      Not useful 1
	      Somewhat useful 2
	      Very useful 3
		Friends ☐
		 Substance abuse & mental health program staff ☐
		 Medical Doctor ☐
		 Hang out with friends who don't smoke ☐
		 Pastor/Minister/Priest ☐
		 Youth groups ☐
		 Teacher/Professor ☐
		 Uncles, spouse or other relatives ☐
		 Parents ☐
		 Exercise/Increase participation in sports ☐
		 Stay away from bars/night clubs ☐		

Alcohol Consumption (Section A)

The next questions ask about the consumption of alcohol.

		Response	Coding Column	
A 1a	Have you **ever consumed** a drink that contains alcohol such as beer, wine, spirit or fermented cider? *USE SHOWCARD or SHOW EXAMPLES*	Yes 1 No 2	☐	*If No, Go to D1a*
A 1b	Have you consumed alcohol within the **past 12 months**?	Yes 1 No 2	☐	*If No, Go to D1a*
A 2	In the past 12 months, **how frequently** have you had at least one drink? *(READ RESPONSES)* *USE SHOWCARD*	5 or more days a week 1 1-4 days per week 2 1-3 days a month 3 Less than once a month 4	☐	
A 3	When you drink alcohol, on average, how many drinks do you have during one day?	Number Don't know D K	☐☐	

Note: Code *DK* for "Don't know" or "Don't remember

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A 4	During each of the **past 7 days**, how many standard drinks of any alcoholic drink did you have each day? *(RECORD FOR EACH DAY* *USE SHOWCARD)*	Monday Tuesday Wednesday Thursday Friday Saturday Sunday	□□ □□ □□ □□ □□ □□ □□
A 5a	**For Men** In the past 12 months on how many days did you have 5 or more alcoholic drinks on a single day?	Number of days	□□ □
A 5b	**For Women** In the past 12 months on how many days did you have 4 or more alcoholic drinks on a single day?	Number of days	□□ □
A 6	In the past 12 months, what was the **largest number of drinks** you had on a single occasion, counting all types of alcoholic beverages combined?	Number of drinks	□□

A 7	If you consume alcohol, how useful would each of the following be in helping you to quit?
	 (*code for each group as below*)
	      Not useful 1
	      Somewhat useful 2
	      Very useful 3
		Friends
		 Substance abuse & mental health program staff
		 Medical Doctor
		 Hang out with friends who don't smoke
		 Pastor/Minister/Priest
		 Youth groups
		 Teacher/Professor
		 Uncles, spouse or other relatives
		 Parents
		 Exercise/Increase participation in sports
		 Stay away from bars/night clubs
			□
			 □
			 □
			 □
			 □
			 □
			 □
			 □
			 □
			 □
			 □

Diet   (Section D)

The next questions ask about the fruits and vegetables that you usually eat. I have a nutrition card here that describes some examples of local fruits and vegetables. As you answer these questions please think of a typical week in the last year.

D 1a	In a typical week, on how many days do you **eat fruit**? *USE SHOWCARD*	Number of days	□	*If Zero days, go to D2a*
D 1b	How many **servings** of fruit do you eat on **one** of those days? *USE SHOWCARD*	Number of servings Don't know D K	□□	
D 2a	In a typical week, on how many days do you **eat vegetables**? *USE SHOWCARD*	Number of days	□	*If Zero days, go to D3*
D 2b	How many **servings** of vegetables do you eat on one of those days? *USE SHOWCARD*	Number of servings Don't know D K	□□	

D 3	On how many days do you eat the following in a typical week?	Meat	□□
		Chicken	□□
		Eggs	□□
		Milk Products	□□
		Fish	□□
	Do you usually prepare meals?	Yes 1 No 2	□
D 4b	What type of **oil or fat is most often** used for meal preparation in your household? *SELECT ONLY ONE* _____ ___	Vegetable oil 1 Lard or suet 2 Butter 3 Margarine 4 Coconut oil 5 ← Other 6 None in particular 7 None used 8 Don't know 9	□
D 5	In a typical week, on how many days do you eat **fresh fish**?	Number of days	□
D 6	In a typical week, on how many days do you eat **canned fish**?	Number of days	□

Note: Code ***DK*** for "Don't know" or "Don't remember".

Physical Activity (Section P)

Next I am going to ask you about the time you spend doing different types of physical activity. Please answer these questions even if you do not consider yourself to be an 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, household chores, harvesting food, fishing or hunting for food, seeking employment. *[Insert other examples if needed]*

P 1	Did you work mostly in the household?	Yes 1 No 2	□	
P 2	How long is your typical work day?	Number of hours	hrs □□	
P 3	Does your work involve mostly sitting or standing, with walking for no more than 10 minutes at a time?	Yes 1 No 2	□	*If Yes, go to P7*
P 4	Does your work involve vigorous activity, like [*heavy lifting, digging or construction work*] for at least 10 minutes at a time? *INSERT EXAMPLES & USE SHOWCARD*	Yes 1 No 2	□	*If No, go to P5*
P 4a	In a typical week, on how many days do you do vigorous activities as part of your work?	Days a week	□	
P 4b	On a typical day on which you do vigorous activity, how much time do you spend doing such work?	In hours and minutes OR in Minutes only	hrs □□ : mins □□ or minutes □□□	
P 5	Does your work involve moderate-intensity activity, like brisk walking *[or carrying light loads]* for at least 10 minutes at a time? *INSERT EXAMPLES & USE SHOWCARD*	Yes 1 No 2	□	*If No, go to P7*
P 6a	In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Days a week	□	
P 6b	On a typical day on which you did moderate-intensity activities, how much time do you spend doing such work?	In hours and minutes OR in Minutes only	hrs □□ : mins □□ or minutes □□□	

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Other than activities that you've already mentioned, I would like to ask you about the way you travel to and from places. For example to work, for shopping, to market, to church. [*insert other examples if needed*]

P 7	Do you walk or use a bicycle (*pedal cycle*) for at least 10 minutes continuously to get to and from places?	Yes 1 No 2	☐	*If No, go to P9*
P 8a	In a typical week, on how many days do you walk or bicycle for at least 10 minutes to get to and from places?	Days a week	☐	
P 8b	On a typical day during which you would walk or bicycle for travel for at least 10 minutes, how much time would you spend doing this?	In hours and minutes hrs ☐☐ : mins ☐☐ OR in Minutes only or minutes ☐☐☐		

The next questions ask about activities you do in your leisure time. Think about activities you do for recreation, fitness or sports [*insert relevant terms*].   Do not include the physical activities you do at work or for travel mentioned already.

P 9	Does your [*recreation, sport or leisure time*] involve mostly sitting, reclining, or standing, with no physical activity lasting more than 10 minutes at a time?	Yes 1 No 2	☐	*If Yes, go to P 14*
P 10	In your [*leisure time*], do you do any vigorous activities like [*running or strenuous sports, weight lifting*] for at least 10 minutes at a time? *INSERT EXAMPLES & USE SHOWCARD*	Yes 1 No 2	☐	*If No, go to P 12*
P 11a	<u>If Yes,</u> In a typical week, on how many days do you do vigorous activities as part of your [*leisure time*]?	Days a week	☐	
P 11b	On a typical day on which you do vigorous activity as part of your [*leisure time*], how much time do you spend doing this?	In hours and minutes hrs ☐☐ : mins ☐☐ OR in Minutes only or minutes ☐☐☐		

Note: Code **DK** for "Don't know" or "Don't remember".

P 12	In your [*leisure time*], do you do any moderate-intensity activities like brisk walking,[*cycling or swimming*] for at least 10 minutes at a time? *INSERT EXAMPLES & USE SHOWCARD*	Yes 1 No 2	☐	*If No, go to P 14*
P 13a	<u>If Yes</u> In a typical week, on how many days do you do moderate-intensity activities as part of [*leisure time*]?	Days a week	☐	
P 13b	On a typical day on which you do moderate-intensity activity as part of your [*leisure time*], how much time do you spend doing this?	In hours and minutes hrs ☐☐ : mins ☐☐ OR in Minutes only or minutes ☐☐☐		

The following question is about sitting or reclining. Think back over the past 7 days, to time spent at work, at home, in [*leisure*], including time spent sitting at a desk, visiting friends, reading, or watching television, but do not include time spent sleeping.

P 14	Over the past 7 days, how much time did you spend sitting or reclining on a typical day?	In hours and minutes hrs ☐☐ : mins ☐☐ OR in Minutes only or minutes ☐☐☐	

History of High Blood Pressure

H 1	When was your blood pressure last measured by a health professional?	Within past 12 months 1 1-5 years ago 2 Not within past 5 yrs 3	☐	
H 2	During the past 12 months have you been told by a doctor or other health worker that you have elevated blood pressure or hypertension?	Yes 1 No 2	☐	*If No, skip to Next Section*
H 3	Are you currently receiving any of the following treatments for high blood pressure prescribed by a doctor or other health worker?			
H 3a	Drugs (medication) that you have taken in the last 2 weeks	Yes 1 No 2	☐	
H 3b	Special prescribed diet	Yes 1 No 2	☐	
H 3c	Advice or treatment to lose weight	Yes 1 No 2	☐	

Respondent Identification Number ☐☐ ☐☐☐

H 3d	Advice or treatment to stop smoking	Yes 1 No 2	☐
H 3e	Advice to start or do more exercise	Yes 1 No 2	☐
H 4	During the past 12 months have you seen a traditional healer for elevated blood pressure or hypertension	Yes 1 No 2	☐
H 5	Are you currently taking any herbal or traditional remedy for your high blood pressure?	Yes 1 No 2	☐

History of Diabetes

H 6	When was your blood sugar last measured by a health professional	Within past 12 months 1 1-5 years ago 2 Not within past 5 yrs 3	☐	
H 7	Have you ever been told by a doctor or other health worker that you have diabetes?	Yes 1 No 2	☐	*If No, skip to Next Section*
H 8	Are you currently receiving any of the following treatments for diabetes prescribed by a doctor or other health worker?			
H 8a	Insulin	Yes 1 No 2	☐	
H 8b	Oral drug (medication that you have taken in the last 2 weeks	Yes 1 No 2	☐	
H 8c	Special prescribed diet	Yes 1 No 2	☐	
H 8d	Advice or treatment to lose weight	Yes 1 No 2	☐	
H 8e	Advice or treatment to stop smoking	Yes 1 No 2	☐	
H 8f	Advice to start or do more exercise	Yes 1 No 2	☐	
H 9	During the past 12 months have you seen a traditional healer for diabetes?	Yes 1 No 2	☐	
H 10	Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	☐	
H 11	About how many times in the past 12 months has a health worker checked your feet for any sores or irritations?	Number of times	☐	
H 12	When was the last time you had an eye examination in which pupils were dilated	Within the past month (anytime less than 1 month ago)	☐	
		Within the past year (1 month but less than 12 months ago)	☐	
		Within the past 2 years (1 year but less than 2 years ago)	☐	
		2 or more years	☐	
		Never	☐	
		Don't know/Not sure	☐	
		Refused	☐	
H 13	In the past 12 months have you had a flu shot?	Yes 1 No 2 Don't know/Not sure 3	☐	

Respondent Identification Number ☐☐ ☐☐☐

| H 14 | In the last 12 months, have you had a pneumonia shot? This shot is usually given only once or twice in a person's lifetime and is different from the flu shot. It is also called pneumococcal vaccine. | Yes 1
No 2
Don't know/Not sure 3 | ☐ |

Comments: Step 1	(to be answered by the Interviewer)

| V 2 | Are there any irregularities or problems with the questions? | Yes 1
No 2 | ☐ |

