



Papua New Guinea NCD Risk Factors STEPS REPORT



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NCD Risk Factors
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Acknowledgements

The Papua New Guinea NCD Risk Factors STEPS REPORT (referred to as "the Report") is a record of a combined effort of several organizations and individuals. We would like to acknowledge each organization and everyone's contributions, dedication and determination in completing the survey and finalizing the 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
HTN	Hypertension
MET	Metabolic equivalent
mmHg	Millimetres of mercury (unit of blood pressure measurement)
mmol/L	Millimoles per litre (unit for blood chemistry values)
NCDs	Noncommunicable diseases
NDOH	National Department of Health
PICs	Pacific island countries and areas
PNG	Papua New Guinea
SBP	Systolic Blood Pressure
WHO	World Health Organization

FOREWORD



Nowadays, in most of the countries in the world Noncommunicable diseases (NCDs), including cardiovascular diseases, diabetes and cancer, have become a high disease burden. In order to address this growing problem, accurate information about the risk factors that contribute to the development of NCDs is needed. A "risk factor" is any characteristic or exposure that increases a person's likelihood of developing a NCD. Risk factors of NCDs include tobacco use, alcohol use, physical inactivity, unhealthy diet, overweight and obesity, high blood pressure and a raised level of blood glucose or cholesterol.

To increase our capacity to undertake population risk surveillance, the National Department of Health, Papua New Guinea, HOPE worldwide, PNG and WHO jointly undertook the national NCD Risk Factors STEPS Survey. The STEPS survey has been specifically designed by WHO to assess the prevalence of the common NCDs and risk factors in a population. The information from the survey provides important information to develop and implement NCD plans and programs to address the growing epidemic of NCDs. Furthermore, the survey provides a firm foundation for an ongoing surveillance for NCDs and their various risk factors.

This report is the result of the STEPS survey carried out in Papua New Guinea in 2007-2008. It shows increased 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 improve health service delivery.

This is the first population-based nationwide STEPS survey on the prevalence of the NCD risk affecting our population. It represents a milestone in our efforts to address the increasing NCD epidemic affecting our people and marks an increased commitment by the Ministry of Health 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.

The Papua New Guinea STEPS survey involved intensive work, persistence and dedication from the PNG STEPS field survey team. We owe each of them our sincere appreciation.

We also wish to thank all the support staff in the National Department of Health and HOPE worldwide, PNG. We wish to thank WHO for its excellent coordination and strong technical support, and the financial support from the Department of Foreign Affairs and Trade, Australia, New Zealand Agency for International Development and WHO.

This report is dedicated to the hard work and commitment of all those involved from the inception to the completion of the NCD Risk Factors STEPS survey in Papua New Guinea.

The findings and recommendations in this report will guide our actions for preventing and controlling NCDs and improving health for all in our country.

A handwritten signature in black ink, appearing to read "M. Malabag". The signature is stylized and written in a cursive-like font.

Mr Michael Malabag
Minister for Health & HIV/AIDS
Papua New Guinea



The WHO STEPwise Approach to Surveillance of NCD Risk Factors (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 154 countries and areas throughout the world utilize WHO STEPS to conduct national surveys on risk factors and prevalence of NCDs. The publication of the "Papua New Guinea NCD Risk Factors STEPS REPORT" marks a milestone as it provides the scientific, national and comparable data that will assist the government and other key stakeholders in addressing the escalating issue of NCDs.

The extremely high prevalence of NCDs in Pacific island countries and areas (PICs) accounts for 75% of all deaths and contributes to significant long term illness and disability. Ministers at the 9th Health Ministers' Meeting held in June, 2011 declared a NCD crisis in the Pacific requiring urgent attention and action.

Some of the key results of the STEPS survey and report in the Papua New Guinea include the following:

- 43.7% of the population smoked tobacco daily.
- 79.0% of the population chewed betel nut.
- 7.1% of the population was current alcohol drinkers.
- 98.9% of the population consumed less than five combined servings of fruit and vegetables per day.
- 9.9% of the population was with low level of physical activity.
- The prevalence of overweight in the population was 32.1%, the prevalence of obesity was 6.8%.
- The prevalence of hypertension was 8.8%.
- The prevalence of raised blood glucose was 14.4%.
- 99.6% of the population was at high risk or moderate risk of NCDs.

These results clearly document that NCDs are a major problem in Papua New Guinea. The applications of this "Papua New Guinea NCD Risk Factors STEPS REPORT" include updating the national NCD strategy, identifying evidence-based prioritized intervention for NCD prevention and control, providing national baseline data of NCDs for comparison between countries and over time, contributing the scaling up of the implementation of the Millennium Development Goals among others.

Future priorities need to be given to both primary and secondary prevention activities to prevent and control NCDs , e.g., cardiovascular diseases, diabetes and their risk factors including tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol, tobacco use and betel nut chewing considering the extremely high prevalence of the combined risk factors of NCDs in Papua New Guinea.

WHO is honoured to be a critical part of the collaborative efforts between the Department of Health, PNG, HOPE Worldwide, PNG, the Department of Foreign Affairs and Trade, Australia, and New Zealand Agency for International Development to complete the Papua New Guinea NCD STEPS survey and report.

WHO is proud to collaborate with the Department of Health in publishing this first "Papua New Guinea NCD Risk Factors STEPS REPORT", and will continue to work with health authorities, health workers, other key stakeholders and the public to address the issues raised in this report.

Dr William Adu-Krow
Representative
World Health Organization Office in Papua New Guinea

EXECUTIVE SUMMARY

The Papua New Guinea NCD STEPS survey and report were designed, managed, funded, conducted and developed by the joint efforts of the Papua New Guinea Department of Health, the World Health Organization and HOPE Worldwide, PNG. The survey provides a snapshot on the state of the noncommunicable disease situation and related risk factors among Papua New Guineans. The data are based on a representative population-wide sample of Papua New Guineans aged 15-64 years. The survey was carried out in representative areas in the four regions of PNG, as well as in the capital Port Moresby, from March 2007 to March 2008. The key objectives of the survey were:

- To document the prevalence and magnitude of key NCDs and their behavioural risk factors among adults aged 15-64 years
- To document the prevalence and magnitude of major modifiable risk factors for NCDs including tobacco and betel nut use, harmful use of alcohol, poor dietary habits, physical inactivity, overweight and obesity, raised blood pressure, and raised blood glucose
- To compare NCDs and their risk factors across different age groups and between men and women.

A total of 2,944 individuals (response rate of 80.2%) participated in the survey.

Behavioral risk factors

Overall, the prevalence of current smokers was 44.0%. The majority of men (60.3%) were current smokers as compared to 27.0% of women. Among the total population, 43.7% smoked daily, with a gender difference of 59.9% of men and 26.6% of women. Among those who smoke tobacco daily, the mean age at which smoking started was 18.2 years; men started smoking at a marginally younger age than women, 17.9 years and 19.0 years, respectively. Amongst daily smokers, the number of cigarettes smoked per day was 3.3 overall (3.5 for men and 2.7 for women).

The overall prevalence of chewing betel nut (buai) in the past 12 months was 79.0% with similar rates in men (80.3%) and women (77.8%). Betel nut use was common in all age groups. Men consumed an average of 5.7 nuts per day and women 5.4 (overall average 5.5). 78.3% always used mustard and lime together with the nut when chewing, 18.0% use these two additional agents sometimes, and 2.9% rarely (data from both sexes combined).

An estimated 22.2% of the Papua New Guinean adult population had consumed alcohol in the past 12 months. 7.1% had consumed alcohol in the last 30 days (defined as current drinkers). A significant gender difference of 12.8% of men and 1.6% of women current drinkers was observed. Generally, there were higher proportions of male than female drinkers across all age groups. Among male current drinkers, 77.6% reported 'binge drinking', that is, drinking on average 5 or more standard drinks per day in the past week. The highest proportion of binge drinking among men was in the 45-54 years age group. An estimated 11.2% of male current drinkers also reported drinking 20 or more drinks in the past week. Generally alcohol was purchased by friends and relatives rather than personally. Home brew was the most common type of alcohol used in 13.5% of current drinkers, particularly among younger drinkers.

Reported average consumption of fruit and vegetables among Papua New Guineans was well below recommended level of 5 combined servings of fruit and vegetables per day. The mean number of days fruit and vegetables were consumed were 2.9 days for both sexes. On average, the self-reported mean number of combined fruit and vegetables servings was 1.5. The overall prevalence of those consuming less than 5 combined servings of fruit and vegetables per day was 98.9%.

The survey found that 9.9% of the population reported low levels of total physical activity, that is, engaged in physical activity for less than 600 METminutes per week. The results were almost identical between sexes. The prevalence of a high level of total physical activity (>1500 METminutes per week) was high in both sexes - 76.1% of men and 70.6% of women. The total physical activity performed during work, transport and leisure time averaged 197.7 minutes/day for men and 168.6

minutes/day for women. Work-related physical activities comprised 115.2 minutes/day for men and 102.1 minutes/day for women; transport-related physical activities averaged 67.0 minutes/day for men and 56.8 minutes/day for women, and; leisure-related physical activities averaged 15.5 minutes/day for men and 9.6 minutes/day for women. Thus, most physical activity in Papua New Guinea was undertaken as part of work, and to a lesser extent, as part of transport. Leisure-time physical activity contributed very little to the total time spent in physical activity.

Physical risk factors

The overall prevalence of Papua New Guinea adults classified as overweight (BMI $\geq 25\text{kg/m}^2$) was 32.1%, with 6.8% (BMI $\geq 30\text{kg/m}^2$) being obese. Among women, 33.9% were overweight with 8.7% of these being obese. Among men, 30.3% were overweight with 5.1% being obese. An estimated 64.3% of the proportion of the surveyed population had a normal body mass index (BMI 18.5-24.9): 67.5% of men and 61.0% of women. Average body fat (measured by bioelectric impedance) was 16.9% for men and 22.9% for women - 19.8% overall.

The survey found an estimated 8.8% of Papua New Guinean adults had raised blood pressure (defined as having SBP ≥ 140 mmHg and/or DBP ≥ 90 mmHg or on medication for raised blood pressure), with this being more common in men (10.2%) than women (7.2%).

Biochemical risk factors

Based on measures of fasting capillary whole blood, the overall prevalence of raised blood glucose (fasting glucose level ≥ 6.1 mmol/L) among Papua New Guineans aged 15-64 years was 14.4%, with a slightly higher rate among men (14.7%) as compared to women (14.0%). A further 20.5% had impaired fasting glycaemia. Half of the respondents also undertook an oral glucose tolerance test. For those with both measures, the rate of raised blood glucose was 15.3% overall (15.4% males and 15.3% females). A further 20.4% overall (22.3% and 18.5% respectively) had impaired glucose tolerance.

Combined risk factors

As the number of NCD risk factors an individual has increases, so does his or her risk of developing a particular chronic disease. For this report, the population was classified into three NCD risk categories: Among the five NCD risk factors, high risk (with 3-5 risk factors), moderate risk (with 1-2 risk factors) or low risk (with no risk factor). The NCD risk factors included in the computation of NCD risk categories were current daily smokers, overweight (BMI ≥ 25 kg/m²), 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 low level of physical activity (<600 METminutes per week).

This survey found that only 0.4% of the surveyed population aged 25-64 years had none of the risk factors for NCDs, compared with 77.7% at moderate risk and 21.9% at high risk. Rates of high risk were higher in men (28.1%) than women (15.3%).

Conclusion

The Papua New Guinea STEPS survey represents a significant step forward in gathering representative and population-wide information for informing health planning services for the prevention, control and management of NCDs. The STEPS survey and report have provided strong evidence that NCDs and related modifiable risk factors are prevalent in PNG, with the majority of adults being at heightened risk of developing chronic diseases. In this context, the following recommendations are outlined as priority actions in PNG:

Addressing policy, organizational and environmental factors

- Recognize NCDs as a national priority and urgent actions are needed, given the fact that 99.6% of PNG population were at high or moderate risk of NCDs.
- Increase resources to implement the WHO Framework Convention on Tobacco Control.

- Develop betel nut control policies.
- Develop strategies supporting local production and consumption of fruit and vegetables.
- Review policies supporting importation of healthy foods.
- Increase the capacity of the health care system for early detection and management of individuals with chronic diseases.
- Establish sustainable government funding mechanisms and health infrastructure to support NCD strategy implementation and monitoring.
- Develop a coalitions, networks and partnerships work program with a common agenda and action plans for preventing and managing NCDs.

Addressing NCD behavioural risk factors

- Conduct comprehensive anti-smoking campaigns to reduce smoking rates across all age groups and in both genders, particularly targeting the younger age groups to prevent smoking uptake, and also establish of smoking cessation programs.
- Conduct comprehensive health promotion campaigns to reduce alcohol consumption, particularly targeting binge drinking.
- Organize health promotion campaigns promoting the recommended levels of fruit and vegetable consumption across all age groups and in both genders, and increasing public awareness of the adverse effects of excessive consumption of high-fat, high-salt, and high-sugar foods.
- Develop and implement culturally-appropriate programs to promote physical activity in urban areas.
- Implement comprehensive strategies to reduce the prevalence of the five critical NCD risk factors (current daily smoking, being overweight or obese, having raised blood pressure, eating less than five combined servings of fruit and vegetables per day, and having a low level of physical activity).

Establishing a co-ordinated approach to NCD management

- Increase public awareness of the importance of regular monitoring and screening of blood pressure, blood cholesterol and blood sugar level.
- Establish and/or strengthen existing co-ordinated care and management of individuals with diagnosed chronic diseases, including providing a system of integrated care across multiple providers (primary health care and clinical care) and multiple chronic conditions that will reduce length of hospitalization and improve quality of life.
- Establish a co-ordinated NCD program supporting chronic disease care, including supporting patient self-management, self-monitoring of conditions, medications and lifestyle changes.
- Encourage screening for hypertension and diabetes for high-risk individuals, and also opportunistic screening.

Maintaining quality surveillance and public health information

- Establish strong leadership and secure political and financial commitments to maintain a systematic approach to STEPS data collection – supported by workforce trained in implementing the survey, infrastructure and financial capacity - on an ongoing basis that will evolve to a STEPS surveillance system in Papua New Guinea.

1. INTRODUCTION

1.1 Background and Rationale

Countries across a broad spectrum of economic development are experiencing an unprecedented rise in noncommunicable diseases (NCDs)¹ including cardiovascular conditions such as heart disease and stroke, Type 2 diabetes, some cancers, and chronic respiratory conditions. The NCDs affect all levels of socioeconomic and ethnic groups and has been estimated to account for approximately 60% of all deaths globally. It has also been estimated that around 80% of NCD-related deaths occur in low- and middle-income countries². In the Western Pacific Region, the NCD conditions are contributing to a large share of death and disability³, with significant social and economic consequences on all levels of the society.

Timely and valid surveillance of data relating to the magnitude and extent of NCDs and their risk factors are critical for informing healthcare spending, and for developing appropriate preventive public health programs to respond effectively to the growing burden of NCDs. As part of the regional and global effort to meet the emerging challenges posed by the NCD epidemics, the World Health Organization (WHO) is supporting a number of Pacific island countries and areas (PICs) to implement country-wide STEPwise approach to surveillance of NCD risk factors⁴. Countries implementing the STEPS surveys agreed to use standardised STEPS measures and protocols for assessing the following core NCD risk factors: tobacco use, alcohol consumption, fruit and vegetable consumption, physical activity, measured height, weight, waist, and blood pressure. Depending on needs and resources biochemical indicators such as fasting blood cholesterol and blood sugar level are also collected. Self-report and objective methods are used to collect the information.

To facilitate between-country comparability, countries follow a standardized survey methodology, ask a core set of questionnaire items, and use similar technical materials and measurement protocol to support the planning and data collection activities. Countries also have the option of adding additional questionnaire items depending on local relevance and resource availability; these can include assessing mental health and oral health for example. Countries are also encouraged and supported to repeat the STEPS surveys to enable monitoring of NCD status over time.

1.2 The National Context

1.2.1 Geography

The Independent State of Papua New Guinea lies in the South Pacific. It consists of the eastern half of the New Guinea Island (the other half is a province of Indonesia), and a collection of smaller islands including New Ireland, New Britain and Bougainville. The total area is 462,840 km². The islands lie on the tectonically active Pacific Ring of Fire so earthquakes, volcanic activity and tsunamis are not unexpected hazards. The land is largely rugged terrain, which give way to coastal lowlands and swamps. This geography, combined with widely scattered small villages, makes provision of key services, including transportation and communications, very difficult.

There are four key geographical regions Papua New Guineans identify with: the Highland, Islands, Momase and Papua Regions. The twenty two provincial level divisions include twenty provinces, the Autonomous Region of Bougainville, and the National Capital District.

1.2.2 Population and Living Environment

PNG has an exceptionally diverse population of 7,014,000 (2011 population census) which is reflected in the approximately 830 living languages listed for the country⁵. There are three official languages, Tok Pisin (a creole-type language), Hiri Motu and English. Tok Pisin is the most widely spoken, and often used for communication between people of different first languages. English is the language of education after the second grade.

The vast majority of the population are Papuans and Melanesians, however there is overlap with other South Pacific populations, particularly in the islands. The vast majority of the people live in rural areas (87.5%). The population growth rate is approximately 2.2% (World Bank 2011) with a higher urban growth rate (2.8%) compared to the rural growth rate (2.2%). The population is typical of a developing country with 38.7% of the population under 15yrs, and only 2.8% over 64 years (World Bank estimate 2011).

1.2.3 Government, Culture and the Economy

Papua New Guinea has been a constitutional monarchy since independence in 1975. The government is organised into a three tiered system consisting of national, provincial and local government levels. The National Parliament consists of 109 members who are elected for five year terms. Members of Parliament are elected from the 89 single-member electorates and 22 regional electorates. The Governor General represents the Head of State, HM Queen Elizabeth II, and is elected by the National Parliament. The Prime Minister is the head of government and is also elected by the National Parliament. The Governor General, with the advice of the Prime Minister, appoints the National Executive Council who are given national portfolios.

The judicial system is independent of the government and consists of the Supreme Court, National Court, and local and village courts.

Papua New Guinea's economy is classified by the World Bank as lower middle income. The per capita Gross National Income (Purchasing Power Parity) in 2011 is \$2,590 (World Bank online database, accessed 24/10/12). There has been sustained economic growth since the country achieved independence although the economy is highly dualistic. The rich natural resources including gold, oil, gas, copper, silver, timber and fisheries, drive the growing export market whilst a majority of the population live off informal subsistence semi-subsistence farming.

The Papua New Guinea people place great value on family and community connectedness, represented by the "wantok" concept of kinship. There is no social welfare system and the government is regarded as the key provider of health and education services.

1.2.4 Health Infrastructure and Noncommunicable Disease Health Status

The Human Development Index classifies Papua New Guinea as a Medium Human Development nation, ranked 149th in the world. The average life expectancy at birth was estimated at 60.4 for men and 64.6 for women (World Bank est. for 2010).

Infectious diseases, such as pneumonia, tuberculosis, malaria, typhoid, HIV/AIDS and gastroenteritis, and maternal and child health have by necessity dominated the PNG health agenda for many years. However it has long been recognised that there is increasing morbidity and mortality from non-communicable diseases (particularly heart disease, diabetes, non-infectious respiratory disease and cancer) and that increasing efforts are needed in both prevention and treatment^{6,7}. King et al⁸ studied hypertension and other cardiovascular risk factors in six PNG communities in 1985-86. Hypertension was rare (<2%) in three rural/semirural villages, intermediate (3-6%) in rural and urban Tolai communities, and 12% in men and 5% in women in a periurban community in Eastern Highlands. Other cardiovascular risk factors – BMI, plasma cholesterol, insulin and glucose levels – were lower in the rural areas and highest in the urban and periurban areas.

Benjamin⁹ found that blood pressure was higher in Manus Island residents than those in Port Moresby, with blood pressure lower in rural Central Province. Kende¹⁰ studied rural and urban Southern Highlanders, finding that urban dwellers were more likely to be overweight or obese and had higher LDL, glucose and HbA1c levels. The rural diets were mainly vegetarian, limited in fat and protein, with the urban diets containing more refined foods high in fat and protein. Saweri¹¹ described the changing composition of the diet of Papua New Guineans as they move to towns and cities.

The first published report of diabetes in PNG was in 1963¹², but it was noted that cases were very rare^{12,13}. Later studies showed that rates were higher in some ethnic groups (such as Wanigela^{14,15} and Tolai^{16,17}) and rates rose with urbanisation and adoption of a more Western lifestyle¹⁸. In 1991 Dowse et al¹⁹ studied urban and rural Wanigela. Rates were very high in the urban group - age-standardised prevalence of diabetes in Koki Wanigelans was 37.5% in men and 33% in women, and an additional 20.5% of men and 22.0% of women had IGT. Even in the youngest group (25-34), 36.5% had glucose intolerance (16.1% IGT and 20.4% DM). Age-standardised rates of diabetes were the third highest in the world. The age-standardised prevalence of glucose intolerance was at the time the second-highest in the world after the Pima Indians, and higher even than Micronesian Nauruans, even though the Nauruans were more obese in the comparative study.

High rates are consistent with the rates in other Pacific islands and theories about the Austronesian migration and the thrifty genotype^{20,21}.

Limited data suggested rates were lower in highland populations, but were rising with changing lifestyle²². Various reports suggest high rates of complications from poor control²³.

Diabetes services in PNG were reviewed by Lesley et al in 2001²⁴. From a comparison of reported numbers of cases from all the major hospitals, versus the expected number of cases on even a conservative prevalence estimate, it was clear that nearly all people with diabetes in the country are not having treatment, and presumably the vast majority of these are undiagnosed. Use of insulin in Type 2 management was uncommon outside Port Moresby. An unpublished repeat survey by HOPE Worldwide (PNG) in 2009 showed similar results.

Since 2009, a program has been underway to develop diabetes services in PNG. This program is a joint initiative of HOPE Worldwide (PNG) and the National Department of Health, with funding from the World Diabetes Foundation. Education materials and National Treatment Guidelines have been developed, with training workshops in various sites around the country, and extensive screening.

1.3 Developing the WHO STEPS Survey in Papua New Guinea

The WHO STEPS survey in PNG was the first national epidemiological survey on NCD risk factors in Papua New Guinea. Recognizing the gap in knowledge on the magnitude of major NCDs and their risk factors for planning and policy development in the country, a number of agencies came together to implement the WHO STEPS survey in 2007. The survey was designed, funded and conducted jointly by the Papua New Guinea National Department of Health, HOPE worldwide (PNG) and the World Health Organization.

2. OBJECTIVES

The Papua New Guinea STEPS survey seeks to document the prevalence and magnitude of key NCDs and their risk factors. The survey will provide representative data on key indicators of risk factors that are linked to several chronic conditions. The data will inform whole-of-government approach to health services planning and the development of an integrated strategy for preventing and managing NCDs.

Specifically, the survey aimed to:

- Document the prevalence and magnitude of key NCDs and their behavioural risk factors among adults aged 15-64 years.
- Document the prevalence and magnitude of major modifiable risk factors for NCDs including tobacco and betel nut use, harmful use of alcohol, poor dietary habits, physical inactivity, overweight and obesity, raised blood pressure, and raised blood glucose.
- Compare NCDs and their risk factors across different age groups and between men and women.

3. METHODOLOGY

3.1 Survey Structure

The Papua New Guinea STEPS survey followed a sequential three-step process as follows (Figure 1):

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

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

Step 3: Biochemical measures of fasting and 2-hour blood glucose.

Similar to other STEPS surveys conducted in the Pacific region, the Papua New Guinea survey collected core information across the three steps. STEPS standardized survey methodology was also followed. This approach ensured that Papua New Guinea has available population-wide and representative data for between-country comparisons as well as within-country comparisons. For future surveys, Papua New Guinea can add more questions or measurements to the core questions, depending on local needs.

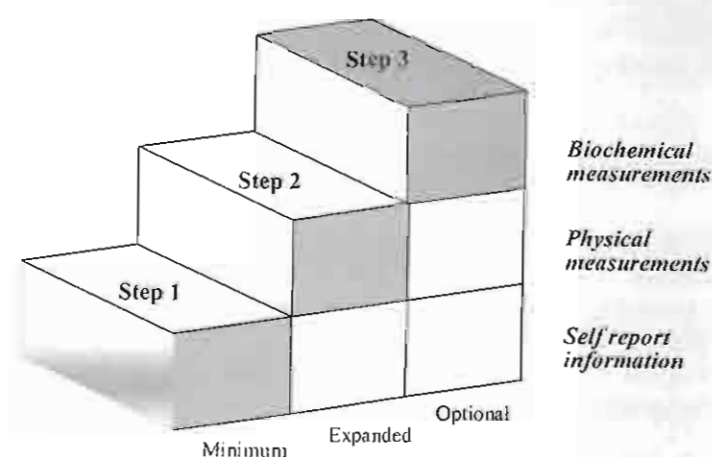


Figure 1 The WHO STEPwise approach to surveillance of NCDs

3.2 Survey Sampling Methodology

The amount of funds available circumscribed the scope of the study – in terms of the numbers of subjects, numbers of sites, and what biochemical tests could be performed.

For the Papuan sample, the villages of Lese Havihara and Lese Kavora in Gulf Province were selected as representative. For Momase, Ambana and Mambuan villages in Bogia District of Madang Province were studied. In the Highlands it was Bokolma and Mul villages in Gumine District, and in the Islands Powat, Bowat and Ndranou villages (inland) and Ahus, Pitulu and Andra Islands in Manus Province. In the National Capital District, approximately one-third of enrolments were done in an upper-middle class area (Korobosea/Boroko), one-third in a middle-class area (Gerehu) and one-third in a squatter settlement area (Nine Mile).

As per standard WHO STEPs protocol, the study looked at adults aged 15-64 years, with the intention to enroll equal numbers of males and females in each of the five 10 year age brackets from 15-24, 25-34, 35-44, 45-54, and 55-64 years.

As there were insufficient resources to map the communities, interviewers proceeded house to house in the selected areas in each of the 5 regions, inviting all adults to participate until the quota for each age range was reached. In the National Capital District, streets/blocks were first chosen using probability-proportional-to-size sampling and then interviewers proceeded to go house to house only within these selected streets/blocks.

The field work for the survey was carried out from March, 2007 to March, 2008.

3.3 Sample size

The national NCD STEPS survey in PNG selected one province from each of the four regions, plus the Capital. The planned sample size was 500 in each of the four provincial areas, and 1,000 in the National Capital District – a total of 3,000. Actual sample selected was:

496 in Gulf Province (with a participation rate of 95.4% of those asked)
456 in Madang (88.4% participation)
481 in Simbu (93.9% participation)
539 in Manus (75.7%)
972 in National Capital District (68.9%)

A total sample size was 2,944 respondents (response rate of 80.2%).

There were 1,441 males and 1,503 females included in the final sample.

The survey participants in each age bracket, and males and females were as follows: 15-24 years (y): 828 (388 men, 440 women), 25-34 y: 722 (342,380), 35-44 y: 613 (290,323), 45-54 y: 457 (242,215), 55-64 y: 324 (179,145). This is broadly reflective of PNG's age-pyramid.



3.4 Data Collection Procedures and Ethical Issues

The field work for the survey was conducted from March, 2007 to March, 2008.

- Ethics approval was gained from the Papua New Guinea Medical Research Advisory Council.
- The survey team approached the individuals to inform them about the aims of the study and to obtain signed informed consent.
- The survey staff provided fasting instructions to participants and worked through appointment schedules for interviews and measurements.

3.5 Data Collection Process

3.5.1 Registration of Participants

At the registration station, survey staff confirmed informed consent, participant date of birth, fasting status of the participant, and explained to participants all the STEPS involved in the survey.

3.5.2 Step 1 – Behavioural Risk Factors Interviews

All participants participated in a face-to-face interview which asked questions on tobacco and betel nut use, alcohol consumption, fruit and vegetable consumption, physical activity, oral health and history of chronic conditions and medications. Participants were also asked about their socio-demographic status, including education and socioeconomic status. A copy of the questionnaire is presented in Appendix 1. Interviews were conducted in Tok Pisin, English, and local languages.



3.5.3 Step 2 - Physical Measurements

Survey staff conducting the physical measurements followed the recommended STEPwise protocols. Height was measured with a stadiometer to the nearest whole cm, and weight with electronic scales to the nearest 0.1kg. BMI was calculated as weight (in kg) divided by height² (in metres). Participants were measured without shoes and wearing only light clothing. Waist circumference was measured once using a medical tape measure and recorded to the nearest 0.1 cm. Waist circumference of pregnant female participants was not measured.

Blood pressure and pulse rate were measured with an Omron SEM1 automatic sphygmomanometer (Omron Health Care, Sydney, Australia). Blood pressure and pulse rate was measured three times; the first reading followed by two more measurements taken with 2-3 minute intervals. All readings were recorded, and during analysis the second and third readings were averaged to produce a blood pressure finding for each participant.

Body fat was measured by bioelectric impedance using an Omron HBF-306 machine.



3.5.4 Step 3 – Biochemical Measurements

The Papua New Guinea survey included assessments of fasting and 2-hour blood glucose. Participants fasted from 10:00pm the previous night until 7:00am or after on the following morning when their capillary blood samples were drawn using the finger prick method.

Capillary blood glucose was measured with an Accutrend blood glucose meter (Roche Diagnostics GmbH, Mannheim, Germany). Fasting blood glucose was done on every subject, with an oral glucose tolerance test (with 75gm glucose in 300mL water – Glucaid, Histo-Labs, Riverstone, Australia) was performed on every second subject, with a 2-hour blood glucose test.



3.5.5 Counselling

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

3.6 Data Management and Analyses

3.6.1 Data Entry

Data entry was conducted by HOPE worldwide (PNG) staff at the HOPE office in Port Moresby, using the EpiData software. Duplicate and incomplete records were identified, checked and appropriately corrected.

3.6.2 Data Weighting and Analysis

WHO Office in Geneva cleaned the data and prepared it for analysis. Since a quota sample had been drawn, sample weights could not be calculated. However, a population adjustment was done to correct for differences in the age-sex distribution of the sample versus that of the target population. Data analyses were conducted in EpiInfo 2002 Version 3.5.1 using the standard data analysis syntax provided by WHO Headquarters. The WHO Office in Geneva produced the Data Book.

4. RESULTS

4.1 Characteristics of Survey Population

The study randomly selected and invited 3,671 Papua New Guineans aged 15-64 year olds to participate in the survey. A total of 2,944 individuals participated in the survey (response rate of 80.2%).

Table 1 summarises the age and gender distribution of the survey sample. Overall, more women respondents participated in the survey than men: 51.1% and 48.9%, respectively. There were more respondents in younger age groups, with only 11.0% were in the 55-64 years age group.

Table 1 Age distribution of survey population by gender

Age Group (years)	Age group and sex of respondents					
	Men		Women		Both Sexes	
	n	%	n	%	n	%
15-24	388	46.9	440	53.1	828	28.1
25-34	342	47.4	380	52.6	722	24.5
35-44	290	47.3	323	52.7	613	20.8
45-54	242	53.0	215	47.0	457	15.5
55-64	179	55.2	145	44.8	324	11.0
15-64	1441	48.9	1503	51.1	2944	100

Table 2 summarises the mean years of education of the survey respondents. Both men and women reported similar mean years of education: 7.5 years and 7.1 years, respectively. Years of education are not evenly distributed across the age groups, with the youngest age group (15-24 years) reporting the highest mean years of education (7.9 years), compared with the oldest age group (4.8 years). This pattern is observed for both men and women.

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

Age Group (years)	Mean number of years of education					
	Men		Women		Both Sexes	
	n	Mean	n	Mean	n	Mean
15-24	378	8.0	418	7.8	796	7.9
25-34	324	7.8	350	7.6	674	7.7
35-44	267	7.2	271	6.8	538	7.0
45-54	212	7.5	177	6.2	389	6.9
55-64	133	5.2	111	4.2	244	4.8
15-64	1314	7.5	1327	7.1	2641	7.3

Three other socioeconomic indicators were used: 25.9% of respondents had electricity at the house where they were living, 22.4% had a refrigerator in the house they were living in, and 10.5% had a car housed at the house where they were living.

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.
- Non-daily smokers** – those current smokers who do not smoke on a daily basis but less frequently.

Table 3 shows that 44.0% of respondents were current smokers. The majority of men (60.3%±3.9) were current smokers, significantly higher than 27.0% (±2.2) of the women surveyed. This gender difference was observed for all age groups. For men, the highest proportion of current smokers was in the 25-34 years age group (66.7%±5.1), and then the percentage progressively falls with age. However for women, the highest rate was in 55-64 years age group (34.2%±18.0).

Table 3 Percentage of current smokers in the study population

Age Group (years)	Percentage of current smokers						
	Men		Women		Both Sexes		
	n	% Current Smoker	n	% Current Smoker	% Current Smoker	95% CI	
15-24	383	58.0	432	25.3	815	42.3	31.4-53.1
25-34	335	66.7	377	26.3	712	46.2	41.4-51.1
35-44	282	66.6	321	25.5	603	46.2	43.7-48.7
45-54	236	54.6	214	32.5	450	44.1	39.6-48.6
55-64	176	40.1	145	34.2	321	37.4	24.9-49.9
15-64	1412	60.3	1489	27.0	2901	44.0	40.1-47.9

Table 4 shows that 59.9% (±2.1) of male respondents classified themselves as daily smokers.

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

Age Group (years)	Smoking status						
	Men						
	n	Current smoker		% Does not smoke		95% CI	
15-24	383	0.4	0.0-1.0	57.6	42.7-72.4	42.0	27.3-56.6
25-34	335	0.6	0.0-1.8	66.1	60.9-71.3	33.3	28.2-38.4
35-44	282	0.2	0.0-0.7	66.3	58.0-74.7	33.4	25.1-41.8
45-54	236	0.0	0.0-0.0	54.6	44.9-64.3	45.4	35.7-55.1
55-64	176	0.0	0.0-0.0	40.1	29.3-50.8	59.9	49.2-70.7
15-64	1412	0.4	0.0-0.8	59.9	57.9-62.0	39.7	37.7-41.7

Table 5 shows that 26.6% (±2.3) of female respondents were daily smokers. The prevalence of daily smokers in males was significantly higher than that in females.

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	
15-24	432	0.7	0.1-1.3	24.6	22.0-27.2	74.7	72.4-76.9
25-34	377	0.1	0.0-0.2	26.2	21.4-31.0	73.7	68.9-78.5
35-44	321	0.1	0.0-0.2	25.4	20.3-30.5	74.5	69.4-79.6
45-54	214	0.0	0.0-0.0	32.5	25.8-39.1	67.5	60.9-74.2
55-64	145	1.3	0.0-3.6	32.9	17.1-48.8	65.8	47.7-83.8
15-64	1489	0.4	0.1-0.6	26.6	24.4-28.9	73.0	70.8-75.2

Table 6 summarises the prevalence of daily, non-daily and non-smokers for men and women combined. Overall, 43.7% (±4.0) of survey respondents were daily smokers, compared with 56.0% (±3.9) of non-smokers and 0.4% (±0.3) of non-daily smokers. The highest proportion of daily smokers (46.1%) was reported in people aged 35-44 years, and the lowest in those aged 55-64 years (36.8%).

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	
15-24	815	0.6	0.2-1.0	41.7	30.8-52.7	57.7	46.9-68.6
25-34	712	0.3	0.0-0.9	45.9	41.0-50.8	53.8	48.9-58.6
35-44	603	0.2	0.0-0.4	46.1	43.6-48.5	53.8	51.3-56.3
45-54	450	0.0	0.0-0.0	44.1	39.6-48.6	55.9	51.4-60.4
55-64	321	0.6	0.0-1.7	36.8	25.3-48.3	62.6	50.1-75.1
15-64	2901	0.4	0.1-0.7	43.7	39.7-47.7	56.0	52.1-59.9

Among current daily smokers, the mean age of starting smoking for men was 17.9 (±0.7) years and for women was 19.0 (±0.4) years, with no significant difference. This gender difference in the mean age of starting smoking was not observed in all age groups – for instance women aged 55-64 years started earlier on average than their male counterparts. Across both genders, the youngest cohort (15-24 years) reported starting smoking earlier than the older cohorts – see Table 7.

Table 7 Mean age started smoking among current daily smokers

Age Group (years)	Mean age started smoking								
	Men			Women			Both Sexes		
	n	Mean age	95% CI	n	Mean age	95% CI	n	Mean age	95% CI
15-24	186	15.6	15.0-16.2	84	16.6	15.5-17.6	270	15.9	15.4-16.4
25-34	186	17.5	16.5-18.5	80	19.6	18.9-20.4	266	18.1	17.4-18.9
35-44	158	20.5	19.1-21.9	58	20.1	19.5-20.8	216	20.4	19.3-21.5
45-54	85	20.1	18.4-21.7	38	21.7	16.2-27.2	123	20.6	19.9-21.4
55-64	51	22.0	19.7-24.2	28	18.8	14.5-23.2	79	20.6	17.4-23.9
15-64	666	17.9	17.3-18.6	288	19.0	18.6-19.4	954	18.2	17.7-18.8

Table 8 reveals that among current daily smokers, the mean number of years of smoking was 13.7 years (95% ±11.0-16.5). Men had been smoking for a mean of 13.5 years (±3.9) and women smoking for 14.3 years (±0.9), no significant difference between men and women.

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

Age Group (years)	Mean duration of smoking								
	Men			Women			Both Sexes		
	n	Mean duration	95% CI	n	Mean duration	95% CI	n	Mean duration	95% CI
15-24	186	4.6	3.0-6.1	84	3.5	2.9-4.4	270	4.3	3.2-5.3
25-34	186	11.7	10.0-13.4	80	9.8	8.7-10.5	266	11.1	9.9-12.4
35-44	158	18.5	16.5-20.4	58	19.6	18.5-20.7	216	18.8	17.3-20.2
45-54	85	29.2	25.8-32.6	38	27.2	22.6-31.8	123	28.5	27.4-29.5
55-64	51	36.4	34.5-38.3	28	41.4	36.5-46.2	79	38.5	35.2-41.9
15-64	666	13.5	9.6-17.4	288	14.3	13.4-15.1	954	13.7	11.0-16.5

Table 9 shows that manufactured cigarettes were the most common cigarettes smoked by current daily smokers: 74.7% (±6.6) of men and 65.8% (±10.2) of women.

Table 9 Percentage of current daily smokers who smoke manufactured cigarettes

Age Group (years)	Manufactured cigarette smokers among daily smokers								
	Men			Women			Both Sexes		
	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI
15-24	217	86.5	75.3-97.7	102	78.5	72.9-84.0	319	84.2	75.7-92.8
25-34	223	75.5	70.9-80.1	94	81.0	68.7-93.2	317	77.1	72.5-81.6
35-44	189	70.8	67.4-74.2	72	57.5	42.6-72.4	261	67.2	64.4-69.9
45-54	129	56.5	43.0-70.1	49	41.3	26.8-55.7	178	51.2	43.8-58.7
55-64	66	45.9	29.3-62.5	34	23.0	0.0-52.8	100	36.6	16.9-56.2
15-64	824	74.7	68.1-81.3	351	65.8	55.6-76.0	1175	72.0	65.4-78.7

Other types of tobacco used included hand-rolled cigarettes and pipes (Tables 10-12). Among male daily smokers, 677 smoked manufactured cigarettes (mean 3.5), 454 smoked hand-rolled cigarettes (mean 3.1) and 111 smoked pipes (mean 4.2). Among female daily smokers, 230 smoked manufactured cigarettes (mean 2.7), 148 smoked hand-rolled cigarettes (mean 2.8) and 64 smoked pipes (mean 4.3). For both sexes, the numbers were 907 smoked manufactured cigarettes (mean 3.3), 602 smoked hand-rolled cigarettes (mean 3.0) and 175 smoked pipes (mean 4.3).

Table 10 Mean amount of tobacco used by daily smokers by type among men

Age Group (years)	Mean amount of tobacco used by daily smokers by type								
	Men						Both Sexes		
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI
15-24	195	2.9	2.6-3.3	87	2.5	2.0-2.9	16	3.2	2.2-4.2
25-34	183	3.9	3.1-4.6	128	3.4	3.0-3.8	23	5.0	4.3-5.7
35-44	158	3.7	2.8-4.6	113	3.4	2.8-4.1	35	4.2	1.8-6.6
45-54	100	4.3	2.7-6.0	85	3.0	2.6-3.3	18	4.8	2.7-7.0
55-64	41	3.5	2.5-4.6	41	3.6	2.5-4.7	19	4.6	3.2-6.0
15-64	677	3.5	3.1-4.0	454	3.1	2.8-3.5	111	4.2	2.8-5.7

Table 11 Mean amount of tobacco used by daily smokers by type among women

Age Group (years)	Mean amount of tobacco used by daily smokers by type								
	Women						Both Sexes		
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI
15-24	73	2.2	1.7-2.8	33	2.4	1.8-2.9	8	3.1	--
25-34	75	3.4	2.6-4.2	41	3.0	2.3-3.7	8	2.8	--
35-44	45	2.4	2.1-2.7	32	3.1	2.4-3.7	19	4.5	--
45-54	27	2.4	1.5-3.3	30	2.9	2.6-3.2	15	4.3	--
55-64	10	2.5	1.2-3.7	12	2.1	1.6-2.6	14	7.8	--
15-64	230	2.7	2.3-3.1	148	2.8	2.5-3.0	64	4.3	--

Table 12 Mean amount of tobacco used by daily smokers by type among both sexes

Age Group (years)	Mean amount of tobacco used by daily smokers by type								
	Both Sexes								
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI
15-24	268	2.8	2.5-3.1	120	2.4	2.2-2.7	24	3.2	2.5-3.9
25-34	258	3.7	3.1-4.3	169	3.3	2.8-3.8	31	4.4	3.9-4.8
35-44	203	3.4	2.7-4.2	145	3.4	2.8-4.0	54	4.3	2.6-6.0
45-54	127	3.8	2.9-4.6	115	3.0	2.7-3.2	33	4.6	3.8-5.4
55-64	51	3.3	2.4-4.1	53	3.1	2.6-3.6	33	6.1	3.4-8.8
15-64	907	3.3	2.9-3.6	602	3.0	2.7-3.3	175	4.3	3.2-5.3

4.3 Betel nut use

To determine the prevalence of betel nut (buai) consumption, respondents were asked if they ever chewed betel nut in the past 12 months. Overall, 79.0% of those surveyed reported having chewed betel nut in the last 12 months: 80.3% of men and 77.8% of women (Tables 13-15). Betel nut use was high in all age groups. Men and women consumed an average of 5.5 (± 0.7) times per day (men 5.7 ± 0.9 and women 5.4 ± 0.6 times per day, no significant difference between men and women) (Table 16). In 78.3% (± 9.0) of betel nut chewers, mustard and lime was also used always, and a further 18.0% used these two agents sometimes. Usage of mustard and lime was common in men and women across all age groups (Table 17).

Table 13 Percentage of betel nut consumption among men during the past 12 months by age group

Betel nut use							
Men							
Age Group (years)	n	% Daily	95% CI	% Non-daily	95% CI	% Does not use betel nut	95% CI
15-24	380	67.3	62.2-72.4	10.9	8.0-13.8	21.8	18.2-25.4
25-34	338	76.3	65.1-87.6	6.9	0.0-14.3	16.8	12.3-21.3
35-44	288	79.1	73.0-85.3	6.7	3.7-9.7	14.2	5.8-22.5
45-54	240	76.0	60.8-91.1	3.4	1.9-4.9	20.6	4.7-36.6
55-64	174	61.9	51.7-72.2	3.1	0.3-5.9	35.0	27.2-42.8
15-64	1420	72.7	69.2-76.1	7.6	5.5-9.6	19.7	2.8-5.7

Table 14 Percentage of betel nut consumption among women during the past 12 months by age group

Betel nut use							
Women							
Age Group (years)	n	% Daily	95% CI	% Non-daily	95% CI	% Does not use betel nut	95% CI
15-24	429	72.1	65.8-78.4	7.3	3.9-10.8	20.5	17.0-24.0
25-34	372	71.8	68.8-74.7	6.9	5.0-8.8	21.3	19.3-23.4
35-44	322	72.9	68.0-77.7	5.0	3.1-6.9	22.1	18.5-25.8
45-54	210	66.2	43.9-88.4	10.9	9.1-12.7	23.0	1.4-44.6
55-64	144	62.8	50.3-75.4	2.8	0.0-7.3	34.3	18.5-50.2
15-64	1477	70.9	68.8-73.0	6.9	5.4-8.4	22.2	21.1-23.4

Table 15 Percentage of betel nut consumption among both sexes during the past 12 months by age group

Betel nut use							
Both sexes							
Age Group (years)	n	% Daily	95% CI	% Non-daily	95% CI	% Does not use betel nut	95% CI
15-24	809	69.6	66.7-72.5	9.2	6.8-11.6	21.2	20.3-22.1
25-34	710	74.0	69.3-78.7	6.9	3.2-10.6	19.1	16.9-21.2
35-44	610	76.1	71.2-80.9	5.9	4.6-7.1	18.1	12.8-23.4
45-54	450	71.4	67.8-75.0	6.9	5.2-8.6	21.7	19.3-24.1
55-64	318	62.3	60.6-64.1	3.0	0.0-6.4	34.7	31.2-38.2
15-64	2897	71.8	69.4-74.2	7.2	5.8-8.7	21.0	19.7-22.2

Table 16 Mean number of betel nuts consumed by daily chewers

Mean number of betel nuts consumed by daily chewers									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean no. of nuts	95% CI	n	Mean no. of nuts	95% CI	n	Mean no. of nuts	95% CI
15-24	292	4.8	3.6-6.0	329	4.7	3.8-5.5	621	4.7	4.0-5.5
25-34	272	6.2	5.0-7.4	273	5.7	4.6-6.8	545	6.0	5.1-6.8
35-44	229	6.7	5.3-8.0	248	5.7	5.1-6.2	477	6.2	5.4-7.0
45-54	190	5.6	5.1-6.1	145	6.0	5.8-6.3	335	5.8	5.5-6.1
55-64	109	5.3	4.0-6.6	93	5.3	3.3-7.2	202	5.3	4.0-6.5
15-64	1092	5.7	4.9-6.6	1088	5.4	4.7-6.0	2180	5.5	4.9-6.2

Table 17 Use of mustard and lime when chewing betel nut

Frequency of using mustard and lime along with betel nut, among current betel nut users									
Both sexes									
Age Group (years)	n	% Always	95% CI	% Sometimes	95% CI	% Rarely	95% CI	% Never	95% CI
15-24	696	72.2	62.7-81.7	23.3	13.9-32.6	2.9	0.9-4.9	1.6	0.4-2.8
25-34	590	80.7	71.3-90.1	16.2	10.6-21.8	3.0	0.0-7.1	0.2	0.0-0.3
35-44	503	84.6	76.6-92.5	13.4	6.4-20.4	1.9	0.7-3.1	0.2	0.0-0.3
45-54	357	83.5	69.9-97.1	12.3	4.7-20.0	3.5	0.0-9.5	0.6	0.0-1.8
55-64	217	70.6	59.8-81.4	22.6	13.5-31.8	5.1	2.1-8.1	1.6	0.0-3.7
15-64	2363	78.3	69.3-87.3	18.0	11.1-24.9	2.9	0.1-5.8	0.8	0.4-1.2

4.4 Alcohol Consumption

This section describes patterns of alcohol consumption. 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 30 days were classified as current drinkers.

Tables 18-20 summarise the prevalence of alcohol consumption during the past 12 months among men, women and both sexes. In the 12-month period, 22.2% reported having consumed alcohol (Table 20). There was a significant gender difference in consumption behaviour, with 37.9% of men reported having consumed alcohol in the past 12 months compared with just 7.1% of women (Tables 18-19). This pattern was replicated in each age group. The highest proportion of current drinking (last 30 days) occurred in the 25-34 years age group for men (15.4%±2.6) and in the 45-54 years age group for women (2.4%), but the numbers for women in all age groups were very small. From 25-34 years onwards, the prevalence of 12-month non-current drinking decreased with increasing age for men, from a peak of 33.4% (±13.6) in 25-34 year olds. For women, 12-month non-current drinking progressively decreased with age from a peak in 15-24 years olds (7.1%±5.3) (Table 18-19).

Table 18 Percentage of alcohol consumption among men during the past 12 months by age group

Alcohol consumption status							
Men							
Age Group (years)	n	% Current drinker (last 30 days)	95% CI	% Drank in last 12 months, not current	95% CI	% Abstainer	95% CI
15-24	365	14.7	4.7-24.8	26.4	20.5-32.3	58.9	44.4-73.3
25-34	314	15.4	12.8-18.0	33.4	19.8-47.0	51.2	36.9-65.4
35-44	272	14.7	10.9-18.5	23.8	13.1-34.5	61.5	48.6-74.4
45-54	228	6.5	3.6-9.5	16.1	4.3-27.9	77.4	64.3-90.5
55-64	176	1.1	0.0-2.2	8.0	2.8-13.2	90.9	85.6-96.2
15-64	1355	12.8	9.5-16.1	25.0	19.3-30.8	62.1	54.3-69.9

Table 19 Percentage of alcohol consumption among women during the past 12 months by age group

Alcohol consumption status							
Women							
Age Group (years)	n	% Current drinker (last 30 days)	95% CI	% Drank in last 12 months, not current	95% CI	% Abstainer	95% CI
15-24	428	2.0	0.5-3.6	7.1	1.8-12.4	90.9	86.2-95.5
25-34	371	1.3	0.0-2.7	5.6	2.8-8.5	93.1	90.4-95.7
35-44	317	1.2	0.0-2.7	5.6	2.0-9.2	93.2	90.6-95.8
45-54	211	2.4	0.0-5.4	2.5	0.0-6.4	95.1	89.0-100.0
55-64	143	0.5	0.0-1.7	1.3	0.0-3.6	98.1	95.8-100.0
15-64	1470	1.6	0.9-2.3	5.5	2.9-8.1	92.9	90.1-95.7

Table 20 Percentage of alcohol consumption among both sexes during the past 12 months by age group

Alcohol consumption status							
Both sexes							
Age Group (years)	n	% Current drinker (last 30 days)	95% CI	% Drank in last 12 months, not current	95% CI	% Abstainer	95% CI
15-24	793	8.3	3.7-12.8	16.5	13.9-19.2	75.2	71.0-79.3
25-34	685	8.0	5.8-10.2	18.7	13.6-23.8	73.3	68.6-78.0
35-44	589	7.8	6.0-9.5	14.5	8.1-20.9	77.8	70.9-84.7
45-54	439	4.6	2.0-7.1	9.6	5.0-14.1	85.9	79.7-92.0
55-64	319	0.8	0.0-1.6	5.0	1.2-8.7	94.2	90.6-97.8
15-64	2825	7.1	6.1-8.2	15.1	12.9-17.3	77.8	75.0-80.5

Table 21 summarises the frequency (number of drinking days) of alcohol consumed and quantity of drinks consumed (number of drinks on drinking day) by male current drinkers in the last 7 days. Among male current drinkers, 2.9% (±2.3) reported drinking more than 4 days in the last 7 days. 77.6% (±15.7) reported 'binge drinking', that is drinking 5 or more standard drinks on any drinking day (Table 19). Table 21 also shows approximately 11.2% of male current drinkers consumed 20 or more drinks during the previous week of the survey. However numbers in these analyses are small, with wide confidence intervals, and so percentages are highly unreliable.

For women (see Table 22), there were only 48 respondents who were current drinkers. In general, 65.5% (±13.5) reported binge drinking, that is consuming 4 or more drinks per drinking day in the last 7 days. This estimate needs careful interpretation because of the small numbers, as evident in the wide confidence intervals.

Table 21 Frequency (days) and quantity of drinks consumed in the last 7 days by current (last 30 days) drinker among men

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
15-24	76	1.2	0.0-2.9	68.1	26.5-100.0	7.7	0.0-17.4
25-34	80	1.9	0.0-4.4	79.1	71.7-86.6	14.7	0.0-29.6
35-44	54	6.5	0.0-16.0	88.3	79.3-97.4	13.6	6.6-20.6
45-54	26	1.3	0.0-4.0	95.0	86.1-100.0	10.1	2.8-17.4
55-64	4	68.1	11.3-100.0	21.3	0.0-58.2	0.0	0.0-0.0
15-64	240	2.9	0.6-5.2	77.6	62.0-93.3	11.2	3.7-18.8

Table 22 Frequency (days) and quantity of drinks consumed in the last 7 days by current (last 30 days) drinker among women

Frequency and quantity of drinks consumed in the last 7 days							
Age Group (years)	Women						
	n	% Drank on 4+ days	95% CI	% 4+ drinks on any day	95% CI	% 15+ drinks in 7 days	95% CI
15-24	21	0.0	--	70.5	22.1-100.0	3.7	0.0-10.7
25-34	13	0.0	--	57.9	40.6-75.3	3.2	0.0-13.6
35-44	7	0.0	--	100.0	100.0-100.0	0.0	0.0-0.0
45-54	6	0.0	--	61.5	0.0-100.0	0.0	0.0-0.0
55-64	1	0.0	--	0.0	0.0-0.0	0.0	0.0-0.0
15-64	48	0.0	--	65.5	52.0-79.0	2.5	0.0-6.6

The survey shows that heavy drinking among current drinkers (those who drank in the past 30 days) is more common among Papua New Guinean men than women (Tables 23-24). For example, current male drinkers drink an average of 8.9 (± 1.8) standard drinks, while women drink 6.6 (± 3.0) standard drinks. The small numbers of female current drinkers (Table 24), however, means that estimates for this group are likely to be unreliable. Among men, 83.8% (± 6.7) reported drinking 6 or more drinks per drinking day, and a further (7.1% ± 2.4) who drank 4 to 5 standard drinks (Table 23).

Table 23 Number of standard drinks per day among male current drinkers by age group

Number of standard drinks consumed on a drinking day											
Age Group (years)	Men										
	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI	Mean # standard drinks	95% CI
15-24	201	2.8	0.6-5.1	12.4	5.6-19.2	8.4	1.6-15.3	76.3	62.0-90.7	7.9	5.9-9.9
25-34	207	0.2	0.0-0.5	1.8	0.0-4.4	6.6	1.9-11.2	91.4	86.1-96.7	9.8	8.7-10.9
35-44	128	0.8	0.0-2.1	7.5	0.0-16.0	4.9	0.0-10.3	86.8	73.3-100.0	9.4	6.5-12.4
45-54	73	0.3	0.0-1.0	8.1	0.2-16.0	6.5	2.4-10.5	85.1	77.6-92.7	9.6	5.9-13.3
55-64	25	6.5	0.0-17.7	18.9	0.0-38.0	12.5	0.0-34.3	62.0	26.1-97.9	5.8	4.7-6.9
15-64	634	1.4	0.3-2.6	7.7	3.5-11.9	7.1	4.7-9.5	83.8	77.1-90.5	8.9	7.2-10.7

Table 24 Number of standard drinks per day among female current drinkers by age group

Number of standard drinks consumed on a drinking day											
Age Group (years)	Women										
	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI	Mean # standard drinks	95% CI
15-24	62	3.5	0.0-9.1	32.0	8.4-55.7	26.4	0.8-52.0	38.0	0.1-76.0	5.6	2.4-8.8
25-34	56	1.6	0.0-5.4	38.4	10.8-66.1	15.0	0.0-34.1	44.9	3.8-86.1	6.2	3.5-9.0
35-44	33	1.3	0.0-4.1	6.5	0.0-16.2	24.0	5.3-42.8	68.1	47.5-88.8	7.0	4.9-9.0
45-54	20	0.8	0.0-2.7	8.2	0.0-23.8	17.0	0.0-40.0	74.0	49.6-98.5	9.6	6.7-12.5
55-64	4	0.0	0.0-0.0	19.9	0.0-52.2	0.0	0.0-0.0	80.1	47.8-100.0	10.0	6.8-13.2
15-64	175	2.2	0.0-5.1	26.2	4.7-47.7	21.0	9.3-32.7	50.6	20.6-80.7	6.6	3.6-9.6

Table 25 Number of standard drinks per day among both sexes who are current drinkers by age group

Number of standard drinks consumed on a drinking day											
Age Group (years)	Both sexes										
	n	% 1 drink	95% CI	% 2-3 drinks	95% CI	% 4-5 drinks	95% CI	% 6+ drinks	95% CI	Mean # standard drinks	95% CI
15-24	263	3.0	0.5-5.4	15.4	6.6-24.2	11.2	3.0-19.5	70.4	53.3-87.5	7.6	5.4-9.7
25-34	263	0.4	0.0-1.0	7.0	0.0-14.3	7.8	3.9-11.6	84.8	75.4-94.2	9.3	7.9-10.8
35-44	161	0.9	0.0-2.0	7.4	0.0-14.8	7.9	4.4-11.5	83.8	73.3-94.3	9.1	6.4-11.7
45-54	93	0.4	0.0-0.9	8.1	0.0-17.1	8.7	3.7-13.6	82.8	75.1-90.6	9.6	6.3-13.0
55-64	29	5.1	0.0-13.7	19.1	4.2-34.0	9.7	0.0-27.5	66.0	36.0-96.1	6.7	5.5-8.0
15-64	809	1.6	0.4-2.8	10.6	3.7-17.5	9.2	5.3-13.2	78.6	68.1-89.1	8.6	6.6-10.5

Tables 26-28 show source of alcohol for all those who drank alcohol in the last 12 months. For men, 28.4% (± 5.3) purchased from stores, 56.5% (± 7.2) received it from friends and relatives, and 15.1% (± 7.5) was home-brewed. Women were less likely to buy alcohol or drink home-brew. In men, use of home brew was most common in 15-24 year olds (27.2% ± 4.9).