If yes, please describe. _____

_____

_____

Step 2   Physical Measurements

Height and weight   Coding Column

M 1	Technician ID Code		☐☐
M 2a & 2b	Device IDs for height and weight	(2a) height ☐ (2b) weight ☐	
M 3	Height	(in Centimetres)	☐☐☐.☐
M 4	Weight *If too large for scale, code 666.6*	(in Kilograms)	☐☐☐.☐
M 5	*(For women)* Are you pregnant?	Yes 1 No 2 Uncertain 3	☐

If Yes, Skip Waist and Hip

Waist and Hip

M 6	Technician ID		☐☐
M 7	Device ID for waist		☐
M 8	Waist circumference	(in Centimetres)	☐☐☐.☐
M 9	Hip circumference	(in Centimetres)	☐☐☐.☐

Blood pressure   Coding Column

M 10	Technician ID		☐☐
M 11	Device ID for blood pressure		☐
M 12	Cuff size used	Normal 1 Large 2 Manual 3	☐
M 13a	Reading 1 **Systolic BP**	Systolic mmHg	☐☐☐
M 13b	**Diastolic BP**	Diastolic mmHg	☐☐☐
M 14a	Reading 2 **Systolic BP**	Systolic mmHg	☐☐☐
M 14b	**Diastolic BP**	Diastolic mmHg	☐☐☐
M 15a	Reading 3 **Systolic BP**	Systolic mmHg	☐☐☐
M 15b	**Diastolic BP**	Diastolic mmHg	☐☐☐

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Step 3	Biochemical Measurements

Blood glucose				Coding Column
B 1	Since 10pm last night, have you had anything to eat or drink, other than water?	Yes No Uncertain	1 2 3	☐
B 2	Technician ID Code			☐☐
B 3	Device ID code			☐
B 4	Time of day blood specimen taken (24 hour clock)			hrs ☐☐ : mins ☐☐
B 5	Blood glucose			mmol/l ☐☐.☐
		Low High Unable to assess	1 2 3	☐

Blood Lipids				
B 6	Technician ID Code (cholesterol)			☐☐
B 7	Device ID code (cholesterol)			☐
B 8	Total cholesterol			mmol/l ☐☐.☐☐
		Low High Unable to assess	1 2 3	☐
B 9	Technician ID Code (triglycerides)			☐☐
B 10	Device ID code (triglycerides)			☐
B 11	Triglycerides			mmol/l ☐☐.☐☐
		Low High Unable to assess	1 2 3	☐

Comments: Step 2 and 3		(to be answered by any Step 2 or 3 technician)		
V 3	Are there any irregularities or problems with the measurements?	Yes No	1 2	☐

If yes, please describe. _____

_____

_____

Appendix 2. The Data Book of the FSM (Chuuk) STEPS Survey

WHO STEPS

Chronic Disease
Risk Factor Surveillance

DATA BOOK FOR
FEDERATED STATES OF
MICRONESIA (CHUUK)

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	209	35.0	388	65.0	597	29.4
35-44	189	34.4	360	65.6	549	27.0
45-54	186	33.3	373	66.7	559	27.5
55-64	137	41.6	192	58.4	329	16.2
25-64	721	35.4	1313	64.6	2034	100.0

Ethnicity   Description: Summary results for the ethnicity of the respondents.

Instrument Question:
• What is your ethnic background?

Ethnic group of respondents						
Age Group (years)	**Both Sexes**					
	n	**Chuukese**	**Mortlockese**	**Hallese**	**Wortlockese**	**Filipino**	**Other**
25-34	591	85.4	11.0	1.7	1.4	0.3	0.2
35-44	542	83.8	12.7	1.1	0.9	0.7	0.8
45-54	556	82.6	13.7	1.4	0.9	0.9	0.6
55-64	328	82.0	15.9	1.2	0.3	0.3	0.3
25-64	2017	83.6	13.0	1.4	0.9	0.6	0.5

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	205	9.7		379	9.5	584	9.6
35-44	187	9.5		355	9.2	542	9.3
45-54	185	10.3		370	9.5	555	9.8
55-64	134	9.6		186	7.4	320	8.3
25-64	711	9.8		1290	9.1	2001	9.4

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?

Age Group (years)	n	% Never attended school	% Elementary school (1-8 Grades)	% High school (9-12Grades)	% 2 Year college	% 4 Year college	% Postgraduate
Highest level of education							
Men							
25-34	167	1.2	50.3	29.9	15.0	2.4	1.2
35-44	161	3.7	54.7	26.7	9.9	3.1	1.9
45-54	156	1.3	50.6	21.2	23.7	3.2	0.0
55-64	102	1.0	55.9	15.7	20.6	3.9	2.9
25-64	586	1.9	52.6	24.2	16.9	3.1	1.4

Age Group (years)	n	% Never attended school	% Elementary school (1-8 Grades)	% High school (9-12Grades)	% 2 Year college	% 4 Year college	% Postgraduate
Highest level of education							
Women							
25-34	324	2.5	52.5	26.5	13.0	3.7	1.9
35-44	287	1.7	59.6	32.1	5.2	0.7	0.7
45-54	302	1.3	54.0	28.8	12.9	3.0	0.0
55-64	123	4.1	74.0	13.0	7.3	0.0	1.6
25-64	1036	2.1	57.4	27.1	10.1	2.2	1.0

Age Group (years)	n	% Never attended school	% Elementary school (1-8 Grades)	% High school (9-12Grades)	% 2 Year college	% 4 Year college	% Postgraduate
Highest level of education							
Both Sexes							
25-34	491	2.0	51.7	27.7	13.6	3.3	1.6
35-44	448	2.5	57.8	30.1	6.9	1.6	1.1
45-54	458	1.3	52.8	26.2	16.6	3.1	0.0
55-64	225	2.7	65.8	14.2	13.3	1.8	2.2
25-64	1622	2.0	55.7	26.1	12.6	2.5	1.1

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	% Self-employed	% Unpaid
25-34	204	15.7	8.8	9.3	66.2
35-44	184	21.2	14.1	14.7	50.0
45-54	184	40.2	6.5	10.9	42.4
55-64	136	26.5	11.8	7.4	54.4
25-64	708	25.6	10.2	10.7	53.5

Employment status					
		Women			
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
25-34	374	9.9	7.5	8.6	74.1
35-44	355	7.6	6.8	7.3	78.3
45-54	367	16.9	6.3	7.6	69.2
55-64	186	13.4	2.7	5.9	78.0
25-64	1282	11.8	6.2	7.6	74.4

Employment status					
		Both Sexes			
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
25-34	578	11.9	8.0	8.8	71.3
35-44	539	12.2	9.3	9.8	68.6
45-54	551	24.7	6.4	8.7	60.3
55-64	322	18.9	6.5	6.5	68.0
25-64	1990	16.7	7.6	8.7	67.0

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?

Age Group (years)	n	% Home-maker	% Non-paid	% Retired	% Student	% Able to work	% Not able to work
Unpaid work and unemployed							
Men							
						Unemployed	
25-34	135	46.7	20.7	1.5	5.9	23.7	1.5
35-44	92	55.4	25.0	0.0	2.2	15.2	2.2
45-54	78	61.5	14.1	2.6	1.3	19.2	1.3
55-64	74	40.5	12.2	33.8	1.4	6.8	5.4
25-64	379	50.7	18.7	7.7	3.2	17.4	2.4

Age Group (years)	n	% Home-maker	% Non-paid	% Retired	% Student	% Able to work	% Not able to work
Unpaid work and unemployed							
Women							
						Unemployed	
25-34	277	77.6	6.5	0.4	2.9	11.6	1.1
35-44	278	78.8	3.6	0.4	0.7	14.4	2.2
45-54	254	82.3	3.1	1.2	0.8	9.8	2.8
55-64	145	67.6	4.1	7.6	1.4	10.3	9.0
25-64	954	77.7	4.4	1.7	1.5	11.7	3.0

Age Group (years)	n	% Home-maker	% Non-paid	% Retired	% Student	% Able to work	% Not able to work
Unpaid work and unemployed							
Both Sexes							
						Unemployed	
25-34	412	67.5	11.2	0.7	3.9	15.5	1.2
35-44	370	73.0	8.9	0.3	1.1	14.6	2.2
45-54	332	77.4	5.7	1.5	0.9	12.0	2.4
55-64	219	58.4	6.8	16.4	1.4	9.1	7.8
25-64	1333	70.0	8.5	3.4	2.0	13.4	2.9

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
1187	$12545.10

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 $5,000	% Quintile 2: $5,000 and $10,000	% Quintile 3: $10,000 and $15,000	% Quintile 4: $15,000 and $20,000	% Quintile 5: Over $20,000
851	12.6	28.4	38.1	11.5	9.4

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)	Men				Women				Both Sexes		
	n	% Current smoker	95% CI		n	% Current smoker	95% CI		n	% Current smoker	95% CI
25-34	206	52.9	47.2 – 58.7		381	9.7	7.4 – 12.0		587	31.7	27.4 – 35.9
35-44	186	57.0	49.8 – 64.2		358	16.2	10.4 – 22.0		544	35.9	31.5 – 40.2
45-54	186	48.9	43.0 – 54.8		371	18.3	12.4 – 24.3		557	33.7	29.1 – 38.3
55-64	135	37.0	27.4 – 46.7		192	13.0	7.1 – 18.9		327	24.8	17.8 – 31.8
25-64	713	51.0	46.8 – 55.3		1302	14.0	10.7 – 17.3		2015	32.4	29.2 – 35.6

Description: Smoking status of all respondents.

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

			Smoking status				
			Men				
Age Group (years)	n	Current smoker				% Does not smoke	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	206	46.6	39.0 – 54.2	6.3	2.8 – 9.9	47.1	41.3 – 52.8
35-44	186	52.7	46.0 – 59.4	4.3	1.3 – 7.3	43.0	35.8 – 50.2
45-54	186	47.3	40.7 – 54.0	1.6	0.0 – 3.9	51.1	45.2 – 57.0
55-64	135	35.6	27.1 – 44.0	1.5	0.0 – 3.7	63.0	53.3 – 72.6
25-64	713	47.0	43.0 – 51.0	4.0	2.3 – 5.8	49.0	44.7 – 53.2

			Smoking status				
			Women				
Age Group (years)	n	Current smoker				% Does not smoke	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	381	5.2	2.6 – 7.9	4.5	2.6 – 6.3	90.3	88.0 – 92.6
35-44	358	13.1	7.9 – 18.3	3.1	1.5 – 4.7	83.8	78.0 – 89.6
45-54	371	15.1	9.6 – 20.6	3.2	1.5 – 5.0	81.7	75.7 – 87.6
55-64	192	11.5	6.1 – 16.8	1.6	0.0 – 3.4	87.0	81.1 – 92.9
25-64	1302	10.6	7.4 – 13.8	3.4	2.2 – 4.6	86.0	82.7 – 89.3

			Smoking status				
			Both Sexes				
Age Group (years)	n	Current smoker				% Does not smoke	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	587	26.3	21.3 – 31.2	5.4	3.5 – 7.3	68.3	64.1 – 72.6
35-44	544	32.2	27.8 – 36.6	3.7	2.1 – 5.3	64.1	59.8 – 68.5
45-54	557	31.3	26.4 – 36.2	2.4	0.9 – 4.0	66.3	61.7 – 70.9
55-64	327	23.3	17.4 – 29.2	1.5	0.1 – 3.0	75.2	68.2 – 82.2
25-64	2015	28.7	25.7 – 31.7	3.7	2.6 – 4.8	67.6	64.4 – 70.8

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?