Table 26 Percentage of the source of alcohol for Men

Percentage of drinkers who obtain most of their alcohol from the following sources							
Age Group (years)	Men						
	n	% purchased from store	95% CI	% given by friends and relatives	95% CI	% home-brew	95% CI
15-24	189	24.0	13.9-34.2	48.8	37.8-59.7	27.2	22.3-32.1
25-34	185	26.1	17.7-34.5	64.4	51.3-77.4	9.5	0.0-24.0
35-44	113	35.7	27.7-43.7	57.8	51.0-64.7	6.5	0.0-15.8
45-54	65	40.8	29.7-51.8	56.7	46.4-67.1	2.5	0.0-6.7
55-64	25	31.3	11.0-51.6	50.4	35.8-65.0	18.3	0.0-40.5
15-64	577	28.4	23.0-33.7	56.5	49.3-63.7	15.1	7.7-22.6

Table 27 Percentage of the source of alcohol for Women

Percentage of drinkers who obtain most of their alcohol from the following sources							
Age Group (years)	Women						
	n	% purchased from store	95% CI	% given by friends and relatives	95% CI	% home-brew	95% CI
15-24	62	11.8	0.2-23.3	80.7	70.7-90.6	7.6	0.7-14.5
25-34	56	34.8	7.8-61.8	57.7	29.9-85.5	7.5	0.0-24.6
35-44	31	16.1	0.0-43.0	83.9	57.0-100.0	0.0	0.0-0.0
45-54	19	7.7	0.0-19.6	92.3	80.4-100.0	0.0	0.0-0.0
55-64	3	66.8	0.0-100.00	33.2	0.0-100.0	0.0	0.0-0.0
15-64	171	19.6	10.6-28.7	74.9	65.5-84.3	5.4	0.0-11.9

Table 28 Percentage of the source of alcohol – both sexes

Percentage of drinkers who obtain most of their alcohol from the following sources							
Age Group (years)	Both sexes						
	n	% purchased from store	95% CI	% given by friends and relatives	95% CI	% home-brew	95% CI
15-24	251	21.8	13.2-30.3	54.7	45.9-63.5	23.5	20.1-26.9
25-34	241	27.3	19.3-35.4	63.4	50.5-76.4	9.2	0.0-21.4
35-44	144	32.5	23.3-41.7	62.1	53.3-70.8	5.4	0.0-13.2
45-54	84	35.2	19.2-51.2	62.8	46.6-78.9	2.1	0.0-5.6
55-64	28	36.7	16.6-56.8	47.8	42.2-53.3	15.5	0.0-35.9
15-64	784	26.9	21.9-32.0	59.5	54.9-64.1	13.5	7.8-19.3

4.5 Intake of Fruit and Vegetables

Dietary behaviour was assessed by asking respondents how many days they consumed fruit and vegetables in a typical week, and how many servings of each that they consumed on one of those days.

Both men and women reported consuming fruit on an average of 2.9 (± 0.2) days in a typical week (Table 29). Across all age groups, men and women reported similar mean days of fruit intake.

For vegetable consumption, numbers were also similar between sexes and across age groups, with vegetables consumed on an average of 4.8 (± 0.2) days in a typical week (Table 30).

Tables 31-33 show a very low consumption of fruits and vegetable on across all days of the week on average. Overall, respondents reported an average of 0.7 (± 0.1) servings of fruits and 0.8 (± 0.1) servings of vegetables, 1.5 (± 0.1) combined servings of fruit and/or vegetables; both men and women reported consuming the same mean number of fruit and vegetable servings. Intake was very similar across all age groups.

Table 34 shows that 98.9% (± 0.8) of respondents across both genders consumed less than five combined servings of fruit and vegetables on average per day. The rates were 99.1% (± 0.5) in men and 98.6% (± 1.5) in women.

Table 29 Mean number of days fruits consumed in a typical week by gender and age group

Age Group (years)	Mean number of days fruits consumed in a typical week								
	Men			Women			Both Sexes		
	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI
15-24	382	2.9	2.6-3.2	433	3.1	2.9-3.2	815	3.0	2.8-3.1
25-34	333	2.9	2.5-3.2	373	3.0	2.8-3.2	706	2.9	2.7-3.2
35-44	288	2.9	2.7-3.0	320	2.9	2.8-3.0	608	2.9	2.8-3.0
45-54	239	2.9	2.5-3.2	209	2.6	2.5-2.8	448	2.7	2.6-2.9
55-64	176	3.0	2.1-3.9	144	2.8	2.5-3.0	320	2.9	2.3-3.5
15-64	1418	2.9	2.7-3.1	1479	2.9	2.8-3.1	2897	2.9	2.8-3.1

Table 30 Mean number of days vegetables consumed in a typical week by gender and age group

Age Group (years)	Mean number of days vegetables consumed in a typical week								
	Men			Women			Both Sexes		
	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI
15-24	385	4.6	4.0-5.3	436	4.8	4.4-5.2	821	4.7	4.4-5.0
25-34	336	4.6	3.9-5.3	375	4.8	4.2-5.4	711	4.7	4.4-5.5
35-44	287	4.8	4.5-5.1	323	4.9	4.6-5.2	610	4.9	4.6-5.2
45-54	241	5.0	4.7-5.3	211	4.9	4.2-5.5	452	5.0	4.7-5.2
55-64	177	5.1	4.6-5.6	144	4.9	4.4-5.4	321	5.0	4.6-5.4
15-64	1426	4.7	4.3-5.1	1489	4.8	4.6-5.1	2915	4.8	4.6-5.0

Table 31 Mean number of servings of fruits consumed on average per day

Age Group (years)	Mean number of servings of fruits consumed on average per day								
	Men			Women			Both Sexes		
	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI
15-24	382	0.7	0.6-0.8	433	0.8	0.7-0.9	815	0.8	0.7-0.8
25-34	333	0.7	0.5-0.9	373	0.7	0.5-0.9	706	0.7	0.5-0.9
35-44	288	0.7	0.6-0.8	320	0.7	0.7-0.7	608	0.7	0.7-0.7
45-54	239	0.7	0.5-0.9	209	0.6	0.6-0.7	448	0.7	0.5-0.8
55-64	176	0.7	0.3-1.0	144	0.7	0.6-0.7	320	0.7	0.4-0.9
15-64	1418	0.7	0.6-0.8	1479	0.7	0.6-0.8	2897	0.7	0.6-0.8

Table 32 Mean number of servings of vegetables consumed on average per day

Mean number of servings of vegetables consumed on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI	n	Mean no. of days	95% CI
15-24	385	0.7	0.6-0.9	436	0.8	0.7-0.9	821	0.8	0.7-0.8
25-34	336	0.8	0.6-0.9	375	0.8	0.7-0.9	711	0.8	0.7-0.9
35-44	287	0.7	0.7-0.8	323	0.8	0.7-0.9	610	0.8	0.7-0.9
45-54	241	0.8	0.7-0.9	211	0.8	0.7-0.8	452	0.8	0.7-0.9
55-64	177	0.8	0.7-0.9	144	0.7	0.6-0.8	321	0.7	0.7-0.8
15-64	1426	0.8	0.6-0.9	1489	0.8	0.7-0.8	2915	0.8	0.7-0.8

Table 33 Mean number of combined servings of fruit and/or vegetables consumed on average per day

Mean number of combined servings of fruit and/or vegetables consumed on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean no. of servings	95% CI	n	Mean no. of servings	95% CI	n	Mean no. of servings	95% CI
15-24	385	1.4	1.2-1.6	437	1.6	1.4-1.8	822	1.5	1.4-1.6
25-34	337	1.5	1.3-1.6	376	1.5	1.2-1.8	713	1.5	1.3-1.7
35-44	289	1.4	1.3-1.6	323	1.5	1.3-1.6	612	1.5	1.3-1.6
45-54	241	1.5	1.3-1.7	212	1.4	1.3-1.5	453	1.4	1.3-1.5
55-64	177	1.4	1.1-1.8	145	1.3	1.2-1.5	322	1.4	1.2-1.6
15-64	1429	1.5	1.4-1.5	1493	1.5	1.4-1.6	2922	1.5	1.4-1.6

Table 34 Percentage who consumed less than five combined servings of fruit and/or vegetables on average per day

Percentage who consumed less than five combined servings of fruit and/or vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI
15-24	385	99.2	98.4-100.0	437	98.1	95.0-100.0	822	98.7	96.9-100.0
25-34	337	98.6	98.1-99.0	376	98.1	95.2-100.0	713	98.3	96.6-100.0
35-44	289	99.7	99.1-100.0	323	99.1	97.7-100.0	612	99.4	98.6-100.0
45-54	241	98.7	95.6-100.0	212	99.7	99.0-100.0	453	99.1	97.6-100.0
55-64	177	99.9	99.8-100.0	145	100.0	100.0-100.0	322	100.0	99.9-100.0
15-64	1429	99.1	98.7-99.6	1493	98.6	97.0-100.0	2922	98.9	98.1-99.7

4.6 Physical Activity

4.6.1 Measurements

Survey participants were asked how often (frequency) and how long (duration) they engaged in three domains of physical activity: during recreation or leisure time, work and transport in a typical week. 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 Analyses

The three physical activity domains were first examined separately to determine the proportion of activity undertaken in each domain as a component of the total physical activity, and the mean/median minutes spent in each domain. Across all domains, three levels of activity were created: low active, moderately active, and highly active²⁵. To achieve this categorization, within each domain, the total time participants spent in an activity per week was computed by multiplying the number of days by the duration of the activity, and then added together across all domains. To account for the different levels of energy expenditure required to the activities (i.e. moderate or vigorous), the daily duration of activity was then converted into METminutes per day. The term MET (metabolic equivalent) is used as an indication of the intensity of physical activity. A MET is the ratio of the associated metabolic rate for a specific activity divided by the resting metabolic rate. So 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
- Vigorous physical activity (work and leisure domain) = 8.0 METS
- Travel related walking/cycling = 4.0 METS

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

- Low active: <600 METminutes per week
- Moderately active: 600-1500 METminutes per week
- Highly active: >1500 METminutes per week

4.6.3 Levels of Physical Activity

Table 35 indicates that 9.0% (± 3.7) of men reported a low level of total physical activity which combined their physical activity done as part of work, transport and leisure time. Moderate level of physical activity was reported by 14.9% (± 8.2) and high level of physical activity by 76.1% (± 9.3) of men. Physical activity was lowest in the 55-64 year age group.

Activity was similar in women, 10.9% (± 4.5) were classified as engaging in low levels of physical activity, 18.5% (± 6.9) as moderate, and 70.6% (± 7.4) as high (Table 36). As with men, physical activity was lowest in the 55-64 year age group.

Table 37 shows that overall, 9.9% (± 3.9) of the study population reported a low level of physical activity, 16.6% (± 7.8) of Papua New Guineans engaged in moderate level of physical activity, and 73.4% (± 8.6) participated in high level of physical activity.

Table 35 Categories of total 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
15-24	336	7.2	4.0-10.4	11.8	1.5-22.2	80.9	69.1-92.8
25-34	313	10.0	2.2-17.8	13.3	3.2-23.4	76.7	61.3-92.2
35-44	269	7.2	3.8-10.7	13.7	6.2-21.2	79.1	69.2-89.0
45-54	219	8.5	4.5-12.5	17.3	6.6-28.1	74.1	65.7-82.5
55-64	161	19.6	7.5-31.7	34.8	20.9-48.6	45.6	26.2-65.0
15-64	1298	9.0	5.3-12.7	14.9	6.7-23.1	76.1	66.8-85.4

Table 36 Categories of total 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
15-24	378	11.9	6.8-17.0	18.3	15.0-21.5	69.8	62.0-77.7
25-34	328	6.1	2.6-9.7	12.0	0.9-23.1	81.9	73.5-90.2
35-44	287	6.3	1.1-11.5	20.2	13.4-27.1	73.5	66.7-80.3
45-54	193	18.0	9.2-26.8	24.9	12.0-37.9	57.1	48.8-65.3
55-64	129	29.2	12.5-46.0	32.6	25.6-39.6	38.2	25.2-51.1
15-64	1315	10.9	6.4-15.4	18.5	11.6-25.4	70.6	63.3-78.0

Table 37 Categories of total 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
15-24	714	9.5	5.2-13.8	14.9	7.5-22.4	75.6	64.9-86.3
25-34	641	8.1	3.4-12.7	12.6	2.6-22.7	79.3	68.7-89.9
35-44	556	6.8	3.2-10.3	16.9	9.7-24.1	76.3	68.1-84.5
45-54	412	13.0	7.0-19.0	20.9	10.3-31.6	66.1	59.4-72.8
55-64	290	24.0	10.5-37.5	33.8	26.0-41.6	42.2	31.9-52.6
15-64	2613	9.9	6.1-13.8	16.6	8.9-24.4	73.4	64.9-82.0

Table 38 summarises mean minutes of total physical activity (across all three domains) in mean minutes per day by gender. Overall, the surveyed population reported an average of 183.5 (± 50.1) minutes per day spent in total physical activity. Men engaged in physical activity for a mean of 197.7 (± 68.7) minutes per day, and women for a mean of 168.6 (± 26.8) minutes per day.

Table 38 Mean minutes of total physical activity (mean MET minutes per day) on average 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
15-24	336	190.8	115.5-266.1	378	154.9	126.2-183.5	714	173.4	117.1-229.7
25-34	313	222.8	116.1-329.4	328	187.3	158.4-216.2	641	205.0	133.5-276.5
35-44	269	212.8	152.3-273.4	287	183.5	171.7-195.4	556	198.4	162.6-234.1
45-54	219	180.6	162.0-199.2	193	163.7	111.2-216.2	412	172.7	144.1-201.2
55-64	161	120.8	101.2-140.3	129	116.1	88.2-144.1	290	118.7	104.5-132.8
15-64	1298	197.7	129.1-266.4	1315	168.6	141.7-195.4	2613	183.5	133.5-233.6

Tables 39-41 present results on mean minutes per day engaged in work-, transport- and recreation-related physical activity. Table 39 shows that work-related physical activities comprised 115.2 (± 25.9) minutes/day for men and 102.1 (± 10.6) minutes/day for women. Table 40 indicates that transport-related physical activities averaged 67.0 (± 35.1) minutes/day for men and 56.8 (± 11.6) minutes/day for women. Table 41 shows that Papua New Guineans engaged in very low levels of leisure-related physical activity, averaging 15.5 (± 9.1) minutes/day for men and 9.6 (± 6.5) minutes/day for women. Thus, most physical activity in Papua New Guinea was undertaken as part of work, and to a lesser extent, as part of transport. Leisure-time physical activity contributed very little to the total time spent doing physical activity.

Table 39 Mean minutes of work-related physical activity (mean MET minutes per day) by gender and age group

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
15-24	336	98.9	68.4-129.4	378	86.5	74.6-98.4	714	92.9	70.9-114.9
25-34	313	133.4	83.7-183.1	328	121.7	95.6-147.7	641	127.5	88.6-166.5
35-44	269	138.6	114.6-162.6	287	116.1	98.1-134.2	556	127.5	118.4-136.6
45-54	219	111.0	92.0-130.0	193	91.9	79.2-104.6	412	102.0	92.7-111.2
55-64	161	66.1	35.6-96.6	129	68.5	54.6-82.4	290	67.2	47.7-86.7
15-64	1298	115.2	89.4-141.1	1315	102.1	91.5-112.7	2613	108.8	90.2-127.5

Table 40 Mean minutes of transport-related physical activity (mean MET minutes per day) by gender and age group

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
15-24	336	67.1	29.1-105.2	378	53.6	42.7-64.4	714	60.6	34.6-86.6
25-34	313	69.8	28.5-111.1	328	56.5	51.3-61.7	641	63.2	42.1-84.2
35-44	269	68.5	33.3-103.8	287	61.1	46.2-76.0	556	64.9	39.4-90.4
45-54	219	66.1	40.1-92.0	193	66.0	32.5-99.5	412	66.0	36.6-95.4
55-64	161	53.2	41.9-64.5	129	45.5	23.0-68.1	290	49.7	32.8-66.6
15-64	1298	67.0	31.9-102.1	1315	56.8	45.3-68.4	2613	62.1	37.9-86.3

Table 41 Mean minutes of recreation-related physical activity (mean MET minutes per day) by gender and age group

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
15-24	336	24.8	16.0-33.6	378	14.8	5.9-23.6	714	20.0	10.0-30.0
25-34	313	19.6	2.6-36.6	328	9.1	3.1-15.0	641	14.3	1.9-26.8
35-44	269	5.7	2.5-8.9	287	6.3	0.0-13.7	556	6.0	0.0-11.2
45-54	219	3.6	0.0-8.7	193	5.8	0.0-12.9	412	4.6	3.1-6.1
55-64	161	1.5	0.0-4.3	129	21.	0.0-5.5	290	1.8	1.5-2.1
15-64	1298	15.5	6.3-24.6	1315	9.6	3.2-16.1	2613	12.6	4.4-20.8

4.7 Oral Health

Oral health of respondents was assessed with nine questions about the number of natural teeth, dentures, state of teeth, cleaning of teeth, visits to the dentist and problems because of the state of teeth.

Overall, 67.2% years (± 6.1) of the surveyed population reported having all teeth (Table 42). The prevalence was very similar between men and women. For both sexes, it decreased dramatically with age 84.5% (± 4.7) in the youngest age group vs. 17.7% (± 3.3) in the oldest age group).

Table 42 Percentage of respondents with all teeth, some teeth and no teeth

Age Group (years)	Number of natural teeth remaining						
	n	Both Sexes		Both Sexes		Both Sexes	
		% with all teeth	95% CI	% with some teeth	95% CI	% with no teeth	95% CI
15-24	801	84.5	79.8-89.2	15.5	10.7-20.2	0.0	0.0-0.1
25-34	706	72.6	60.3-84.9	27.2	15.0-39.4	0.2	0.0-0.6
35-44	596	62.4	58.1-66.6	37.5	33.3-41.8	0.1	0.0-0.3
45-54	446	39.6	36.7-42.4	60.3	57.6-63.0	0.2	0.0-0.5
55-64	314	17.7	14.4-21.1	79.7	76.6-82.9	2.6	0.4-4.7
15-64	2863	67.2	61.1-73.4	32.5	26.6-38.4	0.3	0.0-0.5

Of all respondents, 18.7% (± 1.6) had removable dentures. The prevalence was again similar between men and women, but increasing with age 6.8% (± 2.6) in the youngest vs. 48.0% (± 11.3) in the oldest age group.

When asked about the health of their teeth, 3.7% (± 0.6) of the respondents described it as poor or very poor, with little variance between men and women, but large increases in prevalence with age (Figure 2).

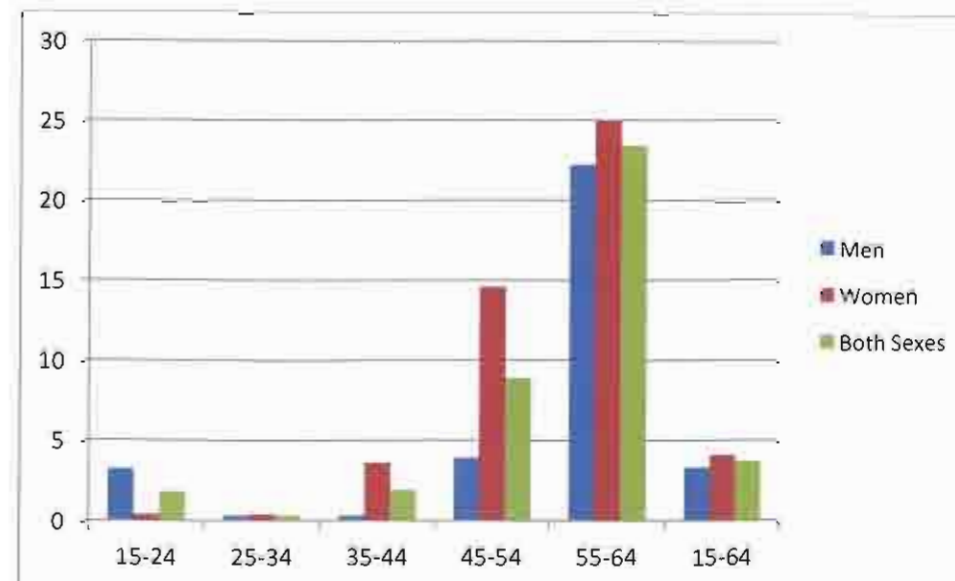


Figure 2 Percentage of respondents describing the health of their teeth as poor or very poor

The majority of respondents reported cleaning their teeth less than once a day (70.7% ± 3.6) (Figure 3). More than a quarter of people surveyed replied that they cleaned their teeth less than weekly (never: 4.1% (± 0.5), once a month: 6.2% (± 1.9) and 2-3 times/month: 15.8% (± 3.1)). Younger age groups tended to clean their teeth more often than older age groups, while there was no difference between men and women.

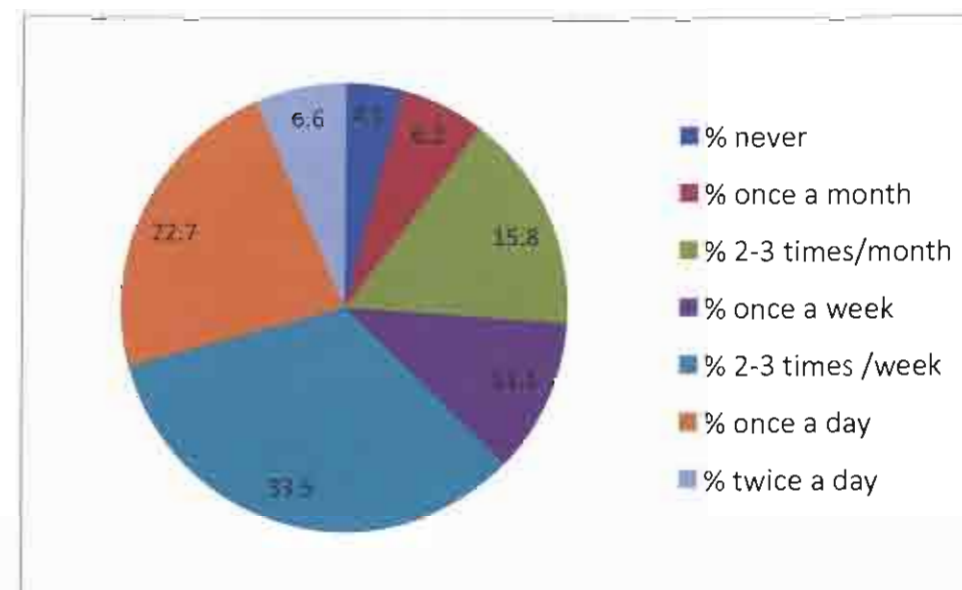


Figure 3 Frequency of cleaning teeth among all respondents

Regarding tools used to clean their teeth, only 40.8% (± 10.3) of the respondents used toothbrush and toothpaste, and 3.4% (± 1.5) used toothbrush alone as the main method (Figure 4). Almost half of the respondents used betel nut or other leaves (49.6% ± 9.2). The use of toothpaste and toothbrush was more prevalent among younger age groups as compared to older age groups, while the opposite was the case with using betel nut or other leaves.

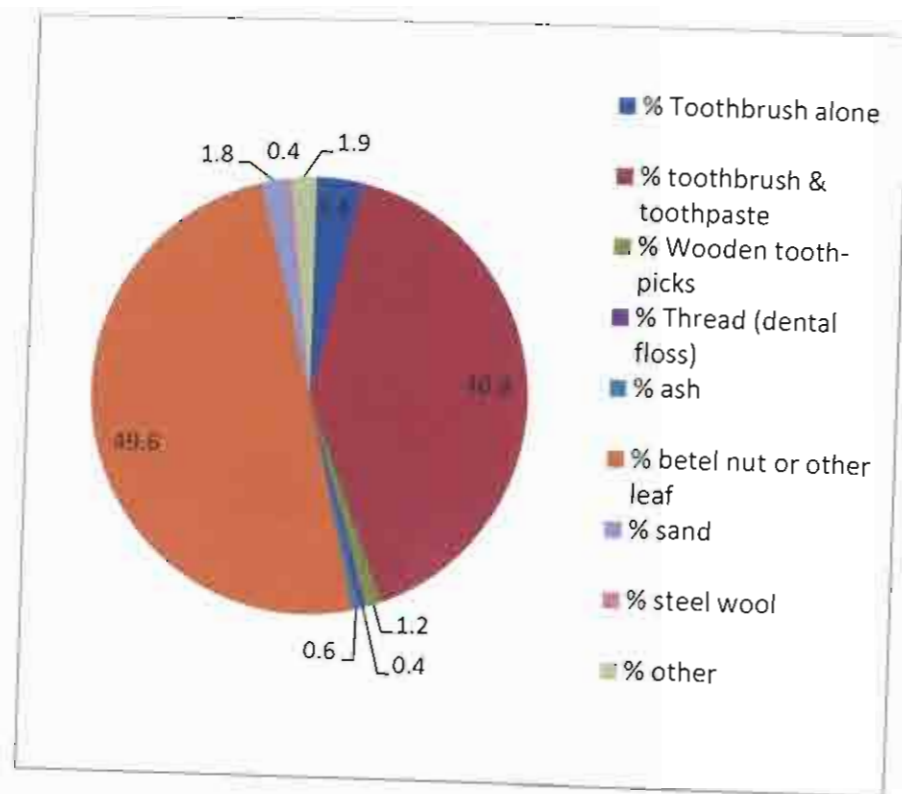


Figure 4 Percentage of respondents using various tools to clean their teeth

The vast majority (98.2% ± 0.5) of respondents have not seen a dentist for more than one year (Table 43). Prevalence was similar across all ages, men and women.

Table 43 Percentage of respondents who have not seen a dentist in the last year

Percentage of respondents who have not seen a dentist in the last year									
Age Group (years)	Men			Women			Both Sexes		
	n	% not seen a dentist in the last year	95% CI	n	% not seen a dentist in the last year	95% CI	n	% not seen a dentist in the last year	95% CI
15-24	379	98.1	96.2-100.0	418	98.1	96.5-99.6	797	98.1	97.5-98.7
25-34	331	99.3	98.5-100.0	366	96.2	92.0-100.0	697	97.7	96.0-99.4
35-44	280	97.9	94.5-100.0	311	98.1	95.9-100.0	591	98.0	95.5-100.0
45-54	234	98.9	97.3-100.0	208	99.9	99.8-100.0	442	99.3	98.5-100.0
55-64	175	99.2	98.2-100.0	132	99.4	98.1-100.0	307	99.3	98.6-100.0
15-64	1399	98.5	97.9-99.2	1435	97.8	97.3-98.4	2834	98.2	97.7-98.7

When asked about problems related to the state of their teeth, 2.1% (±0.6) of respondents said that they had difficulty in chewing foods, 0.3% (±0.2) had difficulty with speech/pronouncing words, 12.0% (±1.9) had persistent pain, and 1.2% (±0.3) were embarrassed because of the appearance of their teeth. Prevalence was significantly higher for difficulty with speech/pronouncing words and persistent pain among older age groups as compared to younger respondents.

4.8 Overweight and Obesity

Height and weight of each participant were measured following the standardised STEPS protocol outlined in the Methodology section of this report. The body mass index (BMI) of each participant was computed by dividing the weight (kilograms) by the square of the height (metres²). The BMI risk categories were defined as follows:

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

4.8.1 Height and Weight

Tables 44 and 45 indicate that Papua New Guinea men on average were significantly taller (161.7±1.1 cm) and heavier (62.5±2.0 kg) than women (154.3±0.8 cm, 56.8±1.8 kg). For men, mean weight peaked in the two decade bracket 25-44 years, and in women in the 25-34 year bracket. Men on average were significantly heavier than women across all age groups.

Table 44 Mean height (cm) by gender and age group

Age Group (years)	Mean height (cm)					
	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
15-24	380	161.0	159.1-162.8	422	154.3	152.6-155.2
25-34	334	163.1	161.8-164.4	370	155.0	153.4-156.7
35-44	283	163.1	161.9-164.2	313	154.8	153.7-156.0
45-54	236	160.5	159.4-161.6	208	153.5	152.3-154.8
55-64	175	158.4	157.6-159.3	138	152.0	150.5-153.4
15-64	1408	161.7	160.6-162.8	1451	154.3	153.5-155.0

Table 45 Mean weight (kg) by gender and age group

Age Group (years)	Mean weight (kg)					
	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
15-24	378	60.6	57.9-63.4	417	56.8	54.8-58.8
25-34	334	64.4	63.4-65.4	370	57.9	56.0-59.9
35-44	281	66.2	62.5-69.8	314	57.6	55.7-59.5
45-54	236	60.8	58.4-63.2	208	55.2	54.2-56.2
55-64	175	57.8	55.6-59.9	136	51.1	47.6-54.6
15-64	1404	62.5	60.5-64.5	1445	56.8	55.0-58.6

4.8.2 Body Mass Index

The distribution of mean BMI for men and women and combined are presented in Table 46. The overall mean BMI of the surveyed population was 23.9 kg/m² (±0.6). Men and women had a similar mean BMI (24.0 kg/m² vs 23.9 kg/m²). For men, the heaviest cohort was 35-44 years, and for women 25-34 years, and for both sexes the lightest age group was the 55-64 year age group.

Table 46 Mean body mass index (kg/m²) by gender and age group

Age Group (years)	Mean BMI (KG/m ²)								
	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	372	23.5	22.8-24.2	416	24.0	23.3-24.7	788	23.7	23.1-24.4
25-34	333	24.4	23.6-25.1	366	24.2	23.6-24.8	699	24.3	23.8-24.8
35-44	280	24.9	23.7-26.1	311	24.1	23.4-24.8	591	24.5	23.7-25.2
45-54	234	23.6	23.0-24.3	205	23.3	22.6-24.0	439	23.5	23.0-24.0
55-64	175	22.9	22.2-23.7	135	22.1	21.0-23.2	309	22.6	21.8-23.3
15-64	1393	24.0	23.3-24.6	1433	23.9	23.3-24.5	2826	23.9	23.3-24.5

Tables 45-47 summarise the proportion of the surveyed population in each BMI category for men and women and both sexes. Overall, the proportion of the surveyed population classified as being in the normal weight category (18.5 ≤ BMI ≤ 24.9) was 64.3% (±5.9): 67.5% (±6.6) of men and 61.0% (±5.9) of women. The proportion of the population classified as being overweight (≥25.0) was 32.1% (±6.9) (Table 46).

For obesity, the overall rate for the population was 6.8% (±2.0): 5.1% (±2.9) in men and 8.7% (±2.2) in women. The highest rates in both sexes were in the 35-44 year group 7.5% (±4.5) in men and 12.4% (±3.1) in women.

Table 47 Body mass index 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 (partial) 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
15-24	372	3.8	0.3-7.2	70.5	63.5-77.5	22.0	11.5-32.6	3.7	0.1-7.2
25-34	333	1.0	0.0-2.1	63.1	53.0-73.2	30.6	24.0-37.2	5.3	1.6-9.0
35-44	280	0.4	0.0-1.4	63.2	45.7-80.7	28.9	14.2-43.6	7.5	2.9-12.0
45-54	234	1.7	0.0-5.1	73.2	63.5-82.9	19.4	12.9-25.8	5.7	3.3-8.1
55-64	174	4.8	2.5-7.0	70.5	61.4-79.6	21.2	13.3-29.2	3.5	0.9-6.2
15-64	1393	2.2	0.6-3.9	67.5	60.9-74.0	25.3	20.0-30.6	5.1	2.2-7.9

Table 48 Body mass index 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 (partial) 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
15-24	416	3.9	1.4-6.5	59.0	48.2-69.7	32.1	23.0-41.2	5.0	2.3-7.8
25-34	366	3.9	0.4-7.3	61.9	50.2-73.5	23.7	15.8-31.6	10.6	8.0-13.2
35-44	311	3.7	0.0-9.0	60.7	51.8-69.7	23.2	16.5-30.0	12.4	9.2-15.5
45-54	205	8.2	4.5-11.9	63.2	57.8-68.6	18.4	15.3-21.6	10.2	6.0-14.4
55-64	135	16.2	8.6-23.9	65.2	61.4-68.9	13.9	8.7-19.0	4.8	1.2-8.3
15-64	1433	5.1	3.3-6.8	61.0	55.1-66.9	25.3	19.8-30.7	8.7	26.5-10.9

Table 49 Body mass index 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 (partial) 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
15-24	788	3.8	0.9-6.8	65.0	58.9-71.1	26.8	20.7-33.0	4.3	1.3-7.3
25-34	699	2.5	1.0-3.9	62.5	55.2-69.7	27.1	21.6-32.5	8.0	5.0-10.9
35-44	591	2.0	0.0-4.9	62.0	50.2-73.7	26.1	16.6-35.6	9.9	7.0-12.8
45-54	439	4.7	1.2-8.3	68.5	60.7-76.4	18.9	14.9-22.9	7.8	4.6-11.0
55-64	309	9.7	6.3-13.2	68.2	62.6-73.7	18.0	11.3-24.7	4.1	1.6-6.6
15-64	2826	3.6	2.0-5.2	64.3	58.5-70.2	25.3	20.3-30.2	6.8	4.8-8.8

For men, the age bracket with the highest percentage of overweight was 35-44 years (36.4% ±17.5) (Table 50). The 55-64 year age group had the lowest percentage of overweight in both sexes.

Table 50 Percentage of overweight (BMI ≥25) by gender and age group

Age Group (years)	Percentage of respondents who are overweight (BMI ≥25.0)								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	372	25.7	16.8-34.6	416	37.1	25.5-48.6	788	31.1	23.2-39.1
25-34	333	35.9	25.9-45.9	366	34.3	24.5-44.0	699	35.1	27.7-42.4
35-44	280	36.4	18.9-53.9	311	35.6	28.9-42.4	591	36.0	25.6-46.4
45-54	234	25.1	17.2-32.9	205	28.6	24.9-32.4	439	26.7	21.5-32.0
55-64	175	24.7	16.1-33.4	135	18.6	11.1-26.2	309	22.1	13.9-30.2
15-64	1393	30.3	23.0-37.6	1433	33.9	26.9-41.0	2826	32.1	25.2-39.0

4.8.3 Waist Circumference

Considered as a risk factor for cardiovascular diseases, waist circumference was assessed as a measure of central obesity. Table 51 reports the mean waist circumference for both women and men. Mean waist circumference was similar in women (81.9 cm ±2.0) and men (81.3 cm ±0.7). Mean waist circumference peaked at 35-44 years in men and 45-54 years in women.

Table 51 Mean waist circumference (cm) by gender and age group

Age Group (years)	Waist circumference (cm)					
	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
15-24	378	78.8	76.5-81.2	413	81.5	79.5-83.5
25-34	335	81.7	81.0-82.5	364	81.2	79.0-83.4
35-44	281	83.8	80.8-86.8	314	83.0	80.5-85.6
45-54	234	83.2	81.0-85.5	207	83.2	81.9-84.5
55-64	174	82.2	79.6-84.7	136	80.5	75.9-85.2
15-64	1402	81.3	80.6-82.0	1434	81.9	79.9-83.8

4.9 Body Fat

Body fat was measured by bioelectric impedance. Table 52 shows that mean body fat in men was 16.9% (± 0.4), significantly lower than that in women 22.9% (± 0.7). Percent body fat was higher in women than men across all age groups, and rose with age in both sexes.

Table 52 Mean percent body fat among all respondents

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	367	14.8	14.1-15.5	419	22.0	20.1-23.6	786	18.2	16.7-19.8
25-34	330	16.4	15.0-17.8	368	21.9	21.2-22.6	698	19.2	18.1-20.3
35-44	279	18.4	17.6-19.2	312	23.7	22.6-24.9	591	21.0	20.3-21.8
45-54	236	19.0	17.3-20.8	208	25.0	23.2-26.8	444	21.8	19.6-24.1
55-64	169	20.9	20.1-21.6	132	25.7	24.2-27.3	301	23.0	21.9-24.1
15-64	1381	16.9	16.5-17.2	1439	22.9	22.2-23.6	2820	19.8	19.1-20.5

4.10 Blood Pressure and Hypertension

As part of the STEPS protocol, all survey participants had their blood pressure measured. Participants were also asked if they 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.

For this report, the prevalence of hypertension was computed to include those with:

- a mean systolic pressure ≥ 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 ≥ 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 ever 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.

Tables 53 and 54 show that men had a significantly higher systolic blood pressure on average than women (120.6 ± 1.0 vs 116.7 ± 2.5 mmHg), and a slightly lower diastolic blood pressure (68.8 vs 70.4 mmHg), with no significant difference. Mean resting systolic blood pressure showed little variation between age brackets in men, however in women systolic pressure was lowest in women aged 25-34 years and highest in the 55-64 year group. Mean resting diastolic blood pressure peaked in the 45-54 year age bracket for men and women.

Only 0.4% of men and no women at all reported being currently on blood pressure medications.

Table 53 Mean resting systolic blood pressure (mmHg) by gender and age group

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	382	120.9	119.4-122.3	423	116.6	113.8-119.3	805	118.8	117.1-120.6
25-34	335	120.3	117.8-122.8	370	114.7	111.3-118.1	705	117.4	115.1-119.8
35-44	283	119.5	117.9-121.0	315	116.1	113.3-118.9	598	117.8	115.6-119.9
45-54	236	121.3	117.5-125.1	208	120.5	118.3-122.6	444	120.9	118.5-123.3
55-64	175	121.9	117.8-126.1	138	122.4	120.2-124.6	313	122.1	120.1-124.2
15-64	1411	120.6	119.5-121.6	1454	116.7	114.1-119.2	2865	118.7	117.1-120.3

Table 54 Mean resting diastolic blood pressure (mmHg) by gender and age group

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	382	66.0	64.7-67.2	423	70.1	68.3-71.9	805	67.9	66.1-69.8
25-34	335	68.8	67.5-70.1	370	69.9	68.4-71.3	705	69.3	68.0-70.7
35-44	283	71.6	70.1-73.2	315	71.0	69.3-72.6	598	71.3	69.8-72.8
45-54	236	72.4	69.2-75.7	208	71.5	69.8-73.2	444	72.0	70.1-73.9
55-64	175	69.8	68.4-71.2	138	70.0	68.1-72.0	313	69.9	69.1-70.7
15-64	1411	68.8	67.3-70.4	1454	70.4	69.1-71.6	2865	69.6	68.2-70.9

Table 55 summarises the prevalence of hypertension among the 15-64 year olds, according to measured blood pressure and those currently on medication for raised blood pressure. Overall, hypertension was more common among men than women, 10.2% (± 1.8) and 7.2% (± 3.2), respectively, while with no significant difference. The prevalence of hypertension showed considerable variation across age groups, being lowest in men 35-44 years and highest in men 55-64 years, and lowest in women 25-34 years and highest in those 45-54 years.

Table 55 Percentage with hypertension (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised blood pressure)

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	382	10.1	7.4-12.8	423	5.7	1.5-10.0	805	8.0	5.7-10.4
25-34	335	9.6	4.7-14.5	370	4.0	0.8-7.2	705	6.8	4.2-9.3
35-44	283	6.1	2.3-10.0	315	8.4	3.1-13.6	598	7.2	3.1-11.4
45-54	236	12.7	10.2-15.2	208	14.2	9.8-18.5	444	13.4	10.3-16.5
55-64	175	19.8	10.7-28.8	138	14.0	9.8-18.2	313	17.2	12.0-22.4
15-64	1411	10.2	8.4-12.0	1454	7.2	4.0-10.4	2865	8.8	5.6-10.9

4.11 Heart Rate

In men, mean heart rate was 73.0 (± 0.8) beats per minute with little variation across age groups. In women, mean was 78.9 (± 1.4) beats per minute, with a decrease from younger to older age groups (Table 56). More women (5.8% \pm 3.3) than men (1.9% \pm 1.0) had a heart rate of over 100, with no significant difference (Table 57).

Table 56 Mean heart rate - beats per minute

Age Group (years)	Mean beats per minute								
	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	382	72.2	68.6-75.9	422	80.8	79.1-82.6	804	76.3	73.4-79.3
25-34	334	72.8	71.1-74.5	370	79.4	77.6-81.2	704	76.1	74.7-77.6
35-44	283	73.7	72.0-75.4	314	78.4	76.7-80.1	597	76.0	74.7-77.3
45-54	234	74.4	72.5-76.3	209	76.0	72.6-79.5	443	75.2	72.8-77.6
55-64	174	73.7	72.4-75.0	138	72.6	70.1-75.1	312	73.2	71.6-74.9
15-64	1407	73.0	72.2-73.8	1453	78.9	77.5-80.2	2860	75.9	74.9-76.8

Table 57 Percentage with beats per minute over 100

Age Group (years)	Percentage with beats per minute over 100								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	382	2.7	1.0-4.3	422	7.0	1.8-12.2	804	4.7	1.0-8.4
25-34	334	1.3	0.0-2.8	370	6.6	3.0-10.3	704	4.0	2.0-6.0
35-44	283	0.9	0.0-2.7	314	3.6	0.3-6.9	597	2.3	0.3-4.2
45-54	234	2.6	0.0-5.5	209	5.7	2.8-8.6	443	4.0	2.5-5.6
55-64	174	1.9	0.0-4.6	138	2.6	0.0-7.4	312	2.2	0.0-5.7
15-64	1407	1.9	0.9-2.9	1453	5.8	2.5-9.1	2860	3.8	1.6-6.0

4.12 Fasting Blood Glucose and Diabetes

All participants were asked if they had been told by a health worker that they had diabetes in the previous 12 months, within 1-5 years or longer, and whether they were currently receiving medical treatment for diabetes. Capillary whole blood drawn using the finger prick method was collected from participants to assess their fasting blood sugar level. Every second subject also had a 2-hour oral glucose tolerance test (see methods) – 1,434 subjects out of the 2,944 enrolled.

Estimates of raised blood glucose were computed based on the capillary whole blood and following the WHO guidelines for defining and classifying diabetes mellitus²⁶:

- fasting capillary whole blood value of glucose greater than or equal to ≥ 6.1 mmol/L (≥ 100 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 < 6.1 mmol/L (< 100 mg/dl) AND who were currently receiving anti-diabetes medication prescribed by a health worker.
- 2-hour capillary blood glucose level ≥ 11.1 mmol/L (≥ 200 mg/dl)

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

Only 0.2% of men and no women stated they were on medication for diabetes.

Table 58 summarises results on mean fasting blood glucose for men and women and both genders. The overall mean fasting blood glucose was 5.3 (± 0.3) mmol/L in men and a very similar value in women 5.3 (± 0.2) mmol/L. Mean fasting glucose rose from 5.2 to 5.5 mmol/L from 15-24 years to 55-64 years in men. In women, there was no particular pattern with age.

Table 59 shows mean 2-hour glucose following the glucose tolerance test. The overall mean 2-hour glucose was 7.2 (± 0.3) mmol/L in men and a very similar value in women 7.1 (± 0.2) mmol/L. Mean 2-hour glucose rose from 7.0 to 8.3 mmol/L from 15-24 years to 55-64 years in men. In women, 2-hour glucose was highest in the 45-54 year age group (7.8 \pm 0.9 mmol/L).

Impaired fasting glucose (defined as a blood glucose level 5.6-6.1 mmol/L) was very common – 20.7% (± 4.6) of men and 20.2% (± 6.4) of women. Prevalence was at least 19% in all age brackets – see Table 60.

Table 61 shows the number who had raised fasting or OGTT measurements after at least one measurement: 15.6% (± 4.3) of men and 15.4% (± 2.0) of women.

Table 58 Mean fasting blood glucose (mmol/L) by gender and age group

Age Group (years)	Mean fasting blood glucose (mmol/L)								
	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	372	5.2	5.1-5.3	414	5.4	5.1-5.6	786	5.3	5.1-5.4
25-34	325	5.4	5.0-5.9	359	5.3	5.1-5.4	686	5.3	5.1-5.6
35-44	272	5.4	5.2-5.6	307	5.2	5.0-5.3	579	5.3	5.1-5.4
45-54	231	5.4	5.0-5.7	203	5.3	4.9-5.7	434	5.3	5.0-5.7
55-64	168	5.5	5.1-5.9	135	5.3	5.1-5.4	304	5.4	5.2-5.6
15-64	1368	5.3	5.1-5.6	1418	5.3	5.1-5.5	2789	5.3	5.1-5.5

Table 59 Mean glucose following oral glucose tolerance test (mmol/L)

Age Group (years)	Mean glucose following oral glucose tolerance test (mmol/L)								
	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	186	7.0	6.7-7.3	209	7.1	6.9-7.3	395	7.0	6.8-7.2
25-34	167	7.2	6.9-7.4	194	6.7	6.2-7.3	361	6.9	6.6-7.3
35-44	143	7.1	6.6-7.5	162	7.2	6.8-7.5	305	7.1	6.9-7.3
45-54	128	8.0	7.1-8.8	121	7.8	6.8-8.7	249	7.9	7.6-8.1
55-64	80	8.3	7.3-9.3	66	7.4	7.0-7.9	146	7.9	7.3-8.5
15-64	704	7.2	7.0-7.5	752	7.1	6.9-7.3	1456	7.2	7.0-7.3

Table 60 Impaired Fasting Glycaemia

Age Group (years)	Impaired fasting glycaemia*								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	372	19.5	13.8-25.1	414	19.7	13.0-26.4	786	19.6	15.1-24.0
25-34	327	20.1	10.2-30.0	359	23.9	11.4-36.4	686	22.0	15.3-28.7
35-44	272	25.7	19.3-32.0	307	18.6	12.0-25.2	579	22.1	16.2-28.1
45-54	232	17.2	8.3-26.0	203	15.1	6.6-23.5	435	16.2	7.9-24.5
55-64	169	22.5	17.9-27.1	135	19.6	15.0-24.1	304	21.2	17.5-24.9
15-64	1372	20.7	16.2-25.3	1418	20.2	13.8-26.5	2790	20.5	16.1-24.8

*Impaired fasting glycaemia is defined as:

- OGTT value <7.8mmol/L AND fasting glucose \geq 5.6 & <6.1 mmol/L

Table 61 Raised fasting or OGTT blood glucose for those with at least one measurement

Age Group (years)	Raised fasting or OGTT measure** for those participants who have AT LEAST ONE measure								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	375	14.2	11.5-16.8	419	18.8	12.1-25.5	794	16.4	13.1-19.6
25-34	328	16.3	7.9-24.7	361	11.7	9.5-14.0	689	14.0	10.0-18.0
35-44	275	14.6	7.6-21.5	313	12.7	7.7-17.8	588	13.7	11.5-15.8
45-54	233	19.6	12.1-27.0	205	20.7	15.8-25.6	438	20.1	14.3-25.9
55-64	169	15.5	7.0-24.1	136	12.1	6.3-17.8	305	14.0	10.3-17.7
15-64	1380	15.6	11.3-19.9	1434	15.4	13.4-17.3	2814	15.5	12.5-18.4

**Raised glucose is defined as either

- Fasting blood glucose \geq 6.1mmol/L
- OGTT value \geq 11.1 mmol/L

When all subjects were considered – some with fasting glucose only and some with both fasting and 2-hour OGTT glucose measurements, 14.7% (\pm 4.3) of men and 14.0% (\pm 2.9) of women had raised blood glucose or were currently on medication for diabetes: 14.4% (\pm 3.5) for both sexes combined (Table 62).

Table 62 Raised blood glucose or currently on medication for diabetes

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
15-24	372	13.1	10.3-15.9	414	17.7	10.4-25.1	786	15.3	10.7-19.9
25-34	327	16.3	7.9-24.7	359	11.1	9.5-12.7	686	13.6	9.9-17.3
35-44	272	13.6	8.2-19.0	307	11.5	7.1-16.0	579	12.6	10.1-15.0
45-54	232	17.2	10.1-24.3	203	16.1	8.4-23.7	435	16.6	9.9-23.4
55-64	169	15.4	6.8-24.0	135	11.5	6.1-17.0	304	13.7	10.2-17.2
15-64	1372	14.7	10.4-19.0	1418	14.0	11.1-16.9	2790	14.4	10.9-17.8

**Raised glucose is defined as either

- Fasting blood glucose \geq 6.1mmol/L
- OGTT value \geq 11.1 mmol/L

Tables 63-65 show the results for those who had both measurements – fasting blood glucose and OGTT.

For those with both measures, 15.4% (\pm 1.6) of men and 15.3% (\pm 2.2) of women had raised blood glucose or were currently on medication for diabetes: 15.3% (\pm 1.7) for both sexes combined (Table 63). Prevalence was highest in the 45-54 year age bracket in both sexes. A further 22.3% (\pm 1.6) of men and 18.5% (\pm 3.2) of women had Impaired Glucose Tolerance (20.4% \pm 2.1 overall) – Table 64. IGT was commonest in the 55-64 year age group in both sexes – 40.3% (\pm 31.3) in males and 33.3% (\pm 16.5) in females. Finally, 10.1% (\pm 5.9) of men and 10.8% (\pm 4.8) of women had Impaired Fasting Glycaemia (10.4% (\pm 4.2) overall) - Table 65.

Table 63 Raised fasting or OGTT blood glucose for those with both measurements

Age Group (years)	Raised fasting or OGTT measure** for those participants who have BOTH measures								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	183	14.9	4.4-25.4	205	18.7	7.9-29.5	388	16.8	13.7-19.8
25-34	167	14.7	7.9-21.5	192	10.6	4.0-17.2	359	12.6	11.4-13.7
35-44	140	12.3	6.4-18.2	156	16.4	6.9-25.9	296	14.2	12.4-16.1
45-54	127	20.5	13.9-27.2	119	17.8	7.7-28.0	246	19.3	12.8-25.7
55-64	80	19.7	13.1-26.3	65	7.9	0.6-15.2	145	14.0	7.3-20.7
15-64	697	15.4	13.8-17.0	737	15.3	13.1-17.5	1434	15.3	13.7-17.0

**Raised glucose is defined as either

- Fasting blood glucose \geq 6.1mmol/L
- OGTT value \geq 11.1 mmol/L

Table 64 Impaired Glucose Tolerance for those with both measures

Age Group (years)	Impaired Glucose Tolerance*** for those participants who have BOTH measures								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	183	21.8	16.4-27.2	205	20.4	9.2-31.7	388	21.1	17.0-25.2
25-34	167	18.6	11.7-25.6	192	12.1	2.8-21.4	359	15.3	8.2-22.3
35-44	140	19.3	9.3-29.4	156	21.7	15.1-28.3	296	20.5	16.6-24.3
45-54	127	27.3	20.9-33.7	119	15.8	6.4-25.2	246	21.9	19.2-24.7
55-64	80	40.3	8.9-71.6	65	33.3	16.8-49.8	145	36.9	24.7-49.1
15-64	697	22.3	20.8-23.9	737	18.5	15.2-21.7	1434	20.4	18.3-22.5

***Impaired glucose tolerance is defined as:

- Fasting glucose <6.1 mmol/L AND OGTT \geq 7.8 & <11.1 mmol/L

Table 65 Impaired Fasting Glycaemia for participants with both measures

Age Group (years)	Impaired fasting glycaemia* for those participants who have BOTH measures								
	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	183	7.3	0.0-17.5	205	13.3	8.7-17.9	388	10.3	3.7-16.8
25-34	167	13.0	1.4-24.7	192	9.9	1.1-18.7	359	11.4	6.4-16.4
35-44	140	14.6	10.6-18.6	156	10.8	5.8-15.7	296	12.8	10.5-15.1
45-54	127	8.3	0.0-17.5	119	4.9	0.0-11.8	246	6.7	1.4-12.0
55-64	80	3.4	0.0-8.7	65	12.2	0.0-25.3	145	7.7	0.0-16.9
15-64	697	10.1	4.2-16.0	737	10.8	6.0-15.6	1434	10.4	6.2-14.6

*Impaired fasting glycaemia is defined as:

- OGTT value <7.8mmol/L AND fasting glucose \geq 5.6 & <6.1 mmol/L

4.13 Combined Risk Factors

Following the WHO global initiative, the Papua New Guinea STEPS survey summed the five critical risk factors for NCDs:

- current daily smokers,
- overweight (BMI ≥ 25 kg/m²),
- 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: 1-2 of 5 risk factors
- High risk: 3 or more of 5 risk factors

Tables 66-68 shows that only 3 (0.3%) male respondents and 4 (0.4%) female respondents aged 25-64 years were classified as being at low risk for NCDs. Approximately 71.5% (± 7.3) of men were at moderate risk (i.e. with 1-2 risk factors), significantly lower than 84.3% (± 3.5) of women. Having 3-5 risk factors was more common among men (28.1% ± 7.6) than women (15.3% ± 3.9). Overall, 21.9% (± 4.2) of Papua New Guineans aged 25-64 years had at least 3-5 risk factors (high risk).

For men, more of those in the age group 25-44 years had high risk compared to those 45-64 years (29.6% vs. 24.6% respectively). For women, the reverse was true – 14.3% of the 25-44 year olds and 18.2% of the 45-64 year olds were at high risk.

Table 66 Percentage of NCD risk categories among men by age group

Summary of combined risk factors							
Age Group (years)	Men						
	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	554	0.1	0.0-0.4	70.3	60.4-80.3	29.6	19.7-39.5
45-64	361	0.9	0.0-3.1	74.4	69.6-79.3	24.6	20.5-28.8
25-64	915	0.3	0.0-0.9	71.5	64.2-78.8	28.1	20.5-35.7

Table 67 Percentage of NCD risk categories among women by age group

Summary of combined risk factors							
Age Group (years)	Women						
	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	587	0.5	0.0-1.5	85.2	80.5-89.9	14.3	9.0-19.7
45-64	300	0.0	0.0-0.0	81.8	78.5-85.0	18.2	15.0-21.5
25-64	887	0.4	0.0-1.1	84.3	80.8-87.8	15.3	11.5-19.2

Table 68 Percentage of NCD risk categories among both sexes by age group

Summary of combined risk factors							
Age Group (years)	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	1141	0.3	0.0-0.9	77.7	72.8-82.7	22.0	17.1-26.9
45-64	661	0.5	0.0-1.6	77.8	74.9-80.7	21.7	18.6-24.8
25-64	1802	0.4	0.2-0.5	77.7	73.5-82.0	21.9	17.7-26.1

5. DISCUSSION AND CONCLUSIONS

This section summarises key findings from the PNG NCD STEPS survey and on that basis presents a range of recommended public actions to address the chronic disease problems facing Papua New Guinea.

Behavioral risk factors for chronic diseases are common in PNG in both men and women at all ages, and are therefore a major public health problem. The survey shows that 60.3% of men and 27.0% of women defined themselves as current smokers, with nearly all of these reporting that they smoke on a daily basis. Smoking uptake occurred during late adolescence. Initiatives to delay and prevent the onset of smoking in this group are therefore critical and warrant concerted public health efforts. Given the high prevalence of smoking rates in Papua New Guinea, implementing effective smoking cessation programs should also be considered as a fundamental component of a comprehensive anti-tobacco campaign. Supporting smokers to discontinue their at-risk behaviour will significantly lower their risk of chronic diseases. A positive aspect of the results is that the mean number of cigarettes smoked each day was quite low – around 3 per day for both sexes. Lower daily smoking amounts may facilitate the effectiveness of anti-smoking initiatives.