<table>
<tr><th colspan="10">Current daily smokers among smokers</th></tr>
<tr><th rowspan="2">Age Group (years)</th><th colspan="3">Men</th><th colspan="3">Women</th><th colspan="3">Both Sexes</th></tr>
<tr><th>n</th><th>% Daily smokers</th><th>95% CI</th><th>n</th><th>% Daily smokers</th><th>95% CI</th><th>n</th><th>% Daily smokers</th><th>95% CI</th></tr>
<tr><td>25-34</td><td>109</td><td>88.1</td><td>80.9 – 95.3</td><td>37</td><td>54.1</td><td>34.0 – 74.1</td><td>146</td><td>82.9</td><td>76.2 – 89.7</td></tr>
<tr><td>35-44</td><td>106</td><td>92.5</td><td>87.4 – 97.5</td><td>58</td><td>81.0</td><td>72.5 – 89.6</td><td>164</td><td>89.8</td><td>85.4 – 94.2</td></tr>
<tr><td>45-54</td><td>91</td><td>96.7</td><td>91.9 – 100</td><td>68</td><td>82.4</td><td>73.2 – 91.5</td><td>159</td><td>92.8</td><td>88.1 – 97.6</td></tr>
<tr><td>55-64</td><td>50</td><td>96.0</td><td>90.5 – 100</td><td>25</td><td>88.0</td><td>75.1 – 100</td><td>75</td><td>93.9</td><td>89.4 – 98.4</td></tr>
<tr><td>**25-64**</td><td>356</td><td>92.1</td><td>88.9 – 95.3</td><td>188</td><td>75.7</td><td>67.0 – 84.3</td><td>544</td><td>88.5</td><td>85.3 – 91.7</td></tr>
</table>

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?

<table>
<tr><th colspan="10">Manufactured cigarette smokers among daily smokers</th></tr>
<tr><th rowspan="2">Age Group (years)</th><th colspan="3">Men</th><th colspan="3">Women</th><th colspan="3">Both Sexes</th></tr>
<tr><th>n</th><th>% Manu-factured cigarette smoker</th><th>95% CI</th><th>n</th><th>% Manu-factured cigarette smoker</th><th>95% CI</th><th>n</th><th>% Manu-factured cigarette smoker</th><th>95% CI</th></tr>
<tr><td>25-34</td><td>96</td><td>89.6</td><td>82.6 – 96.5</td><td>20</td><td>80.0</td><td>62.3 – 97.7</td><td>116</td><td>88.6</td><td>81.9 – 95.3</td></tr>
<tr><td>35-44</td><td>98</td><td>82.7</td><td>75.2 – 90.1</td><td>47</td><td>83.0</td><td>70.9 – 95.1</td><td>145</td><td>82.7</td><td>75.7 – 89.8</td></tr>
<tr><td>45-54</td><td>88</td><td>77.3</td><td>68.9 – 85.6</td><td>56</td><td>82.1</td><td>71.5 – 92.8</td><td>144</td><td>78.4</td><td>71.9 – 85.0</td></tr>
<tr><td>55-64</td><td>48</td><td>89.6</td><td>82.5 – 96.7</td><td>22</td><td>81.8</td><td>68.4 – 95.2</td><td>70</td><td>87.6</td><td>80.3 – 94.9</td></tr>
<tr><td>**25-64**</td><td>330</td><td>84.5</td><td>80.0 – 89.1</td><td>145</td><td>82.0</td><td>75.8 – 88.3</td><td>475</td><td>84.1</td><td>80.2 – 87.9</td></tr>
</table>

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												
Men												
Age Group (years)	n	Mean # of manu-factured 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	86	16.1	13.8 – 18.4	15	10.2	4.8 – 15.6	8	0.0	----	8	0.0	----
35-44	81	18.6	16.4 – 20.9	17	11.0	5.8 – 16.2	7	0.0	----	9	0.9	0.0 – 2.0
45-54	68	21.9	17.5 – 26.3	21	11.7	5.5 – 17.9	10	0.0	----	11	0.2	0.0 – 0.6
55-64	43	22.5	19.5 – 25.6	13	14.3	8.3 – 20.3	5	0.0	----	5	0.0	----
25-64	278	18.8	17.1 – 20.4	66	11.4	8.5 – 14.3	30	0.0	----	33	0.3	0.0 – 0.7

Mean amount of tobacco used by daily smokers by type												
Women												
Age Group (years)	n	Mean # of manu-factured 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	16	13.9	8.1 – 19.7	2	20.0	----	----	----	----	----	----	----
35-44	39	13.4	10.9 – 15.8	9	12.8	7.8 – 17.7	3	0.0	----	3	0.0	----
45-54	46	17.0	14.5 – 19.5	12	16.8	9.4 – 24.3	3	0.0	----	5	5.0	----
55-64	18	15.0	10.5 – 19.5	4	11.0	0.0 – 23.7	2	0.0	----	2	0.0	----
25-64	119	14.9	12.8 – 17.0	27	14.8	10.6 – 19.1	8	0.0	----	10	2.3	----

Mean amount of tobacco used by daily smokers by type												
Both Sexes												
Age Group (years)	n	Mean # of manu-factured 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	102	15.9	13.7 – 18.2	17	10.8	5.4 – 16.3	8	0.0	----	8	0.0	----
35-44	120	17.5	15.6 – 19.4	26	11.4	7.2 – 15.6	10	0.0	----	12	0.7	0.0 – 1.8
45-54	114	20.7	17.1 – 24.3	33	12.8	7.6 – 18.1	13	0.0	----	16	1.1	0.0 – 2.6
55-64	61	20.8	17.5 – 24.0	17	13.7	7.9 – 19.5	7	0.0	----	7	0.0	----
25-64	397	18.1	16.4 – 19.7	93	12.0	9.4 – 14.6	38	0.0	----	43	0.6	0.0 – 1.1

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											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	Mean age started smoking	95% CI		n	Mean age started smoking	95% CI		n	Mean age started smoking	95% CI
25-34	90	16.6	15.7 – 17.5		18	18.8	17.2 – 20.4		108	16.8	15.9 – 17.7
35-44	93	17.2	16.3 – 18.2		43	20.7	18.5 – 23.0		136	17.9	16.9 – 19.0
45-54	85	17.9	16.3 – 19.6		53	21.2	19.7 – 22.8		138	18.7	17.5 – 19.9
55-64	46	17.8	16.0 – 19.5		19	28.2	20.6 – 35.7		65	20.2	17.7 – 22.6
25-64	314	17.2	16.6 – 17.9		133	21.6	19.7 – 23.4		447	18.0	17.2 – 18.8

Mean duration of smoking											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	Mean yrs of smoking	95% CI		n	Mean yrs of smoking	95% CI		n	Mean yrs of smoking	95% CI
25-34	90	12.9	12.0 – 13.8		18	10.7	8.7 – 12.7		108	12.7	11.9 – 13.6
35-44	93	22.9	21.8 – 24.0		43	19.3	17.1 – 21.4		136	22.2	21.0 – 23.3
45-54	85	31.2	29.3 – 33.0		53	28.2	26.7 – 29.7		138	30.5	29.0 – 31.9
55-64	46	40.6	38.2 – 42.9		19	29.8	22.2 – 37.5		65	38.1	35.5 – 40.7
25-64	314	23.0	22.0 – 24.1		133	22.3	19.9 – 24.6		447	22.9	21.9 – 23.9

Betel Nut Use

Betel Nut Use   Description: Percentage of participants who chew betel nut.

Betel Nut Use							
Men							
Age Group (years)	n	Current User				% Does not use	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	205	36.6	28.5 – 44.7	22.9	18.0 – 27.9	40.5	29.7 – 51.3
35-44	186	10.2	4.8 – 15.6	13.4	7.5 – 19.4	76.3	68.4 – 84.3
45-54	185	4.3	0.2 – 8.5	7.0	3.9 – 10.1	88.6	83.9 – 93.4
55-64	137	3.7	0.0 – 7.5	3.7	0.7 – 6.6	92.7	87.0 – 98.4
25-64	713	17.7	13.0 – 22.3	14.1	11.0 – 17.3	68.2	61.2 – 75.2

Betel Nut Use							
Women							
Age Group (years)	n	Current User				% Does not use	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	384	19.5	14.3 – 24.8	9.9	6.3 – 13.5	70.6	65.6 – 75.5
35-44	357	2.8	1.1 – 4.5	4.8	2.7 – 6.9	92.4	89.9 – 95.0
45-54	371	1.1	0.0 – 2.7	1.1	0.0 – 2.2	97.8	95.7 – 99.9
55-64	191	0.5	0.0 – 1.6	1.0	0.0 – 2.6	98.4	96.6 – 100
25-64	1303	8.1	5.3 – 10.8	5.2	3.7 – 6.8	86.7	84.2 – 89.2

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	589	28.1	23.6 – 32.7	16.5	12.4 – 20.5	55.4	49.0 – 61.8
35-44	543	6.4	3.7 – 9.0	9.0	5.7 – 12.2	84.7	80.5 – 88.8
45-54	556	2.7	0.3 – 5.1	4.1	2.2 – 5.9	93.2	90.3 – 96.2
55-64	328	2.1	0.2 – 4.0	2.3	0.7 – 4.0	95.6	92.6 – 98.5
25-64	2016	12.8	10.3 – 15.3	9.7	7.6 – 11.7	77.5	73.7 – 81.4

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
25-34	208	37.0	27.2 – 46.9	19.7	11.9 – 27.6	43.3	34.7 – 51.8
35-44	186	39.2	30.3 – 48.2	24.7	16.1 – 33.4	36.0	27.6 – 44.4
45-54	184	45.1	35.4 – 54.8	27.2	18.9 – 35.4	27.7	20.4 – 35.0
55-64	137	51.1	43.5 – 58.7	32.1	23.0 – 41.2	16.8	9.6 – 24.0
25-64	715	41.3	34.3 – 48.3	24.4	18.6 – 30.1	34.3	28.4 – 40.2

Alcohol consumption status							
Women							
Age Group (years)	n	% Lifetime Abstainer	95% CI	% Past 12 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI
25-34	383	93.2	90.5 – 95.9	3.4	1.3 – 5.5	3.4	1.9 – 4.9
35-44	358	98.6	97.4 – 99.8	1.1	0.0 – 2.2	0.3	0.0 – 0.8
45-54	367	96.5	94.1 – 98.8	3.5	1.2 – 5.9	----	----
55-64	191	99.5	98.5 – 100	0.5	0.0 – 1.5	----	----
25-64	1299	96.3	95.0 – 97.6	2.4	1.4 – 3.5	1.3	0.6 – 1.9

Alcohol consumption status							
Both Sexes							
Age Group (years)	n	% Lifetime Abstainer	95% CI	% Past 12 mos. abstainer	95% CI	% current drinker (drank in past 12 mos.)	95% CI
25-34	591	64.6	58.0 – 71.2	11.7	7.4 – 16.0	23.7	18.2 – 29.2
35-44	544	70.0	64.6 – 75.4	12.5	8.1 – 16.9	17.5	13.1 – 21.9
45-54	551	70.6	65.6 – 75.7	15.4	11.2 – 19.6	13.9	10.2 – 17.7
55-64	328	75.5	71.0 – 79.9	16.2	11.5 – 20.8	8.3	4.7 – 11.9
25-64	2014	68.9	65.0 – 72.8	13.4	10.4 – 16.3	17.7	14.5 – 21.0