Betel nut use was very common in both sexes – over 70% were daily users, mean consumption was very similar for both sexes with an overall mean of 5.5 nuts per day. Mustard and lime were always used together with the nut by 78.3%.

The survey showed that most males and females abstain from alcohol. However, binge drinking is a major concern in PNG among those who drink. Of current male drinkers (12.8% of all men), 77.6% drank 5 or more standard drinks on one or more days. However, only 2.9% of male current drinkers drank on 4+ days in the last week. Far fewer women drank than men, but binge drinking was also the norm in those who did. Both sexes usually acquired alcohol from friends and relatives rather than buying it themselves. Rates of drinking were substantially higher in the capital than in the provinces.

The survey demonstrated the vast majority of Papua New Guineans (98.9%) were not consuming the recommended five combined servings of fruit and vegetables per day. It is possible that there was some under-reporting due to some interviewers not being sufficiently detailed in questioning, however this very low rate is consistent with findings in the 2005-2006 Solomon Islands STEPS survey (93.6%)²⁷, and 2004-2006 Kiribati STEPS survey (99.3%)²⁸. Further work is needed in this area, as locally grown fruits and vegetables are generally widely available in PNG and therefore higher rates of consumption should be readily achievable.

Levels of health-enhancing physical activity are relatively high in PNG – 76.1% of males and 70.6% of females had high levels of physical activity. In both sexes, the majority of this activity was work-related. Recreation-related physical activity contributed very little to total physical activity. Only about

10% of subjects had low levels of overall physical activity. However physical activity was lower in the capital than in the provinces.

As with other PICs, excessive body weight favouring chronic conditions is an important public health issue in PNG. 32.1% of the population were overweight, and 5.1% of men and 8.7% of women were obese. These figures are substantial, although are less than the rates in Fiji and particularly in Kiribati. Rates of overweight and obesity in the capital were around double the rates in the provinces.

The survey identified a substantial number of the population with hypertension – 10.2% of men and 7.2% of women. Of great concern was the fact that almost all of these were unaware they had hypertension. Prevalence tended to increase with age.

Elevation of blood glucose is a major problem. 14.7% of men and 14.0% of women had raised fasting blood glucose. For those who had a glucose tolerance test, 22.3% of men and 18.5% of women had impaired glucose tolerance. Once again, almost none of those with diabetes were aware of this.

In terms of combined risk factors for NCDs, this survey found that 99.6% of the population aged 25-64 years had high or moderate risk for NCDs, it was too big to ignore. On the other hand, 21.9% of the population in PNG had high risk for NCDs, which was the lowest compared with other PICs. The percentage of high risk among 25-64 year adults was 79.3% (in Nauru), 76.6% (in Cook Islands), 74.6% (in Kiribati), 71.8% (in American Samoa), 68.6% (in Tokelau), 62.4% (in Federated States of Micronesia (Chuuk)), 60.7% (in Kingdom of Tonga), 56.7% (in Federated States of Micronesia (Pohnpei)) and 46.0% (in Solomon Islands)²⁷⁻³⁵.

Limitations include a) the assumption that the regional locations chosen accurately represent the respective regions, b) participation rates of 80.2%, and c) that behavioural risk factors data were collected from self-report and as such the prevalence of some risk factors can be over-estimated or under-estimated. However the sample size is large and the methodology used by the trained staff was objective and standardized.

The Papua New Guinea STEPS survey has confirmed that NCDs pose a major public health challenge to the nation. A diverse but complementary multi-level and multi-professional approach, combining primary, secondary and tertiary preventative strategies, will be necessary to tackle the prevalent chronic diseases and associated conditions facing the PNG people. To be effective, public health and clinical approaches need to be innovative and sensitive to the prevailing social, economic and cultural environments of Papua New Guinea.

6. RECOMMENDATIONS

Addressing policy, organizational and environmental factors

- Recognize NCDs as a national priority and that urgent actions are needed, given the fact that 99.6% of PNG population were at high risk or moderate risk of NCDs.
- Increase resources to implement the WHO Framework Convention on Tobacco Control.
- Develop betel nut control policies.
- Develop strategies supporting local production and consumption of fruit and vegetables.
- Review policies supporting importation of and locally grown healthy foods.
- Increase the capacity of the health care system for early detection and management of individuals with chronic diseases.
- Establish sustainable government funding mechanisms and health infrastructure to support NCD strategy implementation and monitoring.
- Develop a coalitions, networks and partnerships work program with a common agenda and action plans for preventing and managing NCDs.

Addressing NCD behavioural risk factors

- Conduct comprehensive anti-smoking campaigns to reduce smoking rates across all age groups and in both genders, particularly targeting the younger age groups to prevent smoking uptake, and also establish smoking cessation programs.
- Conduct comprehensive health promotion campaigns to reduce alcohol (and at-risk betel nut) consumption, particularly targeting binge drinking.
- Organize health promotion campaigns promoting the recommended levels of fruit and vegetable consumption across all age groups and in both genders, and increasing public awareness of the adverse effects of excessive consumption of high-fat, high-salt, and high-sugar foods.
- Develop and implement culturally-appropriate programs to promote physical activity in urban areas.
- Implement comprehensive strategies to reduce the prevalence of the five critical NCD risk factors (current daily smoking, being overweight or obese, having raised blood pressure, eating less than five combined servings of fruit and vegetables per day, and having a low level of physical activity).

Establishing a co-ordinated approach to NCD management

- Increase public awareness of the importance of regular monitoring and screening of blood pressure, blood cholesterol and blood sugar level.
- Establish and/or strengthen existing co-ordinated care and management of individuals with diagnosed chronic diseases, including providing a system of integrated care across multiple providers (primary health care and clinical care) and multiple chronic conditions that will reduce length of hospitalization and improve quality of life.
- Establish a co-ordinated NCD program supporting chronic disease care, including supporting patient self-management, self-monitoring of conditions, medications and lifestyle changes.
- Encourage screening for hypertension and diabetes for high-risk individuals, and also opportunistic screening.

Maintaining quality surveillance and public health information

- Establish strong leadership and secure political and financial commitments to maintain a systematic approach to STEPS data collection – supported by workforce trained in implementing the survey, infrastructure and financial capacity - on an ongoing basis that will evolve to a STEPS surveillance system in Papua New Guinea.

APPENDICES

Appendix 1. Papua New Guinea NCD STEPS Survey Questionnaire

STEPS Instrument for Papua New Guinea Non-Communicable Diseases Risk Factor Survey Version 2.0



WHO STEPwise approach to Surveillance of
noncommunicable diseases (STEPS)

WHO STEPS Instrument for Chronic Disease Risk Factor Surveillance

<Papua New Guinea>

Survey Information

Location and Date		Response	Code
1	District code	<input type="text"/>	I1
2	Centre/Village name	<input type="text"/>	I2
3	Centre/Village code	<input type="text"/>	I3
4	Interviewer Identification	<input type="text"/>	I4
5	Date of completion of the instrument	<input type="text"/> <input type="text"/> <input type="text"/> dd mm year	I5

Participant Id Number

Consent, Interview Language and Name		Response	Code
6	Consent has been read out to participant	Yes 1 No 2 If NO, read consent	I6
7	Consent has been obtained (verbal or written)	Yes 1 No 2 If NO, END	I7
8	Interview Language	English 1 Gulf tokples 5 Tok Pisin 2 Manus tokples 6 Motu 3 Mamose tokples 7 Golin 4 Other 8	I8
9	Time of interview (24 hour clock)	<input type="text"/> : <input type="text"/> hrs mins	I9
10	Family Name	<input type="text"/>	I10
11	First Name	<input type="text"/>	I11
12	Contact phone number where possible	<input type="text"/>	I12
13	Specify whose phone	Work 1 Home 2 Relative / Other 3	I13

Record and file identification information (I6 to I13) separately from the completed questionnaire.

Step 1 Demographic Information

Questions	Response	Code
14 Sex (Record Male / Female as observed)	Male 1 Female 2	C1
15 What is your date of birth? Don't Know 77 77 7777	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> dd mm year <i>If known, go to C4</i>	C2
16 How old are you?	Years <input type="text"/>	C3
17 In total, how many years have you spent at school or in full-time study (excluding pre-school)?	Years <input type="text"/>	C4
18 What is your tribal group?	Simbu, EHP, WHP, Enga 1 SHP 2 Central, Motu-Koitaban NCD 3 Gulf 4 Milne Bay, Oro 5 Morobe, Madang, East and West Sepik 6 Manus 7 NIP, ENBP, WNBP, Bougainville 8 Other - eg expat, Irian Jaya 9 Refused 77	C5
19 What is the highest level of education you have completed?	No formal schooling 1 Less than Grade 6 2 Grade 6 completed 3 Grade 8 completed 4 Grade 10 or vocational training completed 5 Grade 12 completed 6 University degree completed 7 Refused 8	C6
20 Which of the following best describes your <u>main</u> 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 Refused 77	C7
21 How many people older than 18 years, including yourself, live in your household?	Number of people <input type="text"/>	C8
22 Does your household have electricity?	Yes 1 No 2	X1
23 Does your household have a refrigerator?	Yes 1 No 2	X2
24 Does your household have a car kept at the house overnight?	Yes 1 No 2	X3
25 If you were not born in the district where the study is being done, how many years ago did you move there?	Years <input type="text"/>	X4

Step 1 Behavioural Measurements

Tobacco Use

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 tobacco.

Questions	Response	Code
26 Do you currently smoke any tobacco products, such as cigarettes, cigars or pipes?	Yes 1 No 2 If No, go to T6	T1
27 If Yes, Do you currently smoke tobacco products daily?	Yes 1 No 2 If No, go to T6	T2
28 How old were you when you first started smoking daily?	Age (years) <input type="text"/> Don't remember 77 <input type="text"/> If Known, go to T5a	T3
29 Do you remember how long ago it was? (RECORD ONLY 1, NOT ALL 3) Don't remember 77	In Years <input type="text"/> If Known, go to T5a	T4a
	OR in Months <input type="text"/> If Known, go to T5a	T4b
	OR in Weeks <input type="text"/>	T4c
30 On average, how many of the following do you smoke each day? (RECORD FOR EACH TYPE)	Manufactured cigarettes <input type="text"/>	T5a
	Hand-rolled cigarettes <input type="text"/>	T5b
	Pipes full of tobacco <input type="text"/>	T5c
31 In the past, did you ever smoke daily?	Yes 1 No 2 If No, go to T9	T6
32 If Yes, How old were you when you stopped smoking daily?	Age (years) <input type="text"/> If Known, go to T9 Don't remember 77 <input type="text"/>	T7
33 How long ago did you stop smoking daily? (RECORD ONLY 1, NOT ALL 3) Don't remember 77	Years ago <input type="text"/> If Known, go to T9	T8a
	OR Months ago <input type="text"/> If Known, go to T9	T8b
	OR Weeks ago <input type="text"/>	T8c
34 Do you currently use any betel nut?	Yes 1 No 2 If No, go to T12	T9
35 If yes Do you use betel nut daily?	Yes 1 No 2	T10
36 On average, how many times do you use betel nut daily?	Number of nuts per day <input type="text"/>	T11d
37 In the past, did you ever use betel nut daily? (Only ask if does not use betel nut now – i.e. answer to T9 was No)	Yes 1 Go to A1	T12
	No 2 Go to A1	
38 When you use betel nut, do you also use mustard and lime?	Always 1	X5
	Sometimes 2	
	Rarely 3	
	Never 4	

Alcohol Consumption

The next questions ask about the consumption of alcohol.

Questions	Response	Code
39 Have you consumed alcohol (such as beer, wine, spirits, home brew) within the past 12 months? (USE SHOWCARD OR SHOW EXAMPLES)	Yes 1	A1
	No 2 If No, go to D1	
40 In the past 12 months, how frequently have you had at least one drink? (READ RESPONSES USE SHOWCARD)	Daily 1	A2
	5-6 days per week 2	
	1-4 days per week 3	
	1-3 days per month 4	
	Less than once a month 5	
41 When you drink alcohol, on average, how many drinks do you have during one day? One drink = one beer or beer equivalent	Number <input type="text"/>	X6
	Don't know 77	
42 Have you consumed alcohol (such as beer, wine, spirits, home brew) within the past 30 days? (USE SHOWCARD)	Yes 1	A4
	No 2 If No, go to X8	
43 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) Don't Know 77	Monday <input type="text"/>	X7a
	Tuesday <input type="text"/>	X7b
	Wednesday <input type="text"/>	X7c
	Thursday <input type="text"/>	X7d
	Friday <input type="text"/>	X7e
	Saturday <input type="text"/>	X7f
	Sunday <input type="text"/>	X7g
44 In the past 12 months, what was the largest number of drinks you had on a single occasion, counting all types of standard drinks together?	Largest number <input type="text"/>	X8
45 For men only: In the past 12 months, on how many days did you have five or more standard drinks in a single day?	Number of days <input type="text"/>	X9
For women only: In the past 12 months, on how many days did you have four or more standard drinks in a single day?	Number of days <input type="text"/>	X10
46 Where do you get most of your alcoholic drinks from? (choose one only)	I buy from store 1	X11
	Friends and relatives give to me 2	
	Home-brew 3	

Diet

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

Questions	Response	Code
47 In a typical week, on how many days do you eat fruit? (USE SHOWCARD)	Number of days Don't Know 8 <input type="checkbox"/> If Zero days, go to D3	D1
48 How many servings of fruit do you eat on one of those days? (USE SHOWCARD)	Number of servings Don't Know 88 <input type="checkbox"/>	D2
49 In a typical week, on how many days do you eat vegetables? (USE SHOWCARD)	Number of days Don't Know 8 <input type="checkbox"/> If Zero days, go to P1	D3
50 How many servings of vegetables do you eat on one of those days? (USE SHOWCARD)	Number of servings Don't Know 88 <input type="checkbox"/>	D4

Physical Activity

Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person.

Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, planting, tending and harvesting food/crops, fishing or hunting for food, marketing, seeking employment. In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

Questions	Response	Code
Activity at work		
51 Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like carrying or lifting heavy loads, digging or construction work for at least 10 minutes continuously? (USE SHOWCARD)	Yes 1 No 2 If No, go to P 4	P1
52 In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days <input type="checkbox"/>	P2
53 How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes <input type="checkbox"/> : <input type="checkbox"/> hrs mins	P3 (a-b)
54 Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking [or carrying light loads] for at least 10 minutes continuously? [INSERT EXAMPLES] (USE SHOWCARD)	Yes 1 No 2 If No, go to P 7	P4
55 In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days <input type="checkbox"/>	P5
56 How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes <input type="checkbox"/> : <input type="checkbox"/> hrs mins	P6 (a-b)

Travel to and from places

The next questions exclude the physical activities at work that you have already mentioned.

Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to school, or to church

57 Do you walk or use a bicycle for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 If No, go to P 10	P7
58 In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days <input type="checkbox"/>	P8
59 How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes <input type="checkbox"/> : <input type="checkbox"/> hrs mins	P9 (a-b)

Recreational activities

The next questions exclude the work and transport activities that you have already mentioned.

Now I would like to ask you about sports, fitness and recreational activities

60 Do you do any vigorous-intensity sports, fitness or recreational activities that cause large increases in breathing or heart rate - like running or football or basketball - for at least 10 minutes continuously? (USE SHOWCARD)	Yes 1 No 2 If No, go to P 13	P10
61 In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational activities?	Number of days <input type="checkbox"/>	P11
62 How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes <input type="checkbox"/> : <input type="checkbox"/> hrs mins	P12 (a-b)

Physical Activity (recreational activities) contd.

Questions	Response	Code
63 Do you do any moderate-intensity sports, fitness or recreational activities that causes a small increase in breathing or heart rate such as brisk walking, cycling, swimming, volleyball) for at least 10 minutes continuously? (USE SHOWCARD)	Yes 1 No 2 If No, go to H1	P13
64 In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational activities?	Number of days _ _	P14
65 How much time do you spend doing moderate-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes _ _ : _ _ hrs mins	P15 (a-b)

History of Raised Blood Pressure

Questions	Response	Code
66 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 years 3	H1
67 During the past 12 months have you been told by a doctor or other health worker that you have raised blood pressure or hypertension?	Yes 1 No 2	H2
68 Are you currently receiving any of the following treatments for raised blood pressure prescribed by a doctor or other health worker as well as any advice?		
Drugs (medication) that you have taken in the last 2 weeks	Yes 1 No 2	H3a
Special prescribed diet	Yes 1 No 2	H3b
Advice or treatment to lose weight	Yes 1 No 2	H3c
Advice or treatment to stop smoking	Yes 1 No 2	H3d
Advice to start or do more exercise	Yes 1 No 2	H3e
69 During the past 12 months have you seen a traditional healer for raised blood pressure or hypertension?	Yes 1 No 2	H4
70 Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes 1 No 2	H5

History of Diabetes

Questions	Response	Code
71 Have you had your blood sugar measured in the last 12 months?	Yes 1 No 2	H6
72 During the past 12 months, have you ever been told by a doctor or other health worker that you have diabetes?	Yes 1 No 2	H7
73 Are you currently receiving any of the following treatments for diabetes prescribed by a doctor or other health worker as well as any advice?		
Insulin	Yes 1 No 2	H8a
Oral drug (medication) that you have taken in the last 2 weeks	Yes 1 No 2	H8b
Special prescribed diet	Yes 1 No 2	H8c
Advice or treatment to lose weight	Yes 1 No 2	H8d
Advice or treatment to stop smoking	Yes 1 No 2	H8e
Advice to start or do more exercise	Yes 1 No 2	H8f
74 During the past 12 months have you seen a traditional healer for diabetes?	Yes 1 No 2	H9
75 Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	H10

Oral Health

76 How many natural teeth do you have?	All of them	1	X12
	Some of them, but have lost some	2	
	None of them	3	
77 Do you have any removable dentures?	Yes	1	O3
	No	2	
78 Which of the following removable dentures do you have? (can have more than one)	A partial denture	1	O4
	A full upper denture	2	
	A full lower denture	3	
79 How would you describe the state of your teeth	Excellent	1	O5
	Very good	2	
	Good	3	
	Average	4	
	Poor	5	
	Very poor	6	
	Don't know	7	
80 How often do you clean your teeth?	Never	1	O7
	Once a month	2	
	2 to 3 times a month	3	
	Once a week	4	
	2 to 3 times a week	5	
	Once a day	6	
	Twice a day	7	
81 Which of the following do you use to clean your teeth (circle one only - main method)	Toothbrush alone	1	O8
	Toothbrush with toothpaste	2	
	Wooden toothpicks	3	
	Thread (dental floss)	4	

Participant Identification Number

□ □ □ □ □ □

		Ash	5	
		Betel nut skin or other abrasive leaf	6	
		Sand	7	
		Steel wool	8	
		Other	9	
82	Do you use toothpaste?	Yes	1	O9
		No	2	
83	How long is it since you last saw a dentist?	Less than 6 months	1	O10
		6-12 months	2	
		More than 1 year but less than 2 years	3	
		More than 2 years but less than 5 years	4	
		More than 5 years	5	
		Never received dental care	6	
84	Have you experienced any of the following problems, during the last 12 months, because of the state of your teeth? (may have more than one)	Difficulty in chewing/biting foods	1	O12
		Difficulty in speech / trouble pronouncing words	2	
		Persistent pain	3	
		Embarrassment with others	4	
		None	5	

Participant Identification Number

□ □ □ □ □ □

Step 2 Physical Measurements

Height and Weight		Response		Code
85	Interviewer ID		□ □ □ □	M1
86	Device IDs for height and weight	Height	□	M2a
		Weight	□	M2b
87	Height	in Centimetres (cm)	□ □ □ □ □	M3
88	Weight <i>If too large for scale, code 666.6</i>	in Kilograms (kg)	□ □ □ □ □	M4
89	<i>(For women)</i> Are you pregnant?	Yes	1 <i>If Yes, go to M 8</i>	M5
		No	2	

Waist and Hip

90	Device ID for waist and hip		□	M6
91	Waist circumference	in Centimetres (cm)	□ □ □ □ □	M7
92	Hip circumference	in Centimetres (cm)	□ □ □ □ □	M15

Blood Pressure

93	Interviewer ID		□ □ □ □	M8
94	Device ID for blood pressure		□	M9
95	Cuff size used	Medium	2	M10
		Large	3	
96	Reading 1 (If automatic machine used, record heart rate below as well)	Systolic (mmHg)	□ □ □ □	M11a
		Diastolic (mmHg)	□ □ □ □	M11b
98	Reading 2 (If automatic machine used, record heart rate below as well)	Systolic (mmHg)	□ □ □ □	M12a
		Diastolic (mmHg)	□ □ □ □	M12b
99	Reading 3 (If automatic machine used, record heart rate below as well)	Systolic (mmHg)	□ □ □ □	M13a
		Diastolic (mmHg)	□ □ □ □	M13b
100	During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?	Yes	1	M14
		No	2	

Heart Rate and Body Composition

101	Heart Rate (Record if automatic blood pressure device is used)			
	Reading 1	Beats per minute	□ □ □ □	M16a
	Reading 2	Beats per minute	□ □ □ □	M16b
	Reading 3	Beats per minute	□ □ □ □	M16c
102	Bioelectric impedance body composition measurement <i>If error E4 put 99.9</i>	% fat	□ □ □ □	X13

Step 3 Biochemical Measurements

Blood Glucose		Response	Code
103	During the last 12 hours have you had anything to eat or drink, other than water?	Yes 1 No 2	B1
104	Technician ID	<input type="text"/>	B2
105	Device ID	<input type="text"/>	B3
106	Time of day blood specimen taken (24 hour clock)	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	B4
107	Fasting blood glucose	mmol/l <input type="text"/> <input type="text"/>	B5
	(only fill in if machine cannot give numerical reading)	Low 1 High 2 Unable to assess 3	B5a
108	Time Glucose Load given (24 hour clock). ONLY DO ON EVEN NUMBER SUBJECTS	<input type="text"/> : <input type="text"/>	X14
109	Time of day 2 hour blood specimen taken (24 hour clock)	<input type="text"/> : <input type="text"/>	X15
110	2 Hour Blood glucose	mmol/l <input type="text"/> <input type="text"/>	X16
	(only fill in if machine cannot give numerical reading)	Low 1 High 2 Unable to assess 3	X17

Appendix 2. The Data Book of the Papua New Guinea STEPS Survey



WHO STEPS

**Chronic Disease
Risk Factor Surveillance**

**DATA BOOK FOR
PAPUA NEW GUINEA**

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	%
15-24	388	46.9	440	53.1	828	28.1
25-34	342	47.4	380	52.6	722	24.5
35-44	290	47.3	323	52.7	613	20.8
45-54	242	53.0	215	47.0	457	15.5
55-64	179	55.2	145	44.8	324	11.0
15-64	1441	48.9	1503	51.1	2944	100

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

Instrument Question:

- What is your tribal group?

Ethnic group of respondents										
Age Group (years)	n	Both Sexes								
		% Simbu, EHP, WHP, Enga	% SHP	% Central, Motu-Koitaban NCD	% Gulf	% Milne Bay, Oro	% Morobe, Madang, East and West Sepik	% Manus	% NIP, ENBP, WNB, Bougainville	% Other – eg expat, Irian Jaya
15-24	825	19.8	4.0	7.5	20.5	2.1	21.5	19.4	3.9	1.5
25-34	721	24.1	6.1	7.2	20.2	3.2	19.8	15.3	2.1	1.9
35-44	611	26.2	3.6	4.6	21.8	1.6	18.0	21.3	1.5	1.5
45-54	456	22.8	4.4	5.7	25.0	1.3	16.9	20.6	1.3	2.0
55-64	321	31.2	3.1	3.1	21.2	1.6	18.7	17.8	2.8	0.6
15-64	2934	23.9	4.4	6.1	21.5	2.1	19.3	18.8	2.4	1.6

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)?

Age Group (years)	Mean number of years of education					
	Men		Women		Both Sexes	
	n	Mean	n	Mean	n	Mean
15-24	378	8.0	418	7.8	796	7.9
25-34	324	7.8	350	7.6	674	7.7
35-44	267	7.2	271	6.8	538	7.0
45-54	212	7.5	177	6.2	389	6.9
55-64	133	5.2	111	4.2	244	4.8
15-64	1314	7.5	1327	7.1	2641	7.3

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

Instrument question:
 • What is the highest level of education you have completed?

Highest level of education								
Men								
Age Group (years)	n	% No formal schooling	% Less than grade 6	% Grade 6 completed	% Grade 8 completed	% Grade 10 or vocational training completed	% Grade 12 completed	% University degree completed
15-24	382	3.4	11.8	19.6	33.2	22.3	8.6	1.0
25-34	338	6.2	10.4	29.3	13.6	30.2	7.7	2.7
35-44	289	10.0	10.7	34.3	13.1	22.1	6.9	2.8
45-54	240	17.5	5.4	35.0	9.2	23.8	5.8	3.3
55-64	175	42.3	17.7	18.3	6.9	6.3	4.6	4.0
15-64	1424	12.6	10.9	27.3	17.2	22.4	7.1	2.5

Highest level of education								
Women								
Age Group (years)	n	% No formal schooling	% Less than grade 6	% Grade 6 completed	% Grade 8 completed	% Grade 10 or vocational training completed	% Grade 12 completed	% University degree completed
15-24	436	6.7	10.8	19.0	36.7	19.5	6.4	0.9
25-34	377	9.3	11.4	25.5	18.8	26.5	7.4	1.1
35-44	321	18.1	9.3	38.6	15.3	15.3	1.9	1.6
45-54	214	24.8	11.7	41.6	9.3	7.9	2.8	1.9
55-64	144	41.7	25.0	17.4	2.8	7.6	2.8	2.8
15-64	1492	15.8	12.1	27.9	20.4	17.6	4.8	1.4

Highest level of education								
Both Sexes								
Age Group (years)	n	% No formal schooling	% Less than grade 6	% Grade 6 completed	% Grade 8 completed	% Grade 10 or vocational training completed	% Grade 12 completed	% University degree completed
15-24	818	5.1	11.2	19.3	35.1	20.8	7.5	1.0
25-34	715	7.8	10.9	27.3	16.4	28.3	7.6	1.8
35-44	610	14.3	10.0	36.6	14.3	18.5	4.3	2.1
45-54	454	20.9	8.4	38.1	9.3	16.3	4.4	2.6
55-64	319	42.0	21.0	17.9	5.0	6.9	3.8	3.4
15-64	2916	14.2	11.5	27.6	18.8	19.9	5.9	2.0

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
15-24	386	1.8	7.0	7.8	83.4
25-34	334	7.8	12.9	11.1	68.3
35-44	286	7.7	8.7	10.1	73.4
45-54	240	10.4	5.0	14.2	70.4
55-64	177	9.6	4.0	6.8	79.7
15-64	1423	6.8	8.0	10.0	75.2

Employment status					
Women					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
15-24	437	0.7	4.8	3.9	90.6
25-34	379	4.2	9.2	5.3	81.3
35-44	323	4.0	6.2	5.3	84.5
45-54	214	5.6	2.8	3.3	88.3
55-64	143	2.1	3.5	4.2	90.2
15-64	1496	3.1	5.8	4.5	86.6

Employment status					
Both Sexes					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
15-24	823	1.2	5.8	5.7	87.2
25-34	713	5.9	10.9	8.0	75.2
35-44	609	5.7	7.4	7.6	79.3
45-54	454	8.1	4.0	9.0	78.9
55-64	320	6.3	3.8	5.6	84.4
15-64	2919	4.9	6.9	7.2	81.0

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?

Unpaid work and unemployed							
Age Group (years)	Men						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
15-24	322	3.4	41.3	31.1	0.0	22.7	1.6
25-34	228	10.1	4.4	46.5	0.0	37.3	1.8
35-44	210	7.6	1.9	48.6	1.9	39.5	0.5
45-54	169	6.5	1.2	45.0	3.0	39.1	5.3
55-64	141	6.4	0.7	53.9	8.5	17.7	12.8
15-64	1070	6.5	14.0	43.0	2.0	31.0	3.5

Unpaid work and unemployed							
Age Group (years)	Women						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
15-24	396	4.0	34.6	41.2	0.5	19.2	0.5
25-34	308	5.2	4.9	64.3	0.0	24.7	1.0
35-44	273	8.8	2.2	71.4	0.4	17.2	0.0
45-54	189	11.1	0.5	66.7	1.1	17.5	3.2
55-64	129	6.2	0.8	76.7	1.6	11.6	3.1
15-64	1295	6.6	12.4	60.3	0.5	19.1	1.2

Unpaid work and unemployed							
Age Group (years)	Both Sexes						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
15-24	718	3.8	37.6	36.6	0.3	20.8	1.0
25-34	536	7.3	4.7	56.7	0.0	30.0	1.3
35-44	483	8.3	2.1	61.5	1.0	26.9	0.2
45-54	358	8.9	0.8	56.4	2.0	27.7	4.2
55-64	270	6.3	0.7	64.8	5.2	14.8	8.1
15-64	2365	6.6	13.1	52.5	1.2	24.5	2.2

Household size Description: Mean number of adults (18 years of age or older) in household.

Instrument question:

- How many people older than 18 years, including yourself, live in your household?

Age Group (years)	Both Sexes	
	n	Mean
15-64	2929	4.7

Socioeconomic Indicators Description: Percentage of respondents indicating they had each of the following socioeconomic indicators.

Instrument question:

- Does your household have electricity?
- Does your household have a refrigerator?
- Does your household have a car kept at the house overnight?

Socioeconomic Indicators for Both Sexes						
Age Group (years)	n	% with electricity	% with refrigerator		% with car kept at house	
			n	%	n	%
15-64	2923	25.9	657	22.4	308	10.5

Relocation Description: Mean number of years since moving to current location, among those participants who were born in another district.

Instrument question:

- If you were not born in the district where the study is being done, how many years ago did you move there?

Mean number of years in new district						
Age Group (years)	Men		Women		Both Sexes	
	n	Mean	n	Mean	n	Mean
15-24	166	8.0	194	6.9	360	7.4
25-34	196	10.7	240	8.4	436	9.4
35-44	150	13.0	162	13.1	312	13.0
45-54	142	15.4	113	14.9	255	15.2
55-64	76	19.6	59	18.6	135	19.2
15-64	730	12.4	768	10.8	1498	11.6

Tobacco Use

Current smoking Description: Current smokers among all respondents.

Instrument questions:

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

Age Group (years)	Percentage of current smokers								
	Men			Women			Both Sexes		
	n	% Current smoker	95% CI	n	% Current smoker	95% CI	n	% Current smoker	95% CI
15-24	383	58.0	43.4-72.7	432	25.3	23.1-27.6	815	42.3	31.4-53.1
25-34	335	66.7	61.6-71.8	377	26.3	21.5-31.1	712	46.2	41.4-51.1
35-44	282	66.6	58.2-74.9	321	25.5	20.4-30.6	603	46.2	43.7-48.7
45-54	236	54.6	44.9-64.3	214	32.5	25.8-39.1	450	44.1	39.6-48.6
55-64	176	40.1	29.3-50.8	145	34.2	16.2-52.3	321	37.4	24.9-49.9
15-64	1412	60.3	58.3-62.3	1489	27.0	24.8-29.2	2901	44.0	40.1-47.9

Smoking Status 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	
		% Non-Daily	95% CI	% daily			
15-24	383	0.4	0.0-1.0	57.6	42.7-72.4	42.0	27.3-56.6
25-34	335	0.6	0.0-1.8	66.1	60.9-71.3	33.3	28.2-38.4
35-44	282	0.2	0.0-0.7	66.3	58.0-74.7	33.4	25.1-41.8
45-54	236	0.0	0.0-0.0	54.6	44.9-64.3	45.4	35.7-55.1
55-64	176	0.0	0.0-0.0	40.1	29.3-50.8	59.9	49.2-70.7
15-64	1412	0.4	0.0-0.8	59.9	57.9-62.0	39.7	37.7-41.7

Smoking status							
Women							
Age Group (years)	n	Current smoker			% Does not smoke	95% CI	
		% Non-Daily	95% CI	% daily			
15-34	432	0.7	0.1-1.3	24.6	22.0-27.2	74.7	72.4-76.9
25-34	377	0.1	0.0-0.2	26.2	21.4-31.0	73.7	68.9-78.5
35-44	321	0.1	0.0-0.2	25.4	20.3-30.5	74.5	69.4-79.6
45-54	214	0.0	0.0-0.0	32.5	25.8-39.1	67.5	60.9-74.2
55-64	145	1.3	0.0-3.6	32.9	17.1-48.8	65.8	47.7-83.8
15-64	1489	0.4	0.1-0.6	26.6	24.4-28.9	73.0	70.8-75.2

Smoking status							
Both Sexes							
Age Group (years)	n	Current smoker			% Does not smoke	95% CI	
		% Non-Daily	95% CI	% Daily			
15-24	815	0.6	0.2-1.0	41.7	30.8-52.7	57.7	46.9-68.6
25-34	712	0.3	0.0-0.9	45.9	41.0-50.8	53.8	48.9-58.6
35-44	603	0.2	0.0-0.4	46.1	43.6-48.5	53.8	51.3-56.3
45-54	450	0.0	0.0-0.0	44.1	39.6-48.6	55.9	51.4-60.4
55-64	321	0.6	0.0-1.7	36.8	25.3-48.3	62.6	50.1-75.1
15-64	2901	0.4	0.1-0.7	43.7	39.7-47.7	56.0	52.1-59.9

Frequency of smoking Description: Percentage of current daily smokers among smokers.
Instrument question:
• Do you currently smoke any tobacco products, such as cigarettes, cigars, or pipes?
• Do you currently smoke tobacco products daily?

Current daily smokers among smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI
15-24	221	99.2	98.2-100.0	110	97.2	94.8-99.6	331	98.6	97.5-99.7
25-34	226	99.1	97.3-100.0	97	99.6	99.1-100.0	323	99.3	97.9-100.0
35-44	190	99.7	99.0-100.0	74	99.6	99.1-100.0	264	99.7	99.1-100.0
45-54	129	100.0	100.0-100.0	49	100.0	100.0-100.0	178	100.0	100.0-100.0
55-64	66	100.0	100.0-100.0	36	96.2	91.4-100.0	102	98.4	96.0-100.0
15-64	832	99.4	98.6-100.0	366	98.6	97.7-99.5	1198	99.2	98.5-99.9

Manufactured cigarette smokers Description: Percentage of smokers who use manufactured cigarettes among daily smokers.
Instrument question:
• On average, how many of the following do you smoke each day?

Manufactured cigarette smokers among daily smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI	n	% Manufactured cigarette smoker	95% CI
15-24	217	86.5	75.3-97.7	102	78.5	72.9-84.0	319	84.2	75.7-92.8
25-34	223	75.5	70.9-80.1	94	81.0	68.7-93.2	317	77.1	72.5-81.6
35-44	189	70.8	67.4-74.2	72	57.5	42.6-72.4	261	67.2	64.4-69.9
45-54	129	56.5	43.0-70.1	49	41.3	26.8-55.7	178	51.2	43.8-58.7
55-64	66	45.9	29.3-62.5	34	23.0	0.0-52.8	100	36.6	16.9-56.2
15-64	824	74.7	68.1-81.3	351	65.8	55.6-76.0	1175	72.0	65.4-78.7

Amount of tobacco used among smokers by type Description: Mean amount of tobacco used by daily smokers per day, by type.
Instrument question:
• On average, how many of the following do you smoke each day?

Mean amount of tobacco used by daily smokers by type									
Age Group (years)	Men						n	Mean # of pipes of tobacco	
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI		Mean # of pipes of tobacco	95% CI
15-24	195	2.9	2.6-3.3	87	2.5	2.0-2.9	16	3.2	2.2-4.2
25-34	183	3.9	3.1-4.6	128	3.4	3.0-3.8	23	5.0	4.3-5.7
35-44	158	3.7	2.8-4.6	113	3.4	2.8-4.1	35	4.2	1.8-6.6
45-54	100	4.3	2.7-6.0	85	3.0	2.6-3.3	18	4.8	2.7-7.0
55-64	41	3.5	2.5-4.6	41	3.6	2.5-4.7	19	4.6	3.2-6.0
15-64	677	3.5	3.1-4.0	454	3.1	2.8-3.5	111	4.2	2.8-5.7

Mean amount of tobacco used by daily smokers by type									
Age Group (years)	Women						n	Mean # of pipes of tobacco	
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI		Mean # of pipes of tobacco	95% CI
15-24	73	2.2	1.7-2.8	33	2.4	1.8-2.9	8	3.1	--
25-34	75	3.4	2.6-4.2	41	3.0	2.3-3.7	8	2.8	--
35-44	45	2.4	2.1-2.7	32	3.1	2.4-3.7	19	4.5	--
45-54	27	2.4	1.5-3.3	30	2.9	2.6-3.2	15	4.3	--
55-64	10	2.5	1.2-3.7	12	2.1	1.6-2.6	14	7.8	--
15-64	230	2.7	2.3-3.1	148	2.8	2.5-3.0	64	4.3	--

Mean amount of tobacco used by daily smokers by type									
Age Group (years)	Both Sexes						n	Mean # of pipes of tobacco	
	n	Mean # of manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI		Mean # of pipes of tobacco	95% CI
15-24	268	2.8	2.5-3.1	120	2.4	2.2-2.7	24	3.2	2.5-3.9
25-34	258	3.7	3.1-4.3	169	3.3	2.8-3.8	31	4.4	3.9-4.8
35-44	203	3.4	2.7-4.2	145	3.4	2.8-4.0	54	4.3	2.6-6.0
45-54	127	3.8	2.9-4.6	115	3.0	2.7-3.2	33	4.6	3.8-5.4
55-64	51	3.3	2.4-4.1	53	3.1	2.6-3.6	33	6.1	3.4-8.8
15-64	907	3.3	2.9-3.6	602	3.0	2.7-3.3	175	4.3	3.2-5.3

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

Instrument questions:

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

Mean age started smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean age	95% CI	n	Mean age	95% CI	n	Mean age	95% CI
15-24	186	15.6	15.0-16.2	84	16.6	15.5-17.6	270	15.9	15.4-16.4
25-34	186	17.5	16.5-18.5	80	19.6	18.9-20.4	266	18.1	17.4-18.9
35-44	158	20.5	19.1-21.9	58	20.1	19.5-20.8	216	20.4	19.3-21.5
45-54	85	20.1	18.4-21.7	38	21.7	16.2-27.2	123	20.6	19.9-21.4
55-64	51	22.0	19.7-24.2	28	18.8	14.5-23.2	79	20.6	17.4-23.9
15-64	666	17.9	17.3-18.6	288	19.0	18.6-19.4	954	18.2	17.7-18.8

Mean duration of smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean duration	95% CI	n	Mean duration	95% CI	n	Mean duration	95% CI
15-24	186	4.6	3.0-6.1	84	3.5	2.9-4.1	270	4.3	3.2-5.3
25-34	186	11.7	10.0-13.4	80	9.6	8.7-10.5	266	11.1	9.9-12.4
35-44	158	18.5	16.5-20.4	58	19.6	18.5-20.7	216	18.8	17.3-20.2
45-54	85	29.2	25.8-32.6	38	27.2	22.6-31.8	123	28.5	27.4-29.5
55-64	51	36.4	34.5-38.3	28	41.4	36.5-46.2	79	38.5	35.2-41.9
15-64	666	13.5	9.6-17.4	288	14.3	13.4-15.1	954	13.7	11.0-16.5

Percentage of ex daily smokers in the population Description: Percentage of ex-daily smokers among all respondents and the mean duration, in years, since ex-daily smokers quit smoking daily.

Instrument question:

- In the past did you ever smoke daily?
- How old were you when you stopped smoking daily?

Ex-daily smokers among all respondents									
Age Group (years)	Men			Women			Both Sexes		
	n	% ex daily smokers	95% CI	n	% ex daily smokers	95% CI	n	% ex daily smokers	95% CI
15-24	331	3.9	0.0-7.9	390	3.8	1.4-6.3	721	3.9	0.9-6.9
25-34	294	4.9	2.0-7.7	332	5.5	2.7-8.4	626	5.2	3.9-6.5
35-44	243	10.0	5.0-14.9	287	8.6	4.9-12.3	530	9.3	7.8-10.8
45-54	212	12.0	4.9-19.1	190	10.0	7.4-12.6	402	11.0	7.3-14.7
55-64	163	20.0	12.8-27.2	134	14.3	8.3-20.3	297	17.5	12.9-22.0
15-64	1243	7.5	4.5-10.4	1333	6.6	5.4-7.7	2576	7.0	5.8-8.2

Mean years since cessation									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean years	95% CI	n	Mean years	95% CI	n	Mean years	95% CI
15-24	1	10.0	--	1	7.0	--	2	9.9	9.6-10.2
25-34	8	12.9	8.9-17.0	13	15.6	10.9-20.3	21	14.6	11.1-18.1
35-44	15	15.6	10.8-20.4	16	18.6	5.4-31.9	31	17.0	12.4-21.6
45-54	24	22.8	15.1-30.4	10	29.9	17.1-42.7	34	24.4	15.9-32.8
55-64	31	22.0	11.6-32.4	20	27.1	14.3-40.0	51	23.9	13.0-34.7
15-64	79	18.4	13.4-23.5	60	20.8	12.4-29.2	139	19.4	12.4-26.4

Current Users of betel nut Description: Percentage of current users of betel nut among all respondents.

Instrument question:

- Do you currently use any betel nut?
- Do you use betel nut daily?

Current users of betel nut									
Age Group (years)	Men			Women			Both Sexes		
	n	% Current users	95% CI	n	% Current users	95% CI	n	% Current users	95% CI
15-24	380	78.2	74.6-81.8	429	79.5	76.0-83.0	809	78.8	77.9-79.7
25-34	338	83.2	78.7-87.7	372	78.7	76.6-80.7	710	80.9	78.8-83.1
35-44	288	85.8	77.5-94.2	322	77.9	74.2-81.5	610	81.9	76.6-87.2
45-54	240	79.4	63.4-95.3	210	77.0	55.4-98.6	450	78.3	75.9-80.7
55-64	174	65.0	57.2-72.8	144	65.7	49.8-81.5	318	65.3	61.8-68.8
15-64	1420	80.3	78.6-81.9	1477	77.8	76.6-78.9	2897	79.0	77.8-80.3

Betel nut use Description: Betel nut use among all respondents.

Instrument questions:

- Do you currently use any betel nut?
- Do you use betel nut daily?

Betel nut use							
Age Group (years)	n	Men				% Does not use betel nut	95% CI
		Current user		% Non-daily			
		% Daily	95% CI	% Non-daily	95% CI		
15-24	380	67.3	62.2-72.4	10.9	8.0-13.8	21.8	18.2-25.4
25-34	338	76.3	65.1-87.6	6.9	0.0-14.3	16.8	12.3-21.3
35-44	288	79.1	73.0-85.3	6.7	3.7-9.7	14.2	5.8-22.5
45-54	240	76.0	60.8-91.1	3.4	1.9-4.9	20.6	4.7-36.6
55-64	174	61.9	51.7-72.2	3.1	0.3-5.9	35.0	27.2-42.8
15-64	1420	72.7	69.2-76.1	7.6	5.5-9.6	19.7	18.1-21.4

Betel nut use							
Age Group (years)	n	Women				% Does not use betel nut	95% CI
		Current user		% Non-daily			
		% Daily	95% CI	% Non-daily	95% CI		
15-24	429	72.1	65.8-78.4	7.3	3.9-10.8	20.5	17.0-24.0
25-34	372	71.8	68.8-74.7	6.9	5.0-8.8	21.3	19.3-23.4
35-44	322	72.9	68.0-77.7	5.0	3.1-6.9	22.1	18.5-25.8
45-54	210	66.2	43.9-88.4	10.9	9.1-12.7	23.0	1.4-44.6
55-64	144	62.8	50.3-75.4	2.8	0.0-7.3	34.3	18.5-50.2
15-64	1477	70.9	68.8-73.0	6.9	5.4-8.4	22.2	21.1-23.4

Betel nut use							
Age Group (years)	n	Both Sexes				% Does not use betel nut	95% CI
		Current user		% Non-daily			
		% Daily	95% CI	% Non-daily	95% CI		
15-24	809	69.6	66.7-72.5	9.2	6.8-11.6	21.2	20.3-22.1
25-34	710	74.0	69.3-78.7	6.9	3.2-10.6	19.1	16.9-21.2
35-44	610	76.1	71.2-80.9	5.9	4.6-7.1	18.1	12.8-23.4
45-54	450	71.4	67.8-75.0	6.9	5.2-8.6	21.7	19.3-24.1
55-64	318	62.3	60.6-64.1	3.0	0.0-6.4	34.7	31.2-38.2
15-64	2897	71.8	69.4-74.2	7.2	5.8-8.7	21.0	19.7-22.2

Percentage of ex daily users of betel nut in the population Description: Percentage of ex-daily users of betel nut among all respondents.
 Instrument question:
 • In the past, did you ever use betel nut daily?

Age Group (years)	Ex-daily betel nut users								
	Men			Women			Both Sexes		
	n	% Ex daily users	95% CI	n	% Ex daily users	95% CI	n	% Ex daily users	95% CI
15-24	281	1.9	0.0-5.1	297	3.8	1.3-6.3	578	2.8	0.0-5.6
25-34	232	3.0	0.0-6.2	237	2.1	1.7-2.6	469	2.6	0.8-4.4
35-44	214	1.9	0.0-3.8	236	2.7	1.2-4.2	450	2.3	1.1-3.5
45-54	188	3.6	0.0-8.5	156	4.4	1.9-6.9	344	4.0	1.8-6.1
55-64	137	6.7	3.4-10.0	101	0.4	0.1-0.6	238	4.0	1.5-6.5
15-64	1052	2.8	1.6-3.9	1027	3.0	1.8-4.1	2079	2.9	1.8-3.9

Frequency of betel nut use among daily users Description: Mean times per day betel nut chewed, among daily users
 Instrument question:
 • On average, how many times do you use betel nut daily?

Age Group (years)	Mean times per day betel nut chewed								
	Men			Women			Both Sexes		
	n	Mean no. of times	95% CI	n	Mean no. of times	95% CI	n	Mean no. of times	95% CI
15-24	292	4.8	3.6-6.0	329	4.7	3.8-5.5	621	4.7	4.0-5.5
25-34	272	6.2	5.0-7.4	273	5.7	4.6-6.8	545	6.0	5.1-6.8
35-44	229	6.7	5.3-8.0	248	5.7	5.1-6.2	477	6.2	5.4-7.0
45-54	190	5.6	5.1-6.1	145	6.0	5.8-6.3	335	5.8	5.5-6.1
55-64	109	5.3	4.0-6.6	93	5.3	3.3-7.2	202	5.3	4.0-6.5
15-64	1092	5.7	4.9-6.6	1088	5.4	4.7-6.0	2180	5.5	4.9-6.2

Frequency of betel nut use among daily users
 Description: Frequency of using mustard and lime along with betel nut, among all users.
 Instrument question:
 • When you use betel nut, do you also use mustard and lime?

Frequency of using mustard and lime along with betel nut, among current betel nut users									
Age Group (years)	Men								
	n	% Always	95% CI	% Some-times	95% CI	% Rarely	95% CI	% Never	95% CI
15-24	332	78.3	71.1-85.4	17.7	10.3-25.2	2.8	0.0-6.3	1.2	0.0-2.7
25-34	295	82.8	76.3-89.3	14.1	11.2-17.0	2.9	0.0-7.4	0.2	0.0-0.5
35-44	242	82.7	70.8-94.6	16.2	6.2-26.2	0.9	0.0-3.0	0.2	0.0-0.5
45-54	193	82.7	62.6-100.0	10.1	1.1-19.1	6.0	0.0-17.2	1.1	0.0-3.4
55-64	118	71.2	53.4-89.0	22.0	8.2-35.8	5.0	0.0-10.6	1.7	0.0-4.9
15-64	1180	80.5	72.3-88.8	15.8	10.9-20.7	2.9	0.0-7.3	0.8	0.3-1.2

Frequency of using mustard and lime along with betel nut, among current betel nut users									
Age Group (years)	Women								
	n	% Always	95% CI	% Some-times	95% CI	% Rarely	95% CI	% Never	95% CI
15-24	364	65.7	54.5-76.8	29.3	15.7-42.9	3.0	0.9-5.2	2.0	0.0-4.4
25-34	295	78.5	66.8-90.3	18.3	10.0-26.6	3.0	0.0-6.8	0.1	0.0-0.3
35-44	261	86.7	81.6-91.8	10.3	5.0-15.5	3.0	1.8-4.2	0.1	0.0-0.2
45-54	164	84.4	77.8-91.0	14.9	8.0-21.7	0.7	0.0-1.8	0.0	0.0-0.0
55-64	99	69.9	51.9-87.9	23.4	12.2-34.6	5.2	0.0-12.6	1.5	0.0-4.9
15-64	1183	75.9	66.5-85.3	20.4	11.3-29.5	2.9	1.3-4.4	0.8	0.0-1.7

Frequency of using mustard and lime along with betel nut, among current betel nut users									
Age Group (years)	Both Sexes								
	n	% Always	95% CI	% Some-times	95% CI	% Rarely	95% CI	% Never	95% CI
15-24	696	72.2	62.7-81.7	23.3	13.9-32.6	2.9	0.9-4.9	1.6	0.4-2.8
25-34	590	80.7	71.3-90.1	16.2	10.6-21.8	3.0	0.0-7.1	0.2	0.0-0.3
35-44	503	84.6	76.6-92.5	13.4	6.4-20.4	1.9	0.7-3.1	0.2	0.0-0.3
45-54	357	83.5	69.9-97.1	12.3	4.7-20.0	3.5	0.0-9.5	0.6	0.0-1.8
55-64	217	70.6	59.8-81.4	22.6	13.5-31.8	5.1	2.1-8.1	1.6	0.0-3.7
15-64	2363	78.3	69.3-87.3	18.0	11.1-24.9	2.9	0.1-5.8	0.8	0.4-1.2

Alcohol Consumption

Alcohol consumption status
 Description: Alcohol consumption status of all respondents. Abstainers have not consumed alcohol in the last 12 months.*

Instrument questions:

- Have you consumed alcohol (such as beer, wine, spirits, fermented cider, or (add other local examples) within the past 12 months?
- Have you consumed alcohol (such as beer, wine, spirits, fermented cider, or (add other local examples) within the past 30 days?

Alcohol consumption status							
Age Group (years)	Men						
	n	% Current drinker (last 30 days)	95% CI	% Drank in last 12 months, not current	95% CI	% Abstainer	95% CI
15-24	365	14.7	4.7-24.8	26.4	20.5-32.3	58.9	44.4-73.3
25-34	314	15.4	12.8-18.0	33.4	19.8-47.0	51.2	36.9-65.4
35-44	272	14.7	10.9-18.5	23.8	13.1-34.5	61.5	48.6-74.4
45-54	228	6.5	3.6-9.5	16.1	4.3-27.9	77.4	64.3-90.5
55-64	176	1.1	0.0-2.2	8.0	2.8-13.2	90.9	85.6-96.2
15-64	1355	12.8	9.5-16.1	25.0	19.3-30.8	62.1	54.3-69.9

Alcohol consumption status							
Age Group (years)	Women						
	n	% Current drinker (last 30 days)	95% CI	% Drank in last 12 months, not current	95% CI	% Abstainer	95% CI
15-24	428	2.0	0.5-3.6	7.1	1.8-12.4	90.9	86.2-95.5
25-34	371	1.3	0.0-2.7	5.6	2.8-8.5	93.1	90.4-95.7
35-44	317	1.2	0.0-2.7	5.6	2.0-9.2	93.2	90.6-95.8
45-54	211	2.4	0.0-5.4	2.5	0.0-6.4	95.1	89.0-100.0
55-64	143	0.5	0.0-1.7	1.3	0.0-3.6	98.1	95.8-100.0
15-64	1470	1.6	0.9-2.3	5.5	2.9-8.1	92.9	90.1-95.7

Alcohol consumption status							
Age Group (years)	Both Sexes						
	n	% Current drinker (last 30 days)	95% CI	% Drank in last 12 months, not current	95% CI	% Abstainer	95% CI
15-24	793	8.3	3.7-12.8	16.5	13.9-19.2	75.2	71.0-79.3
25-34	685	8.0	5.8-10.2	18.7	13.6-23.8	73.3	68.6-78.0
35-44	589	7.8	6.0-9.5	14.5	8.1-20.9	77.8	70.9-84.7
45-54	439	4.6	2.0-7.1	9.6	5.0-14.1	85.9	79.7-92.0
55-64	319	0.8	0.0-1.6	5.0	1.2-8.7	94.2	90.6-97.8
15-64	2825	7.1	6.1-8.2	15.1	12.9-17.3	77.8	75.0-80.5

Frequency of alcohol consumption

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

Instrument question:

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

Standard drinks per drinking day

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

Instrument question:

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

Frequency of alcohol consumption in the last 12 months											
Men											
Age Group (years)	n	% Daily	95% CI	% 5-6 days p. week	95% CI	% 1-4 days p. week	95% CI	% 1-3 days p. month	95% CI	% < once a month	95% CI
15-24	186	2.2	0.0-4.9	2.3	0.9-3.8	8	5.1-10.8	19.4	11.3-27.6	68.1	62.0-74.3
25-34	182	0.7	0.3-1.0	3.9	0.0-8.2	8.7	0.0-18.2	29.2	13.0-45.4	57.5	47.3-67.8
35-44	113	3.8	0.0-9.4	3.8	0.0-8.5	11.9	0.4-23.4	16.6	9.6-23.6	64	45.5-82.5
45-54	70	1.5	0.0-4.3	3.1	0.0-6.6	4.2	0.0-8.6	7.1	0.7-13.6	84	75.5-92.5
55-64	24	5.6	0.0-17.3	6.2	0.0-17.0	1.7	0.0-4.2	12.7	0.0-27.2	73.8	45.3-100.0
15-64	575	2.0	1.5-2.5	3.2	0.9-5.6	8.6	3.2-14.0	21.1	17.3-24.9	65.1	60.0-70.2

Frequency of alcohol consumption in the last 12 months											
Women											
Age Group (years)	n	% Daily	95% CI	% 5-6 days p. week	95% CI	% 1-4 days p. week	95% CI	% 1-3 days p. month	95% CI	% < once a month	95% CI
15-24	64	9.8	0.0-30.1	4.9	0.0-10.6	1.6	0.3-2.8	12.2	3.9-20.5	71.4	49.4-93.5
25-34	54	0.6	0.0-2.0	7.7	0.0-22.8	7.8	0.0-20.3	17.1	2.0-32.2	66.8	43.4-90.2
35-44	29	14.6	0.0-49.9	12.2	0.0-36.1	0	0.0-0.0	4.2	0.0-8.8	69.1	21.2-100.0
45-54	17	0.0	--	0.0	--	3.2	0.0-8.9	24	0.0-57.1	72.8	40.4-100.0
55-64	3	0.0	--	0.0	--	0.0	--	0.0	--	100.0	100.0-100.0
15-64	167	7.1	1.8-12.3	6.3	0.0-12.6	3.1	0.0-6.4	13.1	6.8-19.3	70.5	61.3-79.7

Frequency of alcohol consumption in the last 12 months											
Both Sexes											
Age Group (years)	n	% Daily	95% CI	% 5-6 days p. week	95% CI	% 1-4 days p. week	95% CI	% 1-3 days p. month	95% CI	% < once a month	95% CI
15-24	250	3.6	0.0-8.2	2.8	1.2-4.4	6.8	4.8-8.7	18.1	11.7-24.5	68.7	64.9-72.6
25-34	236	0.7	0.5-0.8	4.4	0.0-9.0	8.6	0.2-17.0	27.7	12.3-43.0	58.7	51.2-66.2
35-44	142	5.2	0.0-10.8	4.9	0.0-10.0	10.3	1.2-19.5	15.0	8.8-21.1	64.6	46.7-82.6
45-54	87	1.3	0.0-3.5	2.5	0.0-5.5	4.0	0.5-7.5	10.2	2.5-18.0	82.0	75.6-88.3
55-64	27	4.7	0.0-14.5	5.2	0.0-14.9	1.5	0.0-3.4	10.6	0.0-23.8	78.0	52.1-100.0
15-64	742	2.8	1.8-3.8	3.7	1.1-6.3	7.7	3.6-11.8	19.8	16.4-23.3	66.0	62.4-69.5