Frequency of alcohol consumption

Description: Frequency of alcohol consumption in the last year among those respondents who have drank 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								
Men								
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 days per week	95% CI
25-34	86	12.8	6.0-19.6	31.4	19.4-43.4	27.9	16.2-39.6	27.9	17.9-38.0
35-44	66	16.7	3.0-30.4	27.3	15.3-39.3	28.8	18.2-39.4	27.3	15.7-38.8
45-54	50	12.0	3.6-20.4	42.0	21.0-63.0	28.0	7.9-48.1	18.0	2.9-33.1
55-64	22	9.1	0.0-25.0	36.4	11.9-60.8	50.0	31.4-68.6	4.5	0.0-12.5
25-64	224	13.5	6.9-20.1	32.6	25.3-39.9	29.5	22.0-37.0	24.4	17.1-31.6

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 days per week	95% CI
25-34	13	46.2	0.0-96.4	15.4	0.0-51.3	23.1	0.0-71.8	15.4	0.0-43.0
35-44	1	--	--	100.0	100.0-100.0	--	--	--	--
45-54	1	--	--	--	--	--	--	100.0	100.0-100.0
55-64	--	--	--	--	--	--	--	--	--
25-64	15	41.3	0.2-82.3	19.6	0.0-50.4	20.6	0.0-65.6	18.5	0.0-45.1

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 days per week	95% CI
25-34	99	15.2	7.3-23.2	30.2	18.0-42.5	27.6	16.1-39.0	27.0	16.8-37.2
35-44	67	16.5	2.9-30.1	27.9	15.5-40.2	28.5	18.2-38.9	27.0	15.4-38.7
45-54	51	11.9	3.6-20.2	41.6	20.7-62.5	27.7	7.9-47.6	18.8	3.5-34.1
55-64	22	9.1	0.0-25.0	36.4	11.9-60.8	50.0	31.4-68.6	4.5	0.0-12.5
25-64	239	14.6	7.9-21.3	32.1	24.7-39.4	29.2	22.2-36.2	24.1	16.7-31.5

Standard drinks per drinking day

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

Instrument question:
- When you drink alcohol, on average, how many drinks do you have during one 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	82	3.7	0.0-7.7	13.4	3.2-23.6	11.0	4.3-17.6	72.0	60.1-83.8	9.5	7.8-11.1
35-44	56	1.8	0.0-5.3	3.6	0.0-8.8	10.7	3.2-18.2	83.9	73.4-94.4	10.4	8.6-12.1
45-54	50	2.0	0.0-6.2	6.0	0.0-13.0	10.0	1.6-18.4	82.0	72.5-91.5	11.1	8.6-13.5
55-64	21	--	--	--	--	--	--	100.0	100.0-100.0	13.4	10.3-16.5
25-64	209	2.6	0.3-4.9	8.5	4.1-12.9	10.0	6.5-13.6	78.9	73.6-84.2	10.3	9.2-11.3

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	11	27.3	0.0-64.3	27.3	6.6-48.0	18.2	0.0-56.3	27.3	0.0-64.3	3.8	----
35-44	1	--	--	--	--	--	--	100.0	100.0-100.0	25.0	----
45-54	1	--	--	100.0	100.0-100.0	--	--	--	--	2.0	----
55-64	----	----	----	----	----	----	----	----	----	----	----
25-64	13	23.9	0.0-54.6	29.4	14.2-44.6	16.0	0.0-50.8	30.7	0.0-61.6	5.2	----

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	93	5.2	0.6-9.8	14.3	5.0-23.6	11.4	4.9-18.0	69.0	57.2-80.8	9.1	7.5-10.6
35-44	57	1.8	0.0-5.2	3.5	0.0-8.7	10.6	3.2-18.0	84.1	73.8-94.4	10.5	9.0-12.1
45-54	51	2.0	0.0-6.1	6.9	0.0-14.0	9.9	1.6-18.2	81.2	71.9-90.5	11.0	8.6-13.4
55-64	21	--	--	--	--	--	--	100.0	100.0-100.0	13.4	10.3-16.5
25-64	222	3.4	0.8-5.9	9.3	5.2-13.3	10.2	6.8-13.6	77.1	71.9-82.3	10.1	9.0-11.1

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	60	16.7	9.0 – 24.4	46.7	36.0 – 57.4	16.7	8.6 – 24.7
35-44	46	2.2	0.0 – 6.3	45.7	31.6 – 59.7	15.2	4.3 – 26.1
45-54	36	2.8	0.0 – 7.9	55.6	41.3 – 69.8	19.4	9.8 – 29.1
55-64	20	10.0	0.0 – 22.2	65.0	45.6 – 84.4	15.0	1.9 – 28.1
25-64	162	9.4	4.9 – 14.0	49.6	44.1 – 55.0	16.7	11.6 – 21.7

Frequency and quantity of drinks consumed in the last 7 days							
Women							
Age Group (years)	n	% Drank on 4+ days	95% CI	% 4+ drinks on any day	95% CI	% 15+ drinks in 7 days	95% CI
25-34	8	12.5	0.0 – 46.0	37.5	0.0 - 100	12.5	0.0 – 46.0
35-44	1	----	----	100.0	100.0-100	100.0	100.0-100
45-54	----	----	----	----	----	----	----
55-64	----	----	----	----	----	----	----
25-64	9	11.3	0.0 – 43.6	43.5	0.0 – 97..8	20.9	0.0 – 47.9

Frequency and quantity of drinks consumed in the last 7 days			
Both Sexes			
Age Group (years)	n	% Drank on 4+ days	95% CI
25-34	68	16.4	9.3-23.5
35-44	47	2.1	0.0-6.1
45-54	36	2.8	0.0-7.9
55-64	20	10.0	0.0-22.2
25-64	171	9.5	5.4-13.6

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 ≥60g 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	60	5.0	0.5-9.5	8.3	0.6-16.1
35-44	46	6.5	0.0-13.2	--	--
45-54	36	11.1	0.9-21.3	2.8	0.0-7.9
55-64	20	--	--	10.0	0.0-22.2
25-64	162	6.2	3.7-8.8	5.1	1.6-8.6

Hazardous and harmful drinking in the last 7 days					
Women					
Age Group (years)	n	% hazardous drinking	95% CI	% harmful drinking	95% CI
25-34	8	12.5	0.0-46.0	--	--
35-44	1	100.0	100.0-100.0	--	--
45-54	--	--	--	--	--
55-64	--	--	--	--	--
25-64	9	20.9	0.0-47.9	--	--

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								
	Men			**Women**			**Both Sexes**		
Age Group (years)	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	197	2.5	2.2 – 2.8	366	2.6	2.4 – 2.8	563	2.5	2.3 – 2.8
35-44	180	2.6	2.2 – 3.0	346	2.6	2.3 – 2.9	526	2.6	2.3 – 2.8
45-54	178	2.6	2.3 – 2.9	358	2.8	2.5 – 3.0	536	2.7	2.5 – 2.9
55-64	135	2.3	1.9 – 2.7	185	2.7	2.3 – 3.1	320	2.5	2.1 – 2.8
25-64	690	2.5	2.3 – 2.8	1255	2.6	2.4 – 2.8	1945	2.6	2.4 – 2.8

	Mean number of days vegetables consumed in a typical week								
	Men			**Women**			**Both Sexes**		
Age Group (years)	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	199	3.0	2.6 – 3.4	360	3.4	3.1 – 3.8	559	3.2	2.9 – 3.5
35-44	182	3.1	2.7 – 3.5	348	3.4	2.9 – 3.8	530	3.2	2.9 – 3.6
45-54	177	2.8	2.4 – 3.1	356	3.1	2.8 – 3.5	533	3.0	2.7 – 3.2
55-64	134	2.6	2.1 – 3.0	183	3.2	2.6 – 3.7	317	2.9	2.5 – 3.3
25-64	692	2.9	2.7 – 3.2	1247	3.3	3.0 – 3.6	1939	3.1	2.9 – 3.4

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											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	Mean number of servings	95% CI		n	Mean number of servings	95% CI		n	Mean number of servings	95% CI
25-34	197	1.0	0.8 – 1.3		366	1.0	0.9 – 1.2		563	1.0	0.9 – 1.2
35-44	180	1.0	0.7 – 1.3		346	1.0	0.8 – 1.2		526	1.0	0.9 – 1.1
45-54	178	1.1	1.0 – 1.3		358	1.1	0.9 – 1.3		536	1.1	1.0 – 1.2
55-64	135	0.8	0.6 – 1.0		185	1.1	0.8 – 1.3		320	0.9	0.8 – 1.1
25-64	690	1.0	0.9 – 1.2		1255	1.0	0.9 – 1.2		1945	1.0	0.9 – 1.1

Mean number of servings of vegetables on average per day											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	Mean number of servings	95% CI		n	Mean number of servings	95% CI		n	Mean number of servings	95% CI
25-34	199	1.0	0.8 – 1.2		360	1.2	1.0 – 1.4		559	1.1	1.0 – 1.3
35-44	182	1.1	0.9 – 1.3		348	1.2	1.0 – 1.4		530	1.1	1.0 – 1.3
45-54	177	0.9	0.8 – 1.1		356	1.0	0.9 – 1.2		533	1.0	0.8 – 1.1
55-64	134	0.8	0.6 – 1.0		183	1.0	0.8 – 1.3		317	0.9	0.8 – 1.1
25-64	692	1.0	0.9 – 1.1		1247	1.1	1.0 – 1.3		1939	1.1	1.0 – 1.2

Mean number of servings of fruit and/or vegetables on average per day											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	Mean number of servings	95% CI		n	Mean number of servings	95% CI		n	Mean number of servings	95% CI
25-34	202	2.0	1.7 – 2.3		376	2.2	1.9 – 2.4		578	2.1	1.9 – 2.3
35-44	186	2.0	1.6 – 2.4		351	2.2	1.8 – 2.5		537	2.1	1.8 – 2.3
45-54	180	2.0	1.8 – 2.3		367	2.1	1.9 – 2.3		547	2.1	1.9 – 2.2
55-64	136	1.6	1.3 – 2.0		189	2.0	1.7 – 2.4		325	1.8	1.6 – 2.1
25-64	704	2.0	1.7 – 2.2		1283	2.1	1.9 – 2.3		1987	2.0	1.9 – 2.2

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									
				Men					
Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	202	41.1	33.2-49.0	33.2	26.4-40.0	18.3	12.5-24.1	7.4	4.6-10.3
35-44	186	43.0	34.3-51.7	25.3	20.1-30.5	21.0	15.8-26.2	10.8	5.3-16.2
45-54	180	39.4	32.8-46.1	32.2	25.5-38.9	18.9	14.1-23.7	9.4	5.2-13.7
55-64	136	48.5	39.6-57.4	34.6	28.0-41.1	11.0	7.3-14.8	5.9	2.1-9.7
25-64	704	42.2	36.3-48.1	31.0	27.0-35.0	18.2	15.0-21.4	8.6	6.3-10.9

Number of servings of fruit and/or vegetables on average per day									
				Women					
Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	376	34.0	27.6-40.5	35.1	30.7-39.5	21.3	15.9-26.7	9.6	6.1-13.1
35-44	351	33.9	28.4-39.4	35.6	26.6-44.6	18.8	11.9-25.7	11.7	6.7-16.6
45-54	367	37.1	32.7-41.4	35.2	29.5-40.8	17.4	14.1-20.8	10.4	7.0-13.7
55-64	189	38.6	29.8-47.4	31.7	25.5-38.0	18.0	7.9-28.1	11.6	5.8-17.5
25-64	1283	35.3	31.4-39.2	34.8	30.5-39.2	19.3	16.0-22.5	10.6	8.1-13.1

Number of servings of fruit and/or vegetables on average per day									
				Both Sexes					
Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	578	37.6	31.3-44.0	34.1	29.5-38.8	19.8	15.8-23.7	8.5	6.2-10.8
35-44	537	38.3	32.5-44.2	30.6	24.3-36.9	19.9	15.2-24.6	11.2	7.8-14.6
45-54	547	38.2	33.5-43.0	33.7	28.7-38.7	18.2	14.8-21.5	9.9	7.1-12.7
55-64	325	43.5	37.6-49.5	33.1	28.0-38.3	14.5	8.9-20.1	8.8	5.0-12.6
25-64	1987	38.7	34.3-43.2	32.9	29.2-36.6	18.7	16.2-21.3	9.6	7.9-11.4

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)	\multicolumn{3}{c}{**Men**}	\multicolumn{3}{c}{**Women**}	\multicolumn{3}{c}{**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	202	92.6	89.7 – 95.4	376	90.4	86.9 – 93.9	578	91.5	89.2 – 93.8
35-44	186	89.2	83.8 – 94.7	351	88.3	83.4 – 93.3	537	88.8	85.4 – 92.2
45-54	180	90.6	86.3 – 94.8	367	89.6	86.3 – 93.0	547	90.1	87.3 – 92.9
55-64	136	94.1	90.3 – 97.9	189	88.4	82.5 – 94.2	325	91.2	87.4 – 95.0
25-64	704	91.4	89.1 – 93.7	1283	89.4	86.9 – 91.9	1987	90.4	88.6 – 92.1

Type of oil used most frequently

Description: type of oil or fat most often used for meal preparation in households (presented only for both sexes because results are for the household not individuals).