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
15-24	201	2.8	0.6-5.1	12.4	5.6-19.2	8.4	1.6-15.3	76.3	62.0-90.7	7.9	5.9-9.9
25-34	207	0.2	0.0-0.5	1.8	0.0-4.4	6.6	1.9-11.2	91.4	86.1-96.7	9.8	8.7-10.9
35-44	128	0.8	0.0-2.1	7.5	0.0-16.0	4.9	0.0-10.3	86.8	73.3-100.0	9.4	6.5-12.4
45-54	73	0.3	0.0-1.0	8.1	0.2-16.0	6.5	2.4-10.5	85.1	77.6-92.7	9.6	5.9-13.3
55-64	25	6.5	0.0-17.7	18.9	0.0-38.0	12.5	0.0-34.3	62.0	26.1-97.9	5.8	4.7-6.9
15-64	634	1.4	0.3-2.6	7.7	3.5-11.9	7.1	4.7-9.5	83.8	77.1-90.5	8.9	7.2-10.7

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
15-24	62	3.5	0.0-9.1	32.0	8.4-55.7	26.4	0.8-52.0	38.0	0.1-76.0	5.6	2.4-8.8
25-34	56	1.6	0.0-5.4	38.4	10.8-66.1	15.0	0.0-34.1	44.9	3.8-86.1	6.2	3.5-9.0
35-44	33	1.3	0.0-4.1	6.5	0.0-16.2	24.0	5.3-42.8	68.1	47.5-88.8	7.0	4.9-9.0
45-54	20	0.8	0.0-2.7	8.2	0.0-23.8	17.0	0.0-40.0	74.0	49.6-98.5	9.6	6.7-12.5
55-64	4	0.0	0.0-0.0	19.9	0.0-52.2	0.0	0.0-0.0	80.1	47.8-100.0	10.0	6.8-13.2
15-64	175	2.2	0.0-5.1	26.2	4.7-47.7	21.0	9.3-32.7	50.6	20.6-80.7	6.6	3.6-9.6

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
15-24	263	3.0	0.5-5.4	15.4	6.6-24.2	11.2	3.0-19.5	70.4	53.3-87.5	7.6	5.4-9.7
25-34	263	0.4	0.0-1.0	7.0	0.0-14.3	7.8	3.9-11.6	84.8	75.4-94.2	9.3	7.9-10.8
35-44	161	0.9	0.0-2.0	7.4	0.0-14.8	7.9	4.4-11.5	83.8	73.3-94.3	9.1	6.4-11.7
45-54	93	0.4	0.0-0.9	8.1	0.0-17.1	8.7	3.7-13.6	82.8	75.1-90.6	9.6	6.3-13.0
55-64	29	5.1	0.0-13.7	19.1	4.2-34.0	9.7	0.0-27.5	66.0	36.0-96.1	6.7	5.5-8.0
15-64	809	1.6	0.4-2.8	10.6	3.7-17.5	9.2	5.3-13.2	78.6	68.1-89.1	8.6	6.6-10.5

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
15-24	76	1.2	0.0-2.9	68.1	26.5-100.0	7.7	0.0-17.4
25-34	80	1.9	0.0-4.4	79.1	71.7-86.6	14.7	0.0-29.6
35-44	54	6.5	0.0-16.0	88.3	79.3-97.4	13.6	6.6-20.6
45-54	26	1.3	0.0-4.0	95.0	86.1-100.0	10.1	2.8-17.4
55-64	4	68.1	11.3-100.0	21.3	0.0-58.2	0.0	0.0-0.0
15-64	240	2.9	0.6-5.2	77.6	62.0-93.3	11.2	3.7-18.8

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
15-24	21	0.0	--	70.5	22.1-100.0	3.7	0.0-10.7
25-34	13	0.0	--	57.9	40.6-75.3	3.2	0.0-13.6
35-44	7	0.0	--	100.0	100.0-100.0	0.0	0.0-0.0
45-54	6	0.0	--	61.5	0.0-100.0	0.0	0.0-0.0
55-64	1	0.0	--	0.0	0.0-0.0	0.0	0.0-0.0
15-64	48	0.0	--	65.5	52.0-79.0	2.5	0.0-6.6

Frequency and quantity of drinks consumed in the last 7 days			
Both Sexes			
Age Group (years)	n	% Drank on 4+ days	95% CI
15-24	97	1.0	0.0-2.6
25-34	93	1.7	0.0-4.0
35-44	61	6.3	0.0-17.4
45-54	32	1.0	0.0-3.1
55-64	5	40.2	0.0-100.0
15-64	288	2.6	0.0-5.3

Hazardous and harmful drinking Description: Percentage of current (last 30 days) drinker engaging in hazardous and harmful drinking in the last 7 days.
 Harmful drinking is defined as ≥ 60 g of pure alcohol on average per day for men and ≥ 40 g for women.
 Hazardous drinking is defined as 40-59.9g of pure alcohol on average per day for men and 20-39.9g for women.
 A standard drink contains approximately 10g of pure alcohol.

Instrument question:

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

Hazardous and harmful drinking in the last 7 days							
Men							
Age Group (years)	n	<4 drinks on average per day	95% CI	≥ 4 and <6 drinks on average per day (hazardous)	95% CI	≥ 6 drinks on average per day (harmful)	95% CI
15-24	76	97.7	93.6-100.0	2.3	0.0-6.4	0.0	0.0-0.0
25-34	80	94.0	85.2-100.0	5.5	0.0-14.4	0.5	0.0-1.4
35-44	54	92.0	82.9-100.0	1.5	0.0-3.5	6.5	0.0-16.0
45-54	26	95.0	87.5-100.0	2.5	0.0-8.1	2.5	0.0-5.5
55-64	4	100.0	100.0-100.0	0.0	0.0-0.0	0.0	0.0-0.0
15-64	240	95.1	90.4-99.8	3.1	0.0-7.6	1.8	0.0-4.2

Hazardous and harmful drinking in the last 7 days							
Women							
Age Group (years)	n	<2 drinks on average per day	95% CI	≥ 2 and <4 drinks on average per day (hazardous)	95% CI	≥ 4 drinks on average per day (harmful)	95% CI
15-24	21	94.4	83.6-100.0	3.7	0.0-10.7	1.9	0.0-7.2
25-34	13	96.8	86.4-100.0	0.0	0.0-0.0	3.2	0.0-13.6
35-44	7	100.0	100.0-100.0	0.0	0.0-0.0	0.0	0.0-0.0
45-54	6	100.0	100.0-100.0	0.0	0.0-0.0	0.0	0.0-0.0
55-64	1	100.0	100.0-100.0	0.0	0.0-0.0	0.0	0.0-0.0
15-64	48	96.6	90.3-100.0	1.8	0.0-4.3	1.7	0.0-6.2

Largest number of drinks in last 12 months

Description: Largest number of drinks consumed during a single occasion in the last 12 months among last 12 month drinker.

Instrument question:

- In the past 12 months what was the largest number of drinks you had on a single occasion, counting all types of standard drinks together?

Mean maximum number of drinks consumed on one occasion in the last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean maximum number	95% CI	n	Mean maximum number	95% CI	n	Mean maximum number	95% CI
15-24	198	15.0	12.3-17.6	64	9.7	5.4-13.9	262	14.1	12.6-15.6
25-34	200	16.6	16.0-17.3	53	10.4	7.8-13.1	253	15.8	14.9-16.7
35-44	130	16.5	15.2-17.9	30	11.3	7.7-14.8	160	15.8	14.5-17.1
45-54	75	16.7	13.5-19.8	20	11.9	9.9-14.0	95	15.9	13.5-18.2
55-64	25	10.1	9.0-11.2	4	15.0	3.0-27.1	29	11.2	9.6-12.8
15-64	628	15.9	14.8-17.0	171	10.5	7.8-13.3	799	15.1	14.4-15.8

Five or more drinks on a single occasion

Description: Mean number of days in the past 12 months on which consumer drank five or more drinks during a single occasion.

Instrument question:

- In the past 12 months, on how many days did you have five or more standard drinks in a single day?

Five or more drinks on a single occasion			
Age Group (years)	n	Men	
		Mean number of days	95% CI
15-24	121	3.7	3.1-4.4
25-34	112	4.5	3.8-5.2
35-44	73	4.7	4.0-5.5
45-54	42	3.8	2.8-4.8
55-64	15	3.8	2.1-5.5
15-64	363	4.2	3.6-4.8

Four or more drinks on a single occasion

Description: Mean number of days in the past 12 months on which consumer drank four or more drinks during a single occasion.

Instrument question:

- In the past 12 months, on how many days did you have four or more standard drinks in a single day?

Four or more drinks on a single occasion			
Age Group (years)	n	Women	
		Mean number of days	95% CI
15-24	29	2.5	--
25-34	21	4.3	--
35-44	10	3.0	--
45-54	7	2.3	--
55-64	0	0.0	--
15-64	67	3.0	--

Source of alcohol Description: Percentage of all drinkers who obtain alcohol from the listed sources.

Instrument question:

- Where do you get most of your alcoholic drinks from?

Percentage of drinkers who obtain most of their alcohol from the following sources							
Age Group (years)	n	Men					
		% purchased from store	95% CI	% given by friends and relatives	95% CI	% home-brew	95% CI
15-24	189	24.0	13.9-34.2	48.8	37.8-59.7	27.2	22.3-32.1
25-34	185	26.1	17.7-34.5	64.4	51.3-77.4	9.5	0.0-24.0
35-44	113	35.7	27.7-43.7	57.8	51.0-64.7	6.5	0.0-15.8
45-54	65	40.8	29.7-51.8	56.7	46.4-67.1	2.5	0.0-6.7
55-64	25	31.3	11.0-51.6	50.4	35.8-65.0	18.3	0.0-40.5
15-64	577	28.4	23.0-33.7	56.5	49.3-63.7	15.1	7.7-22.6

Percentage of drinkers who obtain most of their alcohol from the following sources							
Age Group (years)	n	Men					
		% purchased from store	95% CI	% given by friends and relatives	95% CI	% home-brew	95% CI
15-24	62	11.8	0.2-23.3	80.7	70.7-90.6	7.6	0.7-14.5
25-34	56	34.8	7.8-61.8	57.7	29.9-85.5	7.5	0.0-24.6
35-44	31	16.1	0.0-43.0	83.9	57.0-100.0	0.0	0.0-0.0
45-54	19	7.7	0.0-19.6	92.3	80.4-100.0	0.0	0.0-0.0
55-64	3	66.8	0.0-100.0	33.2	0.0-100.0	0.0	0.0-0.0
15-64	171	19.6	10.6-28.7	74.9	65.5-84.3	5.4	0.0-11.9

Percentage of drinkers who obtain most of their alcohol from the following sources							
Age Group (years)	n	Men					
		% purchased from store	95% CI	% given by friends and relatives	95% CI	% home-brew	95% CI
15-24	251	21.8	13.2-30.3	54.7	45.9-63.5	23.5	20.1-26.9
25-34	241	27.3	19.3-35.4	63.4	50.5-76.4	9.2	0.0-21.4
35-44	144	32.5	23.3-41.7	62.1	53.3-70.8	5.4	0.0-13.2
45-54	84	35.2	19.2-51.2	62.8	46.6-78.9	2.1	0.0-5.6
55-64	28	36.7	16.6-56.8	47.8	42.2-53.3	15.5	0.0-35.9
15-64	748	26.9	21.9-32.0	59.5	54.9-64.1	13.5	7.8-19.3

Fruit and Vegetable Consumption

Mean number of days of fruit and vegetable consumption Description: mean number of days fruit and vegetables consumed.

Instrument questions:

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

Mean number of days fruit consumed in a typical week									
Age Group (years)	n	Men		Women			Both Sexes		
		Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
15-24	382	2.9	2.6-3.2	433	3.1	2.9-3.2	815	3.0	2.8-3.1
25-34	333	2.9	2.5-3.2	373	3.0	2.8-3.2	706	2.9	2.7-3.2
35-44	288	2.9	2.7-3.0	320	2.9	2.8-3.0	608	2.9	2.8-3.0
45-54	239	2.9	2.5-3.2	209	2.6	2.5-2.8	448	2.7	2.6-2.9
55-64	176	3.0	2.1-3.9	144	2.8	2.5-3.0	320	2.9	2.3-3.5
15-64	1418	2.9	2.7-3.1	1479	2.9	2.8-3.1	2897	2.9	2.8-3.1

Mean number of days vegetables consumed in a typical week									
Age Group (years)	n	Men		Women			Both Sexes		
		Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
15-24	385	4.6	4.0-5.3	436	4.8	4.4-5.2	821	4.7	4.4-5.0
25-34	336	4.6	3.9-5.3	375	4.8	4.2-5.4	711	4.7	4.4-5.0
35-44	287	4.8	4.5-5.1	323	4.9	4.6-5.2	610	4.9	4.6-5.2
45-54	241	5.0	4.7-5.3	211	4.9	4.2-5.5	452	5.0	4.7-5.2
55-64	177	5.1	4.6-5.6	144	4.9	4.4-5.4	321	5.0	4.6-5.4
15-64	1426	4.7	4.3-5.1	1489	4.8	4.6-5.1	2915	4.8	4.6-5.0

Mean number of servings of fruit and vegetable consumption

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

Instrument questions:

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

Mean number of servings of fruit on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
15-24	382	0.7	0.6-0.8	433	0.8	0.7-0.9	815	0.8	0.7-0.8
25-34	333	0.7	0.5-0.9	373	0.7	0.5-0.9	706	0.7	0.5-0.9
35-44	288	0.7	0.6-0.8	320	0.7	0.7-0.7	608	0.7	0.7-0.7
45-54	239	0.7	0.5-0.9	209	0.6	0.6-0.7	448	0.7	0.5-0.8
55-64	176	0.7	0.3-1.0	144	0.7	0.6-0.7	320	0.7	0.4-0.9
15-64	1418	0.7	0.6-0.8	1479	0.7	0.6-0.8	2897	0.7	0.6-0.8

Mean number of servings of vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
15-24	385	0.7	0.6-0.9	436	0.8	0.7-0.9	821	0.8	0.7-0.8
25-34	336	0.8	0.6-0.9	375	0.8	0.7-0.9	711	0.8	0.7-0.9
35-44	287	0.7	0.7-0.8	323	0.8	0.7-0.9	610	0.8	0.7-0.9
45-54	241	0.8	0.7-0.9	211	0.8	0.7-0.8	452	0.8	0.7-0.9
55-64	177	0.8	0.7-0.9	144	0.7	0.6-0.8	321	0.7	0.7-0.8
15-64	1426	0.8	0.6-0.9	1489	0.8	0.7-0.8	2915	0.8	0.7-0.8

Mean number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
15-24	385	1.4	1.2-1.6	437	1.6	1.4-1.8	822	1.5	1.4-1.6
25-34	337	1.5	1.3-1.6	376	1.5	1.2-1.8	713	1.5	1.3-1.7
35-44	289	1.4	1.3-1.6	323	1.5	1.3-1.6	612	1.5	1.3-1.6
45-54	241	1.5	1.3-1.7	212	1.4	1.3-1.5	453	1.4	1.3-1.5
55-64	177	1.4	1.1-1.8	145	1.3	1.2-1.5	322	1.4	1.2-1.6
15-64	1429	1.5	1.4-1.5	1493	1.5	1.4-1.6	2922	1.5	1.4-1.6

Fruit and vegetable consumption per day

Description: Frequency of fruit and/or vegetable consumption.

Instrument questions:

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

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Men								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
15-24	385	34.0	20.5-47.4	62.5	49.7-75.3	2.7	0.6-4.8	0.8	0.0-1.6
25-34	337	37.4	20.6-54.1	53.3	30.3-76.4	7.9	0.0-16.5	1.4	1.0-1.9
35-44	289	30.2	24.0-36.4	62.4	55.4-69.5	7.0	5.5-8.6	0.3	0.0-0.9
45-54	241	26.5	21.4-31.6	65.2	57.0-73.4	7.0	0.0-19.7	1.3	0.0-4.4
55-64	177	26.1	20.0-32.1	64.0	56.7-71.2	9.9	3.0-16.8	0.1	0.0-0.2
15-64	1429	32.7	23.3-42.1	60.5	47.8-73.1	5.9	1.7-10.2	0.9	0.4-1.3

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Women								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
15-24	437	27.5	22.1-32.9	59.8	54.6-65.0	10.8	7.4-14.3	1.9	0.0-5.0
25-34	376	27.3	17.3-37.4	65.2	58.5-71.8	5.6	1.6-9.6	1.9	0.0-4.8
35-44	323	28.5	22.6-34.4	63.4	58.6-68.3	7.2	6.3-8.1	0.9	0.0-2.3
45-54	212	29.2	18.5-39.8	66.6	53.3-80.0	3.9	0.5-7.3	0.3	0.0-1.0
55-64	145	33.6	21.2-46.0	61.4	48.1-74.8	5.0	0.0-14.3	0.0	0.0-0.0
15-64	1493	28.2	24.3-32.2	62.9	60.1-65.8	7.5	5.9-9.0	1.4	0.0-3.0

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Both Sexes								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
15-24	822	30.9	24.6-37.1	61.2	54.9-67.6	6.6	4.8-8.4	1.3	0.0-3.1
25-34	713	32.3	22.9-41.6	59.3	47.5-71.2	6.7	0.8-12.7	1.7	0.0-3.4
35-44	612	29.4	23.8-34.9	62.9	57.7-68.1	7.1	6.1-8.1	0.6	0.0-1.4
45-54	453	27.8	22.2-33.3	65.9	55.3-76.4	5.5	0.0-14.1	0.9	0.0-2.4
55-64	322	29.5	21.4-37.7	62.8	53.8-71.7	7.6	0.0-15.3	0.0	0.0-0.1
15-64	2922	30.5	25.2-35.8	61.7	54.5-68.9	6.7	3.8-9.6	1.1	0.3-1.9

Fruit and vegetable consumption per day

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

Instrument questions:

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

Less than five servings of fruit and/or vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI	n	% < five servings per day	95% CI
15-24	385	99.2	98.4-100.0	437	98.1	95.0-100.0	822	98.7	96.9-100.0
25-34	337	98.6	98.1-99.0	376	98.1	95.2-100.0	713	98.3	96.6-100.0
35-44	289	99.7	99.1-100.0	323	99.1	97.7-100.0	612	99.4	98.6-100.0
45-54	241	98.7	95.6-100.0	212	99.7	99.0-100.0	453	99.1	97.6-100.0
55-64	177	99.9	99.8-100.0	145	100.0	100.0-100.0	322	100.0	99.9-100.0
15-64	1429	99.1	98.7-99.6	1493	98.6	97.0-100.0	2922	98.9	98.1-99.7

Physical Activity

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

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

Activity at work:

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

Travel to and from places:

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

Continued on next page

Physical Activity, Continued

Introduction (continued)

How much time do you spend walking or bicycling for travel on a typical day?

Recreational activities:

Do you do any involve vigorous-intensity sports, fitness or recreational activities that cause large increases in breathing or heart rate like [examples] for at least 10 minutes continuously?

In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational activities?

How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?

Do you do any involve moderate-intensity sports, fitness or recreational activities that cause large increases in breathing or heart rate like [examples] for at least 10 minutes continuously?

In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational activities?

How much time do you spend doing moderate-intensity sports, fitness or recreational activities on a typical day?

Sedentary behaviour :

How much time do you usually spend sitting or reclining on a typical day?

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

Instrument questions:

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

Level of total physical activity							
Age Group (years)	n	% Low	95% CI	Men			
				% Moderate	95% CI	% High	95% CI
15-24	336	7.2	4.0-10.4	11.8	1.5-22.2	80.9	69.1-92.8
25-34	313	10.0	2.2-17.8	13.3	3.2-23.4	76.7	61.3-92.2
35-44	269	7.2	3.8-10.7	13.7	6.2-21.2	79.1	69.2-89.0
45-54	219	8.5	4.5-12.5	17.3	6.6-28.1	74.1	65.7-82.5
55-64	161	19.6	7.5-31.7	34.8	20.9-48.6	45.6	26.2-65.0
15-64	1298	9.0	5.3-12.7	14.9	6.7-23.1	76.1	66.8-85.4

Level of total physical activity							
Age Group (years)	n	% Low	95% CI	Women			
				% Moderate	95% CI	% High	95% CI
15-24	378	11.9	6.8-17.0	18.3	15.0-21.5	69.8	62.0-77.7
25-34	328	6.1	2.6-9.7	12.0	0.9-23.1	81.9	73.5-90.2
35-44	287	6.3	1.1-11.5	20.2	13.4-27.1	73.5	66.7-80.3
45-54	193	18.0	9.2-26.8	24.9	12.0-37.9	57.1	48.8-65.3
55-64	129	29.2	12.5-46.0	32.6	25.6-39.6	38.2	25.2-51.1
15-64	1315	10.9	6.4-15.4	18.5	11.6-25.4	70.6	63.3-78.0

Level of total physical activity							
Age Group (years)	n	% Low	95% CI	Both Sexes			
				% Moderate	95% CI	% High	95% CI
15-24	714	9.5	5.2-13.8	14.9	7.5-22.4	75.6	64.9-86.3
25-34	641	8.1	3.4-12.7	12.6	2.6-22.7	79.3	68.7-89.9
35-44	556	6.8	3.2-10.3	16.9	9.7-24.1	76.3	68.1-84.5
45-54	412	13.0	7.0-19.0	20.9	10.3-31.6	66.1	59.4-72.8
55-64	290	24.0	10.5-37.5	33.8	26.0-41.6	42.2	31.9-52.6
15-64	2613	9.9	6.1-13.8	16.6	8.9-24.4	73.4	64.9-82.0

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

Instrument questions

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

Mean minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
15-24	336	190.8	115.5-266.1	378	154.9	126.2-183.5	714	173.4	117.1-229.7
25-34	313	222.8	116.1-329.4	328	187.3	158.4-216.2	641	205.0	133.5-276.5
35-44	269	212.8	152.3-273.4	287	183.5	171.7-195.4	556	198.4	162.6-234.1
45-54	219	180.6	162.0-199.2	193	163.7	111.2-216.2	412	172.7	144.1-201.2
55-64	161	120.8	101.2-140.3	129	116.1	88.2-144.1	290	118.7	104.5-132.8
15-64	1298	197.7	129.1-266.4	1315	168.6	141.7-195.4	2613	183.5	133.5-233.6

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

Instrument questions

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

Median minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Interquartile range (P25-P75)	n	Median minutes	Interquartile range (P25-P75)	n	Median minutes	Interquartile range (P25-P75)
15-24	336	150.7	100.7-240.0	378	128.6	83.6-205.0	714	137.9	91.4-228.6
25-34	313	162.9	94.3-325.7	328	145.7	102.9-257.1	641	153.6	98.6-291.4
35-44	269	154.9	100.7-274.3	287	156.4	91.4-231.4	556	156.4	97.9-245.7
45-54	219	132.9	84.3-248.6	193	120.0	62.9-231.4	412	128.6	75.7-245.7
55-64	161	67.9	34.3-154.3	129	77.1	25.7-162.9	290	74.3	34.3-162.9
15-64	1298	148.6	94.3-257.1	1315	137.1	83.6-231.4	2613	144.3	87.1-242.1

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

Instrument questions:

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

Mean minutes of work-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
15-24	336	98.9	68.4-129.4	378	86.5	74.6-98.4	714	92.9	70.9-114.9
25-34	313	133.4	83.7-183.1	328	121.7	95.6-147.7	641	127.5	88.6-166.5
35-44	269	138.6	114.6-162.6	287	116.1	98.1-134.2	556	127.5	118.4-136.6
45-54	219	111.0	92.0-130.0	193	91.9	79.2-104.6	412	102.0	92.7-111.2
55-64	161	66.1	35.6-96.6	129	68.5	54.6-82.4	290	67.2	47.7-86.7
15-64	1298	115.2	89.4-141.1	1315	102.1	91.5-112.7	2613	108.8	90.2-127.5

Mean minutes of transport-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
15-24	336	67.1	29.1-105.2	378	53.6	42.7-64.4	714	60.6	34.6-86.6
25-34	313	69.8	28.5-111.1	328	56.5	51.3-61.7	641	63.2	42.1-84.2
35-44	269	68.5	33.3-103.8	287	61.1	46.2-76.0	556	64.9	39.4-90.4
45-54	219	66.1	40.1-92.0	193	66.0	32.5-99.5	412	66.0	36.6-95.4
55-64	161	53.2	41.9-64.5	129	45.5	23.0-68.1	290	49.7	32.8-66.6
15-64	1298	67.0	31.9-102.1	1315	56.8	45.3-68.4	2613	62.1	37.9-86.3

Mean minutes of recreation-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
15-24	336	24.8	16.0-33.6	378	14.8	5.9-23.6	714	20.0	10.0-30.0
25-34	313	19.6	2.6-36.6	328	9.1	3.1-15.0	641	14.3	1.9-26.8
35-44	269	5.7	2.5-8.9	287	6.3	0.0-13.7	556	6.0	0.8-11.2
45-54	219	3.6	0.0-8.7	193	5.8	0.0-12.9	412	4.6	3.1-6.1
55-64	161	1.5	0.0-4.3	129	2.1	0.0-5.5	290	1.8	1.5-2.1
15-64	1298	15.5	6.3-24.6	1315	9.6	3.2-16.1	2613	12.6	4.4-20.8

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

Median minutes of work-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
15-24	336	80.0	38.6-128.6	378	68.6	34.3-115.7	714	77.1	34.3-120.0
25-34	313	97.1	51.4-188.6	328	86.4	51.4-171.4	641	90.0	51.4-180.0
35-44	269	98.6	57.9-171.4	287	97.1	42.9-171.4	556	97.1	51.4-171.4
45-54	219	85.7	42.9-145.7	193	68.6	25.7-137.1	412	80.0	34.3-137.1
55-64	161	25.7	8.6-97.1	129	42.9	0.0-102.9	290	34.3	0.0-102.9
15-64	1298	85.7	40.7-162.9	1315	81.4	34.3-137.1	2613	82.9	38.6-154.3

Median minutes of transport-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
15-24	336	45.7	25.0-90.0	378	35.7	20.0-72.9	714	42.9	21.4-77.1
25-34	313	51.4	23.0-120.0	328	42.9	21.4-68.6	641	45.0	21.4-85.0
35-44	269	45.7	21.4-77.1	287	45.7	22.9-75.0	556	45.7	22.9-77.1
45-54	219	42.9	25.0-80.0	193	38.6	17.1-90.0	412	42.9	22.9-85.7
55-64	161	34.3	12.9-60.0	129	25.7	0.0-51.4	290	28.6	10.7-60.0
15-64	1298	45.0	21.4-85.7	1315	40.0	20.0-72.9	2613	42.9	21.4-77.1

Median minutes of recreation-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
15-24	336	17.1	4.3-31.4	378	8.6	0.0-21.4	714	14.3	0.0-25.7
25-34	313	0.0	0.0-22.9	328	0.0	0.0-11.4	641	0.0	0.0-17.1
35-44	269	0.0	0.0-0.0	287	0.0	0.0-0.0	556	0.0	0.0-0.0
45-54	219	0.0	0.0-0.0	193	0.0	0.0-0.0	412	0.0	0.0-0.0
55-64	161	0.0	0.0-0.0	129	0.0	0.0-0.0	290	0.0	0.0-0.0
15-64	1298	0.0	0.0-20.0	1315	0.0	0.0-11.4	2613	0.0	0.0-17.1

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

Instrument questions:

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

No work-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at work	95% CI	n	% no activity at work	95% CI	n	% no activity at work	95% CI
15-24	336	13.0	10.8-15.1	378	13.9	10.3-17.5	714	13.4	11.0-15.8
25-34	313	12.6	2.4-22.8	328	10.1	3.8-16.4	641	11.3	3.5-19.2
35-44	269	9.1	1.0-17.3	287	11.0	4.1-18.0	556	10.1	7.3-12.8
45-54	219	9.8	6.3-13.4	193	15.1	11.3-18.9	412	12.3	9.0-15.6
55-64	161	23.2	8.5-37.9	129	27.2	13.8-40.7	290	25.0	13.9-36.2
15-64	1298	12.5	9.1-15.9	1315	13.2	11.3-15.1	2613	12.8	10.3-15.3

No transport-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI
15-24	336	8.0	1.3-14.7	378	9.9	5.9-13.9	714	8.9	4.5-13.3
25-34	313	8.2	0.6-15.8	328	5.8	1.7-10.0	641	7.0	2.0-12.1
35-44	269	8.5	4.9-12.1	287	6.6	1.6-11.6	556	7.6	4.3-10.9
45-54	219	6.9	2.7-11.1	193	16.4	7.0-25.8	412	11.4	5.8-16.9
55-64	161	14.9	7.3-22.5	129	27.4	9.7-45.1	290	20.6	8.0-33.2
15-64	1298	8.5	3.5-13.5	1315	9.9	5.0-14.8	2613	9.2	4.9-13.5

No recreation-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI
15-24	336	23.8	14.8-32.8	378	41.9	28.1-55.6	714	32.5	19.9-45.1
25-34	313	52.2	29.7-74.7	328	68.8	60.1-77.4	641	60.5	45.9-75.1
35-44	269	78.8	70.9-86.6	287	87.0	80.4-93.7	556	82.9	75.5-90.2
45-54	219	97.2	94.4-100.0	193	97.1	94.7-99.4	412	97.2	96.2-98.1
55-64	161	96.9	92.1-100.0	129	96.1	91.2-100.0	290	96.5	95.5-97.6
15-64	1298	56.3	43.3-69.3	1315	68.3	62.9-73.8	2613	62.2	52.2-72.2

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
15-24	332	47.0	41.7-52.3	34.3	27.6-40.9	18.7	14.5-23.0
25-34	302	54.9	47.1-62.7	34.0	30.6-37.5	11.0	5.4-16.7
35-44	263	60.8	57.1-64.6	34.0	30.7-37.3	5.2	3.1-7.2
45-54	199	59.1	50.6-67.6	40.0	30.4-49.5	0.9	0.0-2.1
55-64	141	49.9	35.1-64.7	48.7	35.4-62.1	1.3	0.0-3.6
15-64	1237	53.5	47.5-59.6	35.8	31.3-40.3	10.7	7.7-13.7

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
15-24	367	49.5	44.2-54.7	35.7	32.3-39.1	14.8	10.0-19.6
25-34	304	59.4	53.4-65.4	33.7	25.6-41.8	6.9	4.1-9.7
35-44	269	59.3	50.5-68.1	37.1	31.2-43.1	3.6	0.3-6.8
45-54	172	57.1	48.2-65.9	41.8	33.4-50.1	1.2	0.3-2.1
55-64	101	54.6	47.6-61.5	43.6	35.6-51.7	1.8	0.0-4.2
15-64	1213	55.5	51.9-59.1	36.5	33.5-39.4	8.1	5.6-10.5

Composition of total physical activity							
Both Sexes							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
15-24	699	48.2	42.7-53.7	35.0	31.6-38.3	16.8	13.9-19.8
25-34	606	57.2	51.9-62.4	33.9	29.0-38.7	9.0	5.0-13.0
35-44	532	60.1	54.6-65.5	35.5	31.5-39.6	4.4	2.2-6.5
45-54	371	58.2	49.4-66.9	40.8	31.7-49.9	1.0	0.6-1.5
55-64	242	51.9	40.3-63.6	46.5	35.0-58.0	1.5	1.1-1.9
15-64	2450	54.5	49.5-59.4	36.1	32.7-39.5	9.4	6.9-11.9

No vigorous physical activity Description: Percentage of respondents not engaging in vigorous physical activity.