Instrument question:
- What type of oil or fat is most often used for meal preparation in your household?

Type of oil or fat most often used for meal preparation in household													
n (house-holds)	% Vege-table oil	95% CI	% Lard	95% CI	% Butter	95% CI	% Coconut Oil	95% CI	% None used	95% CI	% Other	95% CI
1894	89.6	82.4 – 96.7	1.6	0.9 – 2.3	0.7	0.0 – 1.7	7.5	1.4 – 13.5	0.2	0.0 – 0.5	0.3	0.1 – 0.6

Fish Consumption

Description: Mean no. of days per week tinned or fresh fish consumed.

Fresh Fish Consumption											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	Mean no. of days	95% CI		n	Mean no. of days	95% CI		n	Mean no. of days	95% CI
25-34	202	4.4	3.9-4.9		378	4.3	3.8-4.7		580	4.3	3.9-4.7
35-44	182	4.5	3.9-5.0		351	4.2	3.7-4.7		533	4.3	3.9-4.7
45-54	185	4.2	3.9-4.6		355	4.1	3.8-4.5		540	4.2	3.9-4.5
55-64	133	4.1	3.8-4.4		184	3.9	3.6-4.2		317	4.0	3.8-4.3
25-64	702	4.3	4.0-4.7		1268	4.2	3.8-4.5		1970	4.3	3.9-4.6

Tinned Fish Consumption											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	Mean no. of days	95% CI		n	Mean no. of days	95% CI		n	Mean no. of days	95% CI
25-34	205	5.3	4.8-5.8		375	5.3	4.9-5.8		580	5.3	4.9-5.7
35-44	184	5.0	4.6-5.5		352	5.3	4.9-5.7		536	5.2	4.8-5.6
45-54	182	4.8	4.4-5.2		362	5.2	4.8-5.5		544	5.0	4.6-5.3
55-64	133	5.0	4.6-5.4		186	5.2	4.7-5.6		319	5.1	4.7-5.4
25-64	704	5.1	4.7-5.4		1275	5.3	4.9-5.6		1979	5.2	4.8-5.5

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?

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							
Men							
Age Group (years)	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	188	56.4	49.8 – 63.0	10.1	6.0 – 14.2	33.5	25.2 – 41.8
35-44	170	52.9	44.1 – 61.8	9.4	6.0 – 12.8	37.6	30.1 – 45.2
45-54	170	63.5	52.8 – 74.3	8.2	2.8 – 13.7	28.2	18.8 – 37.6
55-64	125	67.2	57.3 – 77.1	12.8	6.6 – 19.0	20.0	12.7 – 27.3
25-64	653	58.6	52.3 – 64.8	9.8	7.4 – 12.2	31.6	25.8 – 37.4

Level of total physical activity							
Women							
Age Group (years)	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	358	69.6	64.9 – 74.2	10.9	7.7 – 14.0	19.6	15.4 – 23.7
35-44	336	65.5	58.3 – 72.7	13.4	9.2 – 17.6	21.1	14.8 – 27.5
45-54	350	64.9	57.8 – 71.9	13.7	10.3 – 17.2	21.4	15.2 – 27.6
55-64	166	71.1	62.2 – 80.0	12.7	7.4 – 17.9	16.3	9.0 – 23.6
25-64	1210	67.5	62.6 – 72.3	12.5	10.3 – 14.7	20.1	16.1 – 24.0

Level of total physical activity							
Both Sexes							
Age Group (years)	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	546	63.0	58.0 – 67.9	10.5	8.2 – 12.8	26.5	21.2 – 31.8
35-44	506	59.5	53.4 – 65.7	11.5	8.9 – 14.1	29.0	23.6 – 34.3
45-54	520	64.2	57.3 – 71.1	11.0	8.0 – 14.0	24.8	18.9 – 30.7
55-64	291	69.1	61.5 – 76.7	12.7	8.7 – 16.7	18.2	12.3 – 24.1
25-64	1863	63.1	58.2 – 68.0	11.2	9.5 – 12.9	25.8	21.3 – 30.2

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

Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	188	105.7	83.7 – 127.8	358	65.4	49.7 – 81.0	546	85.6	69.0 – 102.2
35-44	170	123.2	91.1 – 155.4	336	77.1	56.7 – 97.4	506	99.0	81.0 – 117.1
45-54	170	91.9	63.7 – 120.2	350	68.1	52.5 – 83.7	520	79.9	62.8 – 97.0
55-64	125	84.1	55.9 – 112.2	166	49.0	31.4 – 66.7	291	66.8	47.0 – 86.7
25-64	653	104.3	86.1 – 122.5	1210	67.4	56.4 – 78.4	1863	85.6	71.9 – 99.3

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

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	203	25.7	0.0 - 145.7	202	0.0	0.0 - 77.1	404	8.6	0.0 - 120.0
35-44	146	32.1	0.0 - 171.4	161	4.3	0.0 - 85.7	307	8.6	0.0 - 128.6
45-54	132	12.9	0.0 - 137.1	135	2.9	0.0 - 77.1	267	6.4	0.0 - 120.0
55-64	70	0.0	0.0 - 72.9	68	0.0	0.0 - 45.0	138	0.0	0.0 - 55.7
25-64	551	17.1	0.0 - 145.7	566	0.0	0.0 - 75.0	1117	6.4	0.0 - 120.0

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

Age Group (years)	**Mean minutes of work-related physical activity on average per day**								
	Men			**Women**			**Both Sexes**		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	188	66.0	49.0 – 83.1	358	47.8	34.4 – 61.3	546	57.0	45.5 – 68.4
35-44	170	84.5	62.1 – 107.0	336	57.3	38.0 – 76.5	506	70.2	55.5 – 85.0
45-54	170	65.0	39.5 – 90.5	350	49.0	36.4 – 61.5	520	56.9	41.5 – 72.3
55-64	125	61.7	40.0 – 83.5	166	30.4	14.3 – 46.5	291	46.3	30.0 – 62.6
25-64	653	70.1	57.1 – 83.2	1210	48.7	39.7 – 57.7	1863	59.3	49.1 – 69.4

Age Group (years)	**Mean minutes of transport-related physical activity on average per day**								
	Men			**Women**			**Both Sexes**		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	188	27.5	18.3 – 36.7	358	14.6	10.9 – 18.2	546	21.0	15.3 – 26.8
35-44	170	29.3	19.7 – 38.9	336	17.8	13.9 – 21.7	506	23.3	18.5 – 28.1
45-54	170	21.0	13.4 – 28.5	350	18.6	13.9 – 23.3	520	19.8	15.7 – 23.8
55-64	125	20.4	9.8 – 31.0	166	18.6	10.7 – 26.5	291	19.5	11.2 – 27.8
25-64	653	25.5	18.7 – 32.3	1210	16.9	14.4 – 19.4	1863	21.2	17.0 – 25.3

Age Group (years)	**Mean minutes of recreation-related physical activity on average per day**								
	Men			**Women**			**Both Sexes**		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	**n**	**Mean minutes**	**95% CI**
25-34	188	12.2	6.7 – 17.7	358	2.9	0.7 – 5.2	546	7.6	4.4 – 10.8
35-44	170	9.4	1.7 – 17.1	336	2.0	0.0 – 4.3	506	5.5	1.5 – 9.4
45-54	170	6.0	0.8 – 11.1	350	0.5	0.1 – 0.9	520	3.2	0.6 – 5.8
55-64	125	2.0	0.0 – 4.7	166	0.0	0.0 – 0.1	291	1.0	0.0 – 2.4
25-64	653	8.7	4.9 – 12.4	1210	1.7	0.7 – 2.7	1863	5.1	3.0 – 7.3

Domain-specific physical activity - median

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

Instrument questions:
- activity at work
- travel to and from places
- recreational activities

Age Group (years)	Median minutes of work-related physical activity on average per day								
	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	203	0.0	0.0 - 102.9	202	0.0	0.0 - 25.7	404	0.0	0.0 - 68.6
35-44	146	0.0	0.0 - 94.3	161	0.0	0.0 - 38.6	307	0.0	0.0 - 68.6
45-54	132	0.0	0.0 - 85.7	135	0.0	0.0 - 17.1	267	0.0	0.0 - 42.9
55-64	70	0.0	0.0 - 34.3	68	0.0	0.0 - 0.0	138	0.0	0.0 - 12.9
25-64	551	0.0	0.0 - 85.7	566	0.0	25.7	1117	0.0	0.0 - 55.7

Age Group (years)	Median minutes of transport-related physical activity on average per day								
	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	203	0.0	0.0 - 34.3	202	0.0	0.0 - 12.9	404	0.0	0.0 - 21.4
35-44	146	0.0	0.0 - 32.1	161	0.0	0.0 - 17.1	307	0.0	0.0 - 24.0
45-54	132	0.0	0.0 - 20.0	135	0.0	0.0 - 19.3	267	0.0	0.0 - 20.0
55-64	70	0.0	0.0 - 20.0	68	0.0	0.0 - 10.0	138	0.0	0.0 - 17.1
25-64	551	0.0	0.0 - 30.0	566	0.0	0.0 - 17.1	1117	0.0	0.0 - 21.4

Age Group (years)	Median minutes of recreation-related physical activity on average per day								
	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	203	0.0	0.0 - 0.0	202	0.0	0.0 - 0.0	404	0.0	0.0 - 0.0
35-44	146	0.0	0.0 - 0.0	161	0.0	0.0 - 0.0	307	0.0	0.0 - 0.0
45-54	132	0.0	0.0 - 0.0	135	0.0	0.0 - 0.0	267	0.0	0.0 - 0.0
55-64	70	0.0	0.0 - 0.0	68	0.0	0.0 - 0.0	138	0.0	0.0 - 0.0
25-64	551	0.0	0.0 - 0.0	566	0.0	0.0 - 0.0	1117	0.0	0.0 - 0.0

No | Description: Percentage of respondents classified as doing no work-, transport- or recreational-related physical activity.
physical
activity
by | Instrument questions:
domain | • activity at work
• travel to and from places
• recreational activities

No work-related physical activity											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	% no activity at work	95% CI		n	% no activity at work	95% CI		n	% no activity at work	95% CI
25-34	188	59.0	49.5-68.6		358	72.1	65.7-78.4		546	65.5	59.1-72.0
35-44	170	59.4	50.8-68.0		336	69.0	61.4-76.7		506	64.5	58.2-70.8
45-54	170	63.5	55.4-71.7		350	71.7	65.5-77.9		520	67.7	61.5-73.9
55-64	125	71.2	61.8-80.6		166	74.7	64.5-84.9		291	72.9	65.1-80.8
25-64	653	61.8	55.1-68.4		1210	71.4	66.1-76.8		1863	66.7	61.3-72.0

No transport-related physical activity											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	% no activity for transport	95% CI		n	% no activity for transport	95% CI		n	% no activity for transport	95% CI
25-34	188	51.1	43.2-58.9		358	59.5	53.3-65.7		546	55.3	49.9-60.7
35-44	170	54.7	43.5-65.9		336	57.7	50.3-65.1		506	56.3	48.4-64.2
45-54	170	56.5	47.1-65.8		350	57.4	49.7-65.2		520	57.0	50.0-63.9
55-64	125	61.6	52.9-70.3		166	62.7	54.9-70.4		291	62.1	54.9-69.3
25-64	653	54.7	48.0-61.3		1210	58.9	53.6-64.2		1863	56.8	51.5-62.1

No recreation-related physical activity											
	Men				**Women**				**Both Sexes**		
Age Group (years)	n	% no activity at recreation	95% CI		n	% no activity at recreation	95% CI		n	% no activity at recreation	95% CI
25-34	188	86.2	82.2-90.2		358	96.9	95.0-98.8		546	91.5	89.5-93.6
35-44	170	91.2	86.1-96.3		336	97.6	95.8-99.4		506	94.6	91.8-97.3
45-54	170	92.4	88.5-96.2		350	98.6	97.7-99.5		520	95.5	93.4-97.6
55-64	125	95.2	90.0-100.0		166	99.4	98.1-100.0		291	97.3	94.6-99.9
25-64	653	90.1	88.0-92.2		1210	97.8	96.8-98.8		1863	94.0	92.8-95.3

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							
Men							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
25-34	112	48.8	38.9-58.8	41.7	31.7-51.7	9.5	5.1-13.9
35-44	99	55.2	46.3-64.0	39.0	30.7-47.2	5.8	0.9-10.7
45-54	94	51.2	41.0-61.3	39.9	31.4-48.3	9.0	3.7-14.3
55-64	59	49.0	39.1-58.8	46.0	34.2-57.7	5.1	0.0-12.0
25-64	364	51.1	44.4-57.8	41.0	35.4-46.5	7.9	5.7-10.1

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	174	47.3	39.4-55.3	50.2	42.5-58.0	2.4	0.4-4.5
35-44	173	50.0	41.0-58.9	47.5	40.1-55.0	2.5	0.0-5.0
45-54	179	45.4	38.8-52.1	53.7	46.8-60.6	0.9	0.0-1.8
55-64	72	43.8	30.5-57.1	56.1	42.8-69.5	0.1	0.0-0.2
25-64	598	47.3	42.6-52.0	50.9	46.6-55.3	1.8	0.7-3.0

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	286	48.2	41.9-54.5	45.5	39.4-51.6	6.3	3.7-9.0
35-44	272	52.6	47.4-57.8	43.2	38.9-47.5	4.2	1.0-7.3
45-54	273	48.4	41.0-55.7	46.6	39.9-53.3	5.0	2.1-8.0
55-64	131	46.5	36.7-56.4	50.7	40.7-60.7	2.7	0.0-6.4
25-64	962	49.3	44.7-53.9	45.7	41.8-49.5	5.0	3.5-6.5

No vigorous physical activity

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

Instrument questions:
- activity at work
- recreational activities

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	188	68.6	62.6-74.7		358	85.2	81.2-89.2		546	76.9	73.0-80.8
35-44	170	66.5	58.6-74.3		336	79.8	73.9-85.6		506	73.4	68.2-78.7
45-54	170	75.9	69.4-82.4		350	85.1	81.0-89.3		520	80.6	76.6-84.5
55-64	125	82.4	76.5-88.3		166	88.0	79.7-96.2		291	85.1	79.1-91.2
25-64	653	71.5	66.6-76.4		1210	84.0	81.0-86.9		1863	77.8	74.4-81.3

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	188	245.7	214.5-276.9	180	120 – 300
35-44	173	240.9	201.1-280.8	180	120 – 300
45-54	176	272.6	239.8-305.5	195	120 – 360
55-64	123	238.0	200.2-275.9	180	120 – 300
25-64	660	250.1	232.6-267.6	180	120 - 300

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	355	226.8	209.5-244.0	180	120 – 270
35-44	317	215.7	195.4-236.0	180	120 – 240
45-54	340	219.6	192.4-246.7	180	120 – 240
55-64	179	258.3	226.2-290.4	210	120 – 300
25-64	1191	226.2	212.8-239.5	180	120 – 300

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	543	236.3	220.4-252.2	180	120 – 300
35-44	490	228.2	205.6-250.7	180	120 – 300
45-54	516	246.7	223.3-270.1	180	120 – 300
55-64	302	248.5	219.2-277.7	195	120 – 300
25-64	1851	238.1	225.7-250.6	180	120 - 300

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?

Age Group (years)	Men			Women			Both Sexes		
	n	% diagnosed	95% CI	n	% diagnosed	95% CI	n	% diagnosed	95% CI
25-34	206	5.8	2.9-8.7	385	6.5	3.4-9.6	591	6.2	4.1-8.2
35-44	185	9.2	3.8-14.6	360	15.0	11.1-18.9	545	12.2	8.8-15.6
45-54	182	14.3	10.3-18.2	365	20.3	15.3-25.2	547	17.3	13.8-20.8
55-64	134	20.1	13.1-27.2	188	25.0	20.6-29.4	322	22.6	19.1-26.1
25-64	707	10.5	7.7-13.4	1298	14.4	13.1-15.8	2005	12.5	10.9-14.1

Raised blood pressure diagnosed by doctor or health worker in last 12 months

Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
25-34	11	36.4	3.8-68.9	24	33.3	15.7-51.0	35	34.7	18.8-50.7
35-44	15	13.3	0.4-26.2	50	22.0	5.4-38.6	65	19.0	8.4-29.5
45-54	25	36.0	13.8-58.2	70	34.3	21.6-47.0	95	35.0	22.2-47.8
55-64	28	50.0	32.2-67.8	45	48.9	36.9-60.9	73	49.4	38.6-60.2
25-64	79	34.9	22.7-47.0	189	33.8	26.7-40.9	268	34.2	27.5-41.0

Currently taking blood pressure drugs prescribed by doctor or health worker

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 have special prescribed diet										
Age Group (years)	Men				Women				Both Sexes		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
25-34	11	63.6	34.1-93.2		23	39.1	24.1-54.2		34	50.8	32.1-69.5
35-44	14	42.9	22.3-63.5		46	63.0	50.8-75.3		60	55.9	45.4-66.4
45-54	24	54.2	28.6-79.7		68	73.5	60.9-86.1		92	65.5	55.1-75.9
55-64	28	50.0	35.0-65.0		45	71.1	60.1-82.2		73	61.4	51.9-70.9
25-64	77	52.6	43.4-61.9		182	64.5	57.4-71.6		259	59.5	53.5-65.4

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	11	36.4	13.1-59.6		23	43.5	21.3-65.7		34	40.1	22.1-58.1
35-44	15	60.0	39.3-80.7		48	62.5	50.4-74.6		63	61.6	52.6-70.7
45-54	24	62.5	37.5-87.5		68	64.7	56.5-72.9		92	63.8	52.5-75.0
55-64	28	50.0	33.9-66.1		45	64.4	49.0-79.9		73	57.8	45.9-69.7
25-64	78	53.4	40.9-65.9		184	60.6	54.2-67.0		262	57.6	50.9-64.2

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	11	45.5	17.8-73.1		20	30.0	9.4-50.6		31	37.9	17.8-58.1
35-44	15	46.7	23.5-69.8		44	29.5	13.4-45.7		59	36.0	22.3-49.8
45-54	21	52.4	33.1-71.7		68	45.6	33.2-57.9		89	48.2	39.1-57.3
55-64	26	57.7	37.3-78.1		43	48.8	32.5-65.2		69	52.9	39.9-65.8
25-64	73	51.0	39.6-62.3		175	39.6	30.8-48.3		248	44.4	38.2-50.5

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	11	54.5	22.2-86.9		23	56.5	34.3-78.7		34	55.6	39.9-71.3
35-44	15	73.3	43.7-100.0		48	58.3	42.0-74.6		63	63.7	48.2-79.3
45-54	24	58.3	32.2-84.5		70	77.1	68.4-85.9		94	69.5	57.1-81.8
55-64	28	71.4	55.3-87.5		44	63.6	47.9-79.4		72	67.3	56.1-78.4
25-64	78	64.3	50.4-78.2		185	65.5	57.3-73.7		263	65.0	56.9-73.1

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	11	9.1	0.0-27.0	23	--	--	34	4.3	0.0-12.8
35-44	15	6.7	0.0-21.0	48	10.4	0.1-20.7	63	9.1	0.3-17.8
45-54	24	8.3	0.0-20.6	68	17.6	7.6-27.7	92	13.8	6.2-21.4
55-64	27	11.1	0.5-21.7	45	15.6	3.9-27.2	72	13.5	7.2-19.9
25-64	77	8.8	1.0-16.7	184	12.3	8.1-16.5	261	10.8	6.7-14.9

	**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	11	18.2	0.0-39.4	23	4.3	0.0-14.0	34	11.0	0.0-23.0
35-44	15	--	--	47	19.1	3.6-34.7	62	12.2	1.3-23.1
45-54	24	16.7	0.0-34.4	67	25.4	15.4-35.4	91	21.7	10.7-32.8
55-64	28	21.4	5.9-37.0	45	20.0	6.5-33.5	73	20.7	9.2-32.1
25-64	78	14.6	4.5-24.7	182	19.0	12.9-25.0	260	17.1	11.0-23.2

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	203	2.5	0.6-4.4		385	1.3	0.3-2.3		588	1.9	0.8-3.0
35-44	184	2.7	0.7-4.8		355	5.9	2.4-9.4		539	4.4	2.0-6.8
45-54	183	9.8	4.6-15.0		366	12.8	9.1-16.6		549	11.3	7.6-15.1
55-64	135	18.5	9.4-27.7		188	15.4	10.3-20.5		323	17.0	10.4-23.5
25-64	705	6.3	3.8-8.9		1294	7.1	5.3-8.8		1999	6.7	4.8-8.6

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	43	25.8	14.3-37.3		94	15.6	6.9-24.3		137	20.1	11.9-28.2

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	45	59.1	38.6-79.7		98	47.9	39.5-56.3		143	52.8	41.1-64.4

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?

Age Group (years)	\multicolumn{3}{c}{Men}	\multicolumn{3}{c}{Women}	\multicolumn{3}{c}{Both Sexes}
	n	%	95% CI	n	%	95% CI	n	%	95% CI

Advised by doctor or health worker to have special prescribed diet

Age Group (years)	Men n	Men %	Men 95% CI	Women n	Women %	Women 95% CI	Both n	Both %	Both 95% CI
25-34	4	50.0	0.0-100.0	4	75.0	30.6-100.0	8	58.6	15.3-100.0
35-44	3	--	--	21	85.7	67.0-100.0	24	68.3	53.0-83.5
45-54	16	75.0	55.4-94.6	46	89.1	80.0-98.2	62	83.3	73.6-93.0
55-64	23	78.3	66.1-90.4	27	88.9	72.5-100.0	50	83.2	74.3-92.0
25-64	46	67.0	57.7-76.2	98	87.5	79.9-95.0	144	78.4	73.2-83.7

Advised by doctor or health worker to lose weight

Age Group (years)	Men n	Men %	Men 95% CI	Women n	Women %	Women 95% CI	Both n	Both %	Both 95% CI
25-34	4	75.0	24.0-100.0	4	25.0	0.0-72.7	8	57.8	23.0-92.7
35-44	3	--	--	21	90.5	75.2-100.0	24	72.0	56.8-87.3
45-54	16	68.8	51.0-86.5	45	77.8	63.9-91.7	61	74.0	62.6-85.4
55-64	23	65.2	48.6-81.8	26	84.6	65.6-100.0	49	74.0	62.0-86.0
25-64	46	62.7	53.4-72.0	96	79.8	70.7-88.9	142	72.2	64.9-79.5

Advised by doctor or health worker to stop smoking

Age Group (years)	Men n	Men %	Men 95% CI	Women n	Women %	Women 95% CI	Both n	Both %	Both 95% CI
25-34	4	100.0	100.0-100.0	4	25.0	0.0-72.7	8	74.2	47.9-100.0
35-44	3	--	--	18	55.6	35.9-75.2	21	42.8	23.5-62.1
45-54	15	60.0	30.7-89.3	44	50.0	36.1-63.9	59	54.1	38.7-69.5
55-64	23	60.9	50.0-71.7	24	58.3	33.8-82.8	47	59.8	49.7-69.9
25-64	45	60.9	48.3-73.5	90	51.9	38.1-65.8	135	56.0	46.1-65.9

Advised doctor or health worker to start or do more exercise

Age Group (years)	Men n	Men %	Men 95% CI	Women n	Women %	Women 95% CI	Both n	Both %	Both 95% CI
25-34	4	100.0	100.0-100.0	4	50.0	0.0-100.0	8	82.8	61.5-100.0
35-44	3	--	--	21	90.5	75.2-100.0	24	72.0	56.8-87.3
45-54	16	75.0	55.4-94.6	46	84.8	73.1-96.4	62	80.8	69.7-91.8
55-64	23	82.6	72.1-93.1	25	88.0	70.7-100.0	48	85.0	76.2-93.8
25-64	46	75.4	68.1-82.7	96	85.1	76.2-93.9	142	80.8	75.0-86.5

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	42	26.8	10.4-43.3	98	24.4	11.5-37.3	140	25.4	18.0-32.9

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	45	41.3	22.9-59.7	97	33.4	23.2-43.6	142	36.9	29.4-44.4

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	174	169.9	168.6 – 171.1		343	158.9	158.4 – 159.4
35-44	166	168.4	167.1 – 169.7		336	159.4	158.5 – 160.3
45-54	166	170.1	168.4 – 171.9		356	158.8	158.3 – 159.4
55-64	128	167.6	166.4 – 168.8		177	157.6	156.5 – 158.6
25-64	634	169.2	168.4 – 170.1		1212	158.9	158.4 – 159.3

Mean weight (kg)							
Age Group (years)	Men				Women		
	n	Mean	95% CI		n	Mean	95% CI
25-34	172	76.6	73.1 – 80.0		312	80.3	78.3 – 82.3
35-44	165	81.1	77.2 – 84.9		319	85.1	82.7 – 87.6
45-54	166	86.0	82.3 – 89.7		354	84.8	82.5 – 87.1
55-64	126	82.7	79.2 – 86.2		176	79.9	76.4 – 83.5
25-64	629	80.9	78.3 – 83.6		1161	82.8	81.1 – 84.4

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	171	26.3	25.1 – 27.5		310	31.8	30.9 – 32.6		481	29.0	28.2 – 29.8
35-44	162	28.8	27.4 – 30.1		316	33.4	32.4 – 34.3		478	31.2	30.1 – 32.2
45-54	165	29.4	28.3 – 30.6		353	33.4	32.6 – 34.3		518	31.5	30.5 – 32.5
55-64	126	29.5	28.4 – 30.6		175	32.0	30.9 – 33.1		301	30.8	29.9 – 31.7
25-64	624	28.2	27.4 – 29.0		1154	32.7	32.0 – 33.3		1778	30.5	29.7 – 31.2

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

Instrument questions:
- Height
- Weight

Age Group (years)								
BMI classifications								
Men								
	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	171	----	----	50.9	41.7 – 60.1	27.5	16.8-38.2	21.6	11.2 – 32.1
35-44	162	1.2	0.0 – 2.9	30.2	20.9 – 39.5	36.4	28.3-44.5	32.1	23.9 – 40.3
45-54	165	----	----	22.4	13.3 – 31.5	37.6	30.5-44.6	40.0	32.5 – 47.5
55-64	126	0.8	0.0 – 2.5	21.4	12.6 – 30.3	38.9	28.8-48.9	38.9	30.3 – 47.4
25-64	624	0.4	0.0 – 1.0	34.4	28.2 – 40.6	33.9	27.7-40.0	31.3	25.0 – 37.6

Age Group (years)								
BMI classifications								
Women								
	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	310	0.6	0.0 – 1.6	17.1	11.5 – 22.7	24.5	18.7-30.3	57.7	52.4 – 63.1
35-44	316	0.9	0.0 – 2.0	9.2	5.6 – 12.7	24.1	18.2-29.9	65.8	58.4 – 73.3
45-54	353	----	----	7.6	4.2 – 11.1	23.5	19.9-27.1	68.8	63.8 – 73.9
55-64	175	0.6	0.0 – 1.7	12.6	7.4 – 17.7	28.0	19.9-36.1	58.9	50.3 – 67.4
25-64	1154	0.6	0.1 – 1.0	11.8	9.4 – 14.3	24.6	20.6-28.6	63.0	58.5 – 67.5

Age Group (years)								
BMI classifications								
Both Sexes								
	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	481	0.3	0.0 – 0.8	34.4	29.9 – 38.9	26.0	19.2-32.9	39.2	33.4 – 45.0
35-44	478	1.1	0.1 – 2.0	19.3	14.0 – 24.5	30.0	24.2-35.8	49.7	42.3 – 57.1
45-54	518	----	----	14.8	8.7 – 20.9	30.3	26.6-34.1	54.8	48.6 – 61.1
55-64	301	0.7	0.0 – 1.7	17.0	11.5 – 22.4	33.4	26.0-40.8	48.9	41.3 – 56.5
25-64	1778	0.5	0.2 – 0.8	23.0	19.4 – 26.6	29.2	25.3-33.0	47.3	42.5 – 52.2

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	173	87.9	84.4 – 91.4	306	97.0	95.0 – 99.0
35-44	165	93.9	90.6 – 97.2	314	102.5	100.1 – 105.0
45-54	161	100.3	97.2 – 103.3	351	104.3	102.1 – 106.6
55-64	125	101.4	97.3 – 105.4	176	103.8	100.8 – 106.7
25-64	624	94.3	91.6 – 97.0	1147	101.4	99.6 – 103.1

Hip circumference

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

Instrument question:
• Hip circumference measurement

Hip circumference (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	173	98.9	96.6-101.3	305	111.1	108.9-113.3
35-44	165	103.4	100.9-105.9	314	113.1	111.1-115.1
45-54	161	105.8	103.5-108.1	352	113.5	111.5-115.6
55-64	125	104.4	102.0-106.9	176	110.4	108.0-112.8
25-64	624	102.5	100.6-104.4	1147	112.2	110.7-113.7

Waist / hip ratio

Description: Mean waist-to-hip ratio among all respondents (excluding pregnant women).

Instrument question:
• Waist and hip circumference measurement

Mean waist / hip ratio						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	173	0.9	0.9-0.9	305	0.9	0.9-0.9
35-44	165	0.9	0.9-0.9	314	0.9	0.9-0.9
45-54	160	0.9	0.9-1.0	351	0.9	0.9-0.9
55-64	125	1.0	0.9-1.0	176	0.9	0.9-1.0
25-64	623	0.9	0.9-0.9	1146	0.9	0.9-0.9

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	174	117.9	115.7 – 120.0	343	107.7	105.9 – 109.4	517	112.7	111.3 – 114.1
35-44	167	118.8	115.9 – 121.7	337	113.4	111.6 – 115.2	504	115.9	114.1 – 117.7
45-54	166	124.4	120.2 – 128.6	356	121.5	118.6 – 124.4	522	122.9	120.2 – 125.6
55-64	128	131.5	127.2 – 135.8	177	127.4	124.1 – 130.6	305	129.4	126.4 – 132.4
25-64	635	121.5	119.5 – 123.5	1213	115.2	113.8 – 116.6	1848	118.3	117.0 – 119.5

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	174	68.2	65.7 – 70.6	343	70.0	68.9 – 71.1	517	69.1	67.6 – 70.6
35-44	167	74.0	71.7 – 76.4	337	73.1	71.7 – 74.6	504	73.5	72.1 – 74.9
45-54	166	77.9	75.2 – 80.6	356	76.2	74.3 – 78.1	522	77.0	75.0 – 79.0
55-64	128	78.9	76.3 – 81.4	177	76.8	75.2 – 78.4	305	77.8	76.3 – 79.4
25-64	635	73.6	71.7 – 75.4	1213	73.3	72.2 – 74.4	1848	73.4	72.2 – 74.7

Raised blood pressure

Description: Percentage of respondents with raised blood pressure.

Instrument question:
• Reading 1-3 systolic and diastolic blood pressure

SBP ≥140 and/or DBP ≥ 90 mmHg										
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	172	4.7	1.0-8.3	336	2.1	0.5-3.7	508	3.4	1.2-5.5
35-44	165	8.5	4.4-12.6	326	8.0	4.7-11.2	491	8.2	5.4-11.0
45-54	159	18.9	12.4-25.3	328	17.1	12.4-21.7	487	18.0	13.6-22.3
55-64	114	36.0	25.3-46.6	156	25.0	18.5-31.5	270	30.5	22.8-38.2
25-64	610	13.0	10.0-16.0	1146	10.1	8.1-12.0	1756	11.5	9.6-13.4

SBP ≥160 and/or DBP ≥ 100 mmHg										
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	172	--	--	336	0.3	0.0-0.9	508	0.2	0.0-0.5
35-44	165	1.8	0.0-3.9	326	2.5	0.7-4.2	491	2.2	1.1-3.3
45-54	159	5.7	2.6-8.7	328	4.6	2.3-6.8	487	5.1	2.9-7.3
55-64	114	11.4	4.6-18.2	156	7.1	3.8-10.3	270	9.2	5.3-13.1
25-64	610	3.3	1.9-4.7	1146	2.7	1.9-3.6	1756	3.0	2.1-3.9

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	50	5.4	5.1 – 5.6	109	5.2	5.0 – 5.4	159	5.3	5.1 – 5.4
35-44	62	5.7	5.5 – 5.9	128	6.2	5.6 – 6.8	190	5.9	5.6 – 6.3
45-54	58	6.3	5.8 – 6.8	148	7.3	6.5 – 8.1	206	6.9	6.4 – 7.3
55-64	39	7.5	6.5 – 8.5	76	6.8	6.2 – 7.4	115	7.1	6.5 – 7.7
25-64	209	5.9	5.7 – 6.1	461	6.2	5.9 – 6.5	670	6.0	5.8 – 6.3

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	50	96.5	92.1 – 100.8	109	93.5	89.9 – 97.1	159	95.0	91.8 – 98.1
35-44	62	101.8	98.2 – 105.5	128	112.1	101.7 – 122.5	190	107.1	100.8 – 113.3
45-54	58	113.9	105.0 – 122.8	148	132.1	117.9 – 146.3	206	123.4	115.1 – 131.8
55-64	39	134.5	116.3 – 152.7	76	122.5	110.9 – 134.1	115	128.1	117.0 – 139.2
25-64	209	106.1	102.6 – 109.7	461	111.2	105.5 – 116.9	670	108.8	104.9 – 112.6

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	54	20.4	10.5-30.2		114	10.5	4.9-16.1		168	15.5	9.2-21.7
35-44	65	29.2	15.5-43.0		143	14.0	7.0-21.0		208	21.3	13.3-29.2
45-54	74	24.3	14.1-34.6		187	14.4	8.1-20.8		261	19.2	13.7-24.6
55-64	62	16.1	6.2-26.1		100	14.0	6.1-21.9		162	15.1	9.3-20.9
25-64	255	23.0	16.4-29.7		544	13.0	9.1-16.9		799	17.9	13.8-22.0

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	54	14.8	3.5 – 26.1		114	13.2	7.1 – 19.2		168	14.0	6.8 – 21.2
35-44	65	23.1	12.3 – 33.8		143	35.0	25.9 – 44.0		208	29.3	20.8 – 37.8
45-54	74	52.7	43.7 – 61.7		187	54.0	42.3 – 65.7		261	53.4	45.9 – 60.9
55-64	62	69.4	58.7 – 80.0		100	63.0	50.2 – 75.8		162	66.3	57.5 – 75.1
25-64	255	34.4	27.4 – 41.3		544	36.4	30.7 – 42.2		799	35.4	29.8 – 41.0

Currently on medication for diabetes											
Age Group (years)	**Men**				**Women**				**Both Sexes**		
	n	%	95% CI		n	%	95% CI		n	%	95% CI
25-34	54	5.6	0.0-11.1		114	1.8	0.0-4.4		168	3.7	0.8-6.5
35-44	65	1.5	0.0-4.7		143	5.6	0.4-10.8		208	3.7	0.7-6.7
45-54	74	14.9	3.1-26.7		187	13.9	6.9-20.9		261	14.4	6.1-22.6
55-64	62	24.2	13.1-35.3		100	20.0	11.7-28.3		162	22.2	14.1-30.3
25-64	255	9.5	3.9-15.2		544	8.4	5.6-11.2		799	9.0	5.1-12.8

* Impaired fasting glycaemia is defined as either
  - plasma venous value: $\geq$6.1mmol/L (110mg/dl) and <7.0mmol/L (126mg/dl)
  - capillary whole blood value: $\geq$5.6mmol/L (100mg/dl) and <6.1mmol/L (110mg/dl)

** Raised blood glucose is defined as either
  - plasma venous value: $\geq$ 7.0 mmol/L (126 mg/dl)
  - capillary whole blood value: $\geq$ 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	22	4.3	4.2 – 4.4	65	4.5	4.3 – 4.7	87	4.4	4.3 – 4.5
35-44	34	4.5	4.3 – 4.7	108	4.7	4.5 – 4.8	142	4.6	4.5 – 4.7
45-54	55	4.7	4.5 – 5.0	152	4.8	4.7 – 4.9	207	4.8	4.6 – 4.9
55-64	36	4.6	4.3 – 4.8	85	5.1	4.9 – 5.2	121	4.9	4.7 – 5.1
25-64	147	4.5	4.4 – 4.6	410	4.7	4.6 – 4.8	557	4.6	4.6 – 4.7

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	22	164.6	160.6 – 168.7	65	174.0	167.3 – 180.6	87	170.1	166.0 – 174.1
35-44	34	172.7	164.9 – 180.4	108	180.1	175.8 – 184.4	142	177.2	173.2 – 181.3
45-54	55	182.9	172.2 – 193.7	152	186.2	181.7 – 190.6	207	184.7	179.0 – 190.3
55-64	36	177.1	167.7 – 186.4	85	196.2	189.7 – 202.7	121	188.1	180.5 – 195.7
25-64	147	174.7	170.4 – 179.1	410	182.8	179.4 – 186.2	557	179.4	176.4 – 182.4

Total cholesterol ≥ 5.0 mmol/L or ≥ 190 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	22	4.5	0.0 – 13.8	65	7.7	0.0 – 16.7	87	6.4	0.2 – 12.5
35-44	34	5.9	0.0 – 14.2	108	21.3	14.1 – 28.5	142	15.3	10.6 – 20.0
45-54	55	20.0	0.6 – 39.4	152	29.6	22.1 – 37.1	207	25.2	15.7 – 34.7
55-64	36	19.4	3.9 – 35.0	85	47.1	35.6 – 58.5	121	35.4	24.1 – 46.7
25-64	147	12.4	3.8 – 20.9	410	24.2	19.0 – 29.5	557	19.2	14.3 – 24.2

Total cholesterol ≥ 6.2 mmol/L or ≥ 240 mg/dl									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	22	--	--	65	1.5	0.0-4.7	87	0.9	0.0-2.8
35-44	34	--	--	108	2.8	0.0-6.0	142	1.7	0.0-3.7
45-54	55	3.6	0.0-8.0	152	4.6	1.2-8.0	207	4.2	1.1-7.2
55-64	36	2.8	0.0-8.3	85	11.8	6.8-16.8	121	8.0	3.7-12.3
25-64	147	1.6	0.0-3.3	410	4.4	2.8-6.0	557	3.2	1.9-4.6

Fasting Triglycerides   Description: Mean fasting triglycerides among all respondents and percentage of respondents with raised fasting triglycerides.

Instrument question:
- Triglyceride measurement

Triglycerides (mmol/L)									
Age Group (years)	**Men**			**Women**			**Both Sexes**		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	35	1.6	1.0-2.1	85	1.5	1.3-1.7	120	1.5	1.2-1.8
35-44	47	1.5	1.3-1.7	116	1.7	1.5-1.8	163	1.6	1.4-1.7
45-54	54	1.7	1.4-1.9	148	1.8	1.7-2.0	202	1.7	1.6-1.9
55-64	43	1.4	1.2-1.5	78	1.9	1.7-2.2	121	1.7	1.5-1.8
25-64	179	1.5	1.3-1.8	427	1.7	1.6-1.8	606	1.6	1.5-1.8

Triglycerides (mg/dl)									
Age Group (years)	**Men**			**Women**			**Both Sexes**		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	35	137.8	87.5-188.1	85	131.3	114.3-148.2	120	134.3	109.8-158.9
35-44	47	133.3	115.0-151.5	116	147.0	133.9-160.1	163	140.8	128.0-153.6
45-54	54	147.7	122.9-172.4	148	161.1	148.8-173.5	202	155.0	141.5-168.4
55-64	43	123.1	110.4-135.9	78	172.4	151.7-193.1	121	148.4	134.7-162.1
25-64	179	136.9	114.2-159.6	427	149.1	142.6-155.7	606	143.5	131.3-155.6

Percentage of those with Triglycerides ≥ 1.7 mmol/L or ≥ 150 mg/dl									
Age Group (years)	**Men**			**Women**			**Both Sexes**		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	35	17.1	2.0-32.3	85	22.4	12.7-32.1	120	19.9	9.9-29.9
35-44	47	27.7	11.9-43.5	116	36.2	26.2-46.2	163	32.4	22.2-42.5
45-54	54	35.2	18.8-51.6	148	43.9	33.0-54.9	202	39.9	28.2-51.6
55-64	43	27.9	19.0-36.9	78	51.3	39.1-63.4	121	39.9	31.5-48.3
25-64	179	26.3	15.9-36.6	427	35.9	30.3-41.5	606	31.4	24.5-38.4

Percentage of those with Triglycerides ≥ 2.0 mmol/L or ≥ 180 mg/dl									
Age Group (years)	**Men**			**Women**			**Both Sexes**		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	35	11.4	0.0-25.0	85	14.1	7.5-20.8	120	12.9	5.4-20.4
35-44	47	19.1	4.4-33.9	116	25.0	14.1-35.9	163	22.4	11.8-33.0
45-54	54	16.7	2.8-30.5	148	31.1	23.4-38.7	202	24.5	17.2-31.7
55-64	43	11.6	0.4-22.8	78	43.6	31.9-55.2	121	28.0	18.7-37.3
25-64	179	14.9	5.3-24.6	427	25.7	21.0-30.3	606	20.7	14.7-26.7

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/m^2)
- 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	293	1.4	0.1 – 2.6	44.4	38.2 – 50.7	54.2	47.6 – 60.8
45-64	260	1.3	0.0 – 2.8	23.2	15.9 – 30.6	75.5	67.2 – 83.7
25-64	553	1.3	0.5 – 2.2	36.3	30.6 – 42.0	62.4	56.3 – 68.4

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	561	0.7	0.1 – 1.4	40.3	34.2 – 46.4	59.0	52.7 – 65.3
45-64	475	0.4	0.0 – 1.1	31.7	25.9 – 37.6	67.8	61.9 – 73.8
25-64	1036	0.6	0.2 – 1.1	36.9	31.8 – 42.1	62.4	57.1 – 67.8

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	854	1.0	0.3 – 1.8	42.3	37.4 – 47.3	56.6	51.6 – 61.6
45-64	735	0.9	0.0 – 1.8	27.6	22.5 – 32.7	71.5	65.9 – 77.2
25-64	1589	1.0	0.4 – 1.5	36.6	32.1 – 41.1	62.4	57.7 – 67.2

Appendix 3. List of Staff for the FSM (Chuuk) STEPS Survey

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Appendix 4. References

1. Samo M, Elymore A, Apaisam C. Mortality Analysis in the Federated States of Micronesia. In: Pacific Health Dialog. 2010.

2. Government of the Federated States of Micronesia, Geography, 2011, http://www.fsmgov.org/info/geog.html.

3. Government of Australia, Department of Foreign Affairs and Trade, Federated States of Micronesia Country Brief, March 2011.

4. Federated States of Micronesia, Division of Statistics, Type of Income by State 2006, http://www.spc.int/prism/country/fm/stats/Census%20&%20Surveys/2000/Income.htm.

5. Francis X. Hezel, SJ, An Overview of FSM Economy, unpublished, 7 November 2002, http://www.micsem.org/pubs/articles/economic/frames/ovrvwfsmecofr.htm.

6. Federated States of Micronesia, Department of Economic Affairs, 2002a: 7 cited in Hezel op. cit.

7. Jesse, B. 2009, Country Presentation, Federated States of Micronesia, Pacific Health Information Network, www.uq.edu.au/hishub/docs/fsm.pdf.

8. Samo M, Phongsavan P, Li D, Riley L, et al, eds. Federated States of Micronesia (Pohnpei) NCD Risk Factors STEPS Report. Suva, Fiji: Department of Health and Social Affairs, FSM and World Health Organization, 2008.

9. Luta T, Phongsavan P, Li D, Riley L, et al, eds. Kiribati NCD Risk Factors STEPS Report. Suva, Fiji: Ministry of Health and Medical Services, Kiribati and World Health Organization, 2009.

10. Tairea K, Phongsavan P, Li D, Fariu R, et al, eds. Cook Islands NCD Risk Factors STEPS Report. Suva, Fiji: Ministry of Health, Cook Islands and World Health Organization, 2011.

11. Laesango N, Roberts G., Li D, Paulsen J, et al, eds. Solomon Islands NCD Risk Factors STEPS Report. Suva, Fiji: Ministry of Health and Medical Services, Solomon Islands and World Health Organization, 2010.

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