Instrument questions:

- activity at work
- recreational activities

Age Group (years)	No vigorous physical activity								
	Men			Women			Both Sexes		
	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI
15-24	336	9.0	2.0-16.0	378	23.2	17.2-29.2	714	15.9	7.8-24.0
25-34	313	21.5	11.6-31.5	328	32.2	25.7-38.8	641	26.9	19.2-34.5
35-44	269	25.7	18.5-32.9	287	46.0	40.1-51.8	556	35.7	29.4-42.0
45-54	219	35.7	22.1-49.2	193	67.3	61.3-73.4	412	50.6	45.0-56.2
55-64	161	68.4	59.1-77.6	129	78.8	70.2-87.3	290	73.1	68.6-77.7
15-64	1298	23.1	14.8-31.4	1315	38.8	34.9-42.7	2613	30.8	23.7-37.8

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?

Last time blood pressure measured							
Age Group (years)	Men						
	n	% w/in past 12 mos.	95% CI	% 1-5 yrs ago	95% CI	% >5 yrs ago	95% CI
15-24	374	2.4	1.4-3.3	16.8	11.2-22.4	80.8	75.4-86.3
25-34	331	6.0	0.6-11.4	17.2	0.1-34.4	76.8	54.3-99.3
35-44	280	3.0	1.1-4.8	25.8	9.5-42.1	71.2	56.1-86.4
45-54	235	4.0	1.6-6.4	10.8	8.4-13.2	85.2	82.2-88.1
55-64	175	3.3	0.0-8.5	20.5	7.3-33.7	76.2	67.7-84.6
15-64	1395	3.7	2.2-5.2	18.2	10.6-25.7	78.1	69.3-87.0

Last time blood pressure measured							
Age Group (years)	Women						
	n	% w/in past 12 mos.	95% CI	% 1-5 yrs ago	95% CI	% >5 yrs ago	95% CI
15-24	415	4.3	2.5-6.1	23.3	9.7-36.9	72.4	59.3-85.6
25-34	366	4.0	2.6-5.5	22.3	17.0-27.7	73.6	67.1-80.2
35-44	314	2.8	0.0-5.9	24.5	14.1-35.0	72.6	60.7-84.5
45-54	207	0.8	0.3-1.3	15.1	2.9-27.3	84.1	71.8-96.5
55-64	138	1.0	0.0-2.4	27.6	5.0-50.3	71.3	48.9-93.8
15-64	1440	3.3	2.4-4.3	22.6	13.8-31.3	74.1	65.0-83.1

Last time blood pressure measured							
Age Group (years)	Both Sexes						
	n	% w/in past 12 mos.	95% CI	% 1-5 yrs ago	95% CI	% >5 yrs ago	95% CI
15-24	789	3.3	2.2-4.4	19.9	13.3-26.5	76.8	69.8-83.9
25-34	697	5.0	2.6-7.4	19.8	10.5-29.1	75.2	63.6-86.8
35-44	594	2.9	1.4-4.4	25.2	12.1-38.3	71.9	58.6-85.2
45-54	442	2.5	0.9-4.2	12.8	6.8-18.8	84.7	77.7-91.6
55-64	313	2.3	0.0-5.6	23.7	6.1-41.3	74.0	59.3-88.7
15-64	2835	3.5	2.5-4.6	20.3	12.0-28.6	76.1	67.0-85.3

Raised blood pressure diagnosed by doctor or health worker in last 12 months									
Age Group (years)	Men			Women			Both Sexes		
	n	% diagnosed	95% CI	n	% diagnosed	95% CI	n	% diagnosed	95% CI
15-24	371	0.1	0.0-0.3	413	0.5	0.0-1.2	784	0.3	0.0-0.6
25-34	328	2.0	0.0-5.9	359	0.1	0.1-0.2	687	1.1	0.0-2.7
35-44	277	0.7	0.0-1.9	306	0.2	0.0-0.4	583	0.4	0.0-1.1
45-54	231	1.3	0.0-2.9	203	0.1	0.0-0.4	434	0.8	0.0-1.6
55-64	173	0.1	0.0-0.2	133	0.2	0.0-0.7	306	0.1	0.0-0.5
15-64	1380	0.9	0.0-1.9	1414	0.3	0.0-0.5	2794	0.6	0.0-1.1

Currently taking blood pressure drugs prescribed by doctor or health worker									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
15-24	381	0.0	0.0-0.2	421	0.4	0.0-1.1	802	0.2	0.0-0.6
25-34	335	1.1	0.0-3.0	371	0.5	0.0-1.1	706	0.8	0.0-1.7
35-44	284	0.3	0.0-0.9	316	0.8	0.0-2.4	600	0.6	0.0-1.4
45-54	238	0.3	0.0-0.8	210	0.5	0.0-1.4	448	0.4	0.0-0.9
55-64	176	0.2	0.0-0.5	138	0.3	0.0-0.7	314	0.3	0.0-0.6
15-64	1414	0.4	0.0-0.9	1456	0.5	0.1-0.9	2870	0.5	0.0-0.9

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
15-24	381	0.1	0.0-0.3	421	0.2	0.0-0.5	802	0.2	0.0-0.4
25-34	335	1.1	0.0-3.1	371	0.5	0.0-1.1	706	0.8	0.0-1.7
35-44	284	1.1	0.0-2.8	315	0.9	0.0-2.5	599	1.0	0.0-2.2
45-54	238	0.5	0.2-0.9	210	0.6	0.0-1.5	448	0.6	0.1-1.0
55-64	176	0.4	0.0-1.2	138	0.2	0.0-0.7	314	0.3	0.0-1.0
15-64	1414	0.6	0.0-1.3	1455	0.5	0.1-0.9	2869	0.6	0.1-1.0

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
15-24	381	0.1	0.0-0.2	420	0.2	0.0-0.4	801	0.1	0.0-0.2
25-34	335	1.0	0.0-3.0	371	0.4	0.0-1.0	706	0.7	0.0-1.6
35-44	284	1.1	0.0-2.8	316	0.2	0.0-0.5	600	0.6	0.0-1.5
45-54	238	0.3	0.0-0.8	210	0.5	0.0-1.4	448	0.4	0.0-0.9
55-64	176	0.4	0.0-0.9	138	0.1	0.0-0.5	314	0.3	0.0-0.7
15-64	1414	0.6	0.0-1.2	1455	0.3	0.0-0.6	2869	0.4	0.1-0.8

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
15-24	381	0.2	0.1-0.4	421	0.9	0.0-2.7	802	0.5	0.0-1.3
25-34	335	1.0	0.0-3.0	371	0.4	0.0-1.0	706	0.7	0.0-1.6
35-44	284	1.2	0.0-2.9	316	0.1	0.0-0.2	600	0.6	0.0-1.5
45-54	238	0.2	0.0-0.5	210	0.5	0.0-1.5	448	0.4	0.0-0.8
55-64	176	0.4	0.0-0.9	138	0.1	0.0-0.2	314	0.2	0.0-0.6
15-64	1414	0.6	0.0-1.3	1456	0.5	0.0-1.1	2870	0.6	0.3-0.8

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
15-24	380	0.0	0.0-0.2	421	0.1	0.0-0.3	801	0.1	0.0-0.2
25-34	335	1.1	0.0-3.1	370	0.5	0.0-1.1	705	0.8	0.0-1.7
35-44	284	0.8	0.0-2.5	316	0.2	0.0-0.4	600	0.5	0.0-1.3
45-54	238	0.5	0.2-0.8	209	0.6	0.0-1.5	447	0.5	0.1-1.0
55-64	174	0.3	0.0-0.7	138	0.1	0.0-0.3	312	0.2	0.0-0.5
15-64	1411	0.5	0.0-1.2	1454	0.3	0.1-0.5	2865	0.4	0.1-0.7

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
15-24	381	0.0	0.0-0.0	421	0.1	0.0-0.1	802	0.0	0.0-0.1
25-34	335	0.8	0.0-2.6	371	0.0	0.0-0.1	706	0.4	0.0-1.2
35-44	284	0.1	0.0-0.3	316	0.1	0.0-0.2	600	0.1	0.0-0.2
45-54	238	0.1	0.0-0.3	210	0.4	0.0-1.3	448	0.2	0.0-0.7
55-64	176	0.0	0.0-0.0	138	0.1	0.0-0.5	314	0.1	0.0-0.2
15-64	1414	0.2	0.0-0.7	1456	0.1	0.0-0.2	2870	0.2	0.0-0.4

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
15-24	381	0.0	0.0-0.0	421	0.0	0.0-0.1	802	0.0	0.0-0.1
25-34	335	0.8	0.0-2.6	371	0.0	0.0-0.1	706	0.4	0.0-1.2
35-44	284	0.1	0.0-0.3	316	0.1	0.0-0.2	600	0.1	0.0-0.2
45-54	238	0.1	0.0-0.3	210	0.4	0.0-1.3	448	0.2	0.0-0.7
55-64	176	0.0	0.0-0.0	138	0.1	0.0-0.5	314	0.1	0.0-0.2
15-64	1414	0.2	0.0-0.7	1456	0.1	0.0-0.2	2870	0.2	0.0-0.4

Diabetes diagnosis and treatment

Description: Diabetes measurement, 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?

Blood glucose measured in last 12 mos.									
Age Group (years)	Men			Women			Both Sexes		
	n	% measured	95% CI	n	% measured	95% CI	n	% measured	95% CI
15-24	380	0.1	0.0-0.3	421	0.7	0.0-1.6	801	0.4	0.0-0.9
25-34	335	1.6	0.0-3.9	371	1.2	0.4-2.0	706	1.4	0.5-2.4
35-44	284	1.4	0.0-3.2	316	0.7	0.0-2.0	600	1.0	0.0-2.2
45-54	238	0.5	0.0-1.3	209	0.8	0.0-1.8	447	0.7	0.0-1.3
55-64	176	0.7	0.0-2.0	138	0.2	0.0-0.7	314	0.5	0.0-1.3
15-64	1413	0.9	0.0-1.7	1455	0.8	0.2-1.5	2868	0.8	0.3-1.3

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
15-24	378	0.0	0.0-0.0	421	0.0	0.0-0.0	799	0.0	0.0-0.0
25-34	333	0.7	0.0-2.5	371	0.0	0.0-0.0	704	0.3	0.0-1.1
35-44	283	0.0	0.0-0.0	316	0.2	0.0-0.7	599	0.1	0.0-0.3
45-54	238	0.1	0.0-0.3	209	0.3	0.0-1.0	447	0.2	0.0-0.5
55-64	176	0.5	0.0-1.5	138	0.0	0.0-0.0	314	0.3	0.0-0.8
15-64	1408	0.2	0.0-0.7	1455	0.1	0.0-0.2	2863	0.2	0.0-0.4

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
15-24	379	0.0	0.0-0.0	421	0.0	--	800	0.0	0.0-0.0
25-34	335	0.7	0.0-2.5	371	0.0	--	706	0.3	0.0-1.1
35-44	284	0.0	0.0-0.0	316	0.0	--	600	0.0	0.0-0.0
45-54	238	0.1	0.0-0.3	209	0.0	--	447	0.0	0.0-0.1
55-64	176	0.0	0.0-0.0	138	0.0	--	314	0.0	0.0-0.0
15-64	1412	0.2	0.0-0.6	1455	0.0	--	2867	0.1	0.0-0.3

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
15-24	379	0.0	0.0-0.0	421	0.0	0.0-0.1	800	0.0	0.0-0.1
25-34	335	0.8	0.0-2.6	371	0.0	0.0-0.0	706	0.4	0.0-1.2
35-44	284	0.0	0.0-0.0	316	0.0	0.0-0.0	600	0.0	0.0-0.0
45-54	238	0.1	0.0-0.3	210	0.0	0.0-0.0	448	0.0	0.0-0.1
55-64	176	0.5	0.0-1.5	138	0.0	0.0-0.0	314	0.3	0.0-0.8
15-64	1412	0.2	0.0-0.7	1456	0.0	0.0-0.0	2868	0.1	0.0-0.4

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?

Diabetes advice by traditional healer Description: Percentage of respondents who 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?

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
15-24	380	0.0	0.0-0.0	421	0.1	0.0-0.2	801	0.0	0.0-0.1
25-34	335	0.7	0.0-2.5	371	0.0	0.0-0.0	706	0.3	0.0-1.1
35-44	284	0.7	0.0-2.3	316	0.0	0.0-0.0	600	0.4	0.0-1.2
45-54	238	0.1	0.0-0.3	210	0.0	0.0-0.0	448	0.0	0.0-0.1
55-64	176	0.5	0.0-1.6	138	0.1	0.0-0.2	314	0.3	0.0-0.9
15-64	1413	0.4	0.0-1.0	1456	0.0	0.0-0.1	2869	0.2	0.0-0.5

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
15-24	380	0.0	0.0-0.0	421	0.0	0.0-0.0	801	0.0	0.0-0.0
25-34	335	0.7	0.0-2.5	371	0.0	0.0-0.0	706	0.3	0.0-1.1
35-44	284	0.0	0.0-0.0	316	0.0	0.0-0.0	600	0.0	0.0-0.0
45-54	238	0.1	0.0-0.3	210	0.0	0.0-0.0	448	0.0	0.0-0.1
55-64	176	0.0	0.0-0.0	138	0.0	0.0-0.0	314	0.0	0.0-0.0
15-64	1413	0.2	0.0-0.6	1456	0.0	0.0-0.0	2869	0.1	0.0-0.3

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
15-24	380	0.0	0.0-0.0	421	0.1	0.0-0.2	801	0.0	0.0-0.1
25-34	334	0.7	0.0-2.5	371	0.0	0.0-0.0	705	0.3	0.0-1.1
35-44	284	0.7	0.0-2.3	316	0.0	0.0-0.0	600	0.4	0.0-1.2
45-54	238	0.1	0.0-0.3	210	0.0	0.0-0.0	448	0.0	0.0-0.1
55-64	176	0.5	0.0-1.6	138	0.1	0.0-0.2	314	0.3	0.0-0.9
15-64	1412	0.4	0.0-1.0	1456	0.0	0.0-0.1	2868	0.2	0.0-0.5

Currently taking herbal or traditional treatment for diabetes									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	380	0.0	0.0-0.0	420	0.0	0.0-0.0	800	0.0	0.0-0.0
25-34	334	0.7	0.0-2.5	370	0.0	0.0-0.0	704	0.3	0.0-1.1
35-44	283	0.0	0.0-0.0	315	0.0	0.0-0.0	598	0.0	0.0-0.0
45-54	238	0.1	0.0-0.3	210	0.0	0.0-0.0	448	0.0	0.0-0.1
55-64	176	0.0	0.0-0.0	138	0.0	0.0-0.0	314	0.0	0.0-0.0
15-64	1411	0.2	0.0-0.6	1453	0.0	0.0-0.0	2864	0.1	0.0-0.3

Advised by doctor or health worker to stop smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	380	0.0	0.0-0.0	421	0.0	0.0-0.1	801	0.0	0.0-0.1
25-34	335	0.7	0.0-2.5	370	0.0	0.0-0.0	705	0.3	0.0-1.1
35-44	283	0.7	0.0-2.3	316	0.0	0.0-0.0	599	0.4	0.0-1.2
45-54	238	0.1	0.0-0.3	210	0.0	0.0-0.0	448	0.0	0.0-0.1
55-64	176	0.1	0.0-0.2	138	0.0	0.0-0.0	314	0.0	0.0-0.1
15-64	1412	0.3	0.0-0.9	1455	0.0	0.0-0.0	2867	0.2	0.0-0.5

Advised doctor or health worker to start or do more exercise									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	380	0.0	0.0-0.0	421	0.0	0.0-0.1	801	0.0	0.0-0.1
25-34	334	0.7	0.0-2.5	368	0.0	0.0-0.0	702	0.3	0.0-1.1
35-44	283	0.7	0.0-2.3	316	0.0	0.0-0.0	599	0.4	0.0-1.2
45-54	238	0.1	0.0-0.3	210	0.0	0.0-0.0	448	0.0	0.0-0.1
55-64	176	0.1	0.0-0.2	138	0.0	0.0-0.0	314	0.0	0.0-0.1
15-64	1411	0.3	0.0-0.9	1453	0.0	0.0-0.0	2864	0.2	0.0-0.5

Oral Health

Percentage of respondents not having natural teeth
 Description: Percentage of respondents who have all, some or none of their natural teeth.
 Instrument questions:
 • How many natural teeth do you have?

Number of natural teeth remaining							
Men							
Age Group (years)	n	% with all teeth	95% CI	% with some teeth	95% CI	% with no teeth	95% CI
15-24	381	85.3	82.1-88.5	14.7	11.6-17.9	0.0	0.0-0.0
25-34	335	74.1	66.1-82.2	25.8	17.8-33.8	0.1	0.0-0.2
35-44	281	61.7	55.7-67.7	38.3	32.3-44.3	0.0	0.0-0.0
45-54	237	37.7	26.6-48.7	62.3	51.3-73.4	0.0	0.0-0.0
55-64	176	19.9	15.1-24.8	79.1	74.1-84.2	0.9	0.0-3.2
15-64	1410	67.4	61.7-73.2	32.5	26.6-38.4	0.1	0.0-0.2

Number of natural teeth remaining							
Women							
Age Group (years)	n	% with all teeth	95% CI	% with some teeth	95% CI	% with no teeth	95% CI
15-24	420	83.7	72.1-95.3	16.3	4.7-27.9	0.0	0.0-0.1
25-34	371	71.1	53.9-88.3	28.5	11.5-45.6	0.3	0.0-1.2
35-44	315	63.0	57.0-69.0	36.8	30.8-42.8	0.2	0.0-0.7
45-54	209	41.7	32.8-50.6	57.9	49.0-66.9	0.4	0.0-1.1
55-64	138	14.9	6.6-23.3	80.5	71.9-89.0	4.6	0.0-11.8
15-64	1453	67.0	60.2-73.8	32.5	26.2-38.8	0.5	0.0-1.1

Number of natural teeth remaining							
Both Sexes							
Age Group (years)	n	% with all teeth	95% CI	% with some teeth	95% CI	% with no teeth	95% CI
15-24	801	84.5	79.8-89.2	15.5	10.7-20.2	0.0	0.0-0.1
25-34	706	72.6	60.3-84.9	27.2	15.0-39.4	0.2	0.0-0.6
35-44	596	62.4	58.1-66.6	37.5	33.3-41.8	0.1	0.0-0.3
45-54	446	39.6	36.7-42.4	60.3	57.6-63.0	0.2	0.0-0.5
55-64	314	17.7	14.4-21.1	79.7	76.6-82.9	2.6	0.4-4.7
15-64	2863	67.2	61.1-73.4	32.5	26.6-38.4	0.3	0.0-0.5

Percentage of respondents having removable dentures
 Description: Percentage of respondents who have removable dentures.
 Instrument questions:
 • Do you have any removable dentures?

Percentage of respondents having removable dentures									
Age Group (years)	Men			Women			Both Sexes		
	n	% Having removable dentures	95% CI	n	% Having removable dentures	95% CI	n	% Having removable dentures	95% CI
15-24	326	7.4	5.1-9.7	372	6.1	2.9-9.3	698	6.8	4.2-9.4
25-34	290	11.9	8.0-15.8	314	16.1	2.5-29.7	604	14.0	8.4-19.6
35-44	254	23.4	15.4-31.5	279	25.4	18.3-32.5	533	24.4	18.0-30.8
45-54	216	38.6	33.6-43.5	186	36.8	21.9-51.7	402	37.8	31.5-44.0
55-64	164	46.7	36.9-56.6	128	49.7	34.9-64.4	292	48.0	36.7-59.3
15-64	1250	18.4	16.3-20.4	1279	19.0	17.7-20.2	2529	18.7	17.1-20.2

Type of removable dentures among those with removable dentures

Description: Percentage of respondents who have a partial upper denture, a partial lower denture, a full upper denture or a full lower denture, among those respondents with removable dentures.

Instrument questions:

- Do you have any removable dentures?
- Which of the following removable dentures do you have?
 - A partial denture
 - A full upper denture
 - A full lower denture

Percentage of respondents with removable dentures having a partial denture									
Age Group (years)	Men			Women			Both Sexes		
	n	% Having partial denture	95% CI	n	% Having partial denture	95% CI	n	% Having partial denture	95% CI
15-24	12	49.3	14.7-83.9	20	53.9	0.0-100.0	32	51.3	7.3-95.2
25-34	27	79.9	64.6-95.2	42	63.8	48.0-79.7	69	70.7	64.5-76.9
35-44	53	69.3	32.9-100.0	55	82.5	66.9-98.1	108	76.1	54.2-98.0
45-54	64	73.1	62.0-84.2	64	62.0	46.4-77.6	128	68.2	61.2-75.3
55-64	81	58.8	44.3-73.4	65	64.5	55.3-73.7	146	61.4	51.2-71.6
15-64	237	67.4	52.2-82.6	246	67.5	59.1-75.8	483	67.4	56.4-78.5

Percentage of respondents with removable dentures having a full lower denture									
Age Group (years)	Men			Women			Both Sexes		
	n	% Having full lower denture	95% CI	n	% Having full lower denture	95% CI	n	% Having full lower denture	95% CI
15-24	12	0.7	0.0-2.2	20	3.1	0.0-6.4	32	1.7	0.6-2.8
25-34	27	0.5	0.0-1.6	42	1.6	0.0-4.4	69	1.2	0.0-2.9
35-44	53	3.8	0.0-8.3	55	0.9	0.3-1.4	108	2.3	0.0-4.7
45-54	64	3.8	0.0-10.4	64	2.1	0.0-5.2	128	3.0	0.0-6.3
55-64	81	4.6	1.3-7.9	65	6.7	3.6-9.8	146	5.5	3.4-7.6
15-64	237	2.9	1.0-4.9	246	2.5	1.7-3.3	483	2.7	1.6-3.8

Percentage of respondents with removable dentures having a full upper denture									
Age Group (years)	Men			Women			Both Sexes		
	n	% Having full upper denture	95% CI	n	% Having full upper denture	95% CI	n	% Having full upper denture	95% CI
15-24	12	1.4	0.0-2.9	20	1.2	0.0-2.8	32	1.3	0.0-2.8
25-34	27	3.0	0.0-8.8	42	1.4	0.0-3.5	69	2.1	0.0-4.9
35-44	53	2.4	0.0-6.6	55	4.3	0.0-14.1	108	3.4	0.0-9.1
45-54	64	7.9	1.0-14.8	64	13.2	0.0-27.6	128	10.3	5.7-14.8
55-64	81	13.3	9.7-16.9	65	12.4	0.0-25.3	146	12.9	7.8-17.9
15-64	237	5.8	2.8-8.8	246	6.5	0.6-12.4	483	6.2	4.5-7.8

Percentage of respondents having poor or very poor state of teeth

Description: Percentage of respondents describing the health of their teeth as poor or very poor.

Instrument questions:

- How would you describe the state of your teeth?

Percentage of respondents having poor or very poor teeth									
Age Group (years)	Men			Women			Both Sexes		
	n	% having poor or very poor teeth	95% CI	n	% having poor or very poor teeth	95% CI	n	% having poor or very poor teeth	95% CI
15-24	379	3.2	1.6-4.8	420	0.4	0.0-1.0	799	1.8	0.8-2.9
25-34	332	0.3	0.0-0.7	368	0.4	0.0-1.2	700	0.3	0.0-0.8
35-44	279	0.3	0.0-0.9	310	3.6	2.8-4.4	589	1.9	1.4-2.4
45-54	234	3.9	1.5-6.3	208	14.6	4.4-24.7	442	8.9	2.5-15.4
55-64	175	22.2	12.3-32.1	138	25.0	19.2-30.8	313	23.4	19.7-27.2
15-64	1399	3.3	2.7-3.9	1444	4.1	2.9-5.3	2843	3.7	3.1-4.2

Health of teeth Description: Percentage of respondents describing the health of their teeth as excellent, very good, good, average, poor, or very poor.

Instrument questions:

- How would you describe the state of your teeth?

Percentage of respondents indicating each of the following as the state of health of their teeth													
Men													
Age Group	n	% excellent	95% CI	% very good	95% CI	% good	95% CI	% average	95% CI	% poor	95% CI	% very poor	95% CI
15-24	379	32.3	29.4-35.2	38.6	32.2-45.0	22.0	18.4-25.5	4.0	0.2-7.8	3.0	1.6-4.4	0.2	0.0-0.6
25-34	332	20.8	16.2-25.4	34.6	26.8-42.5	36.0	29.0-42.9	8.2	5.6-10.9	0.3	0.0-0.7	0.0	0.0-0.0
35-44	279	12.4	8.1-16.7	30.1	16.5-43.7	40.1	30.2-50.1	17.0	8.0-25.9	0.1	0.0-0.3	0.2	0.0-0.8
45-54	234	6.9	1.4-12.4	11.9	6.9-16.8	49.7	42.7-56.8	27.7	19.6-35.7	3.0	2.0-4.1	0.8	0.0-2.6
55-64	175	5.2	2.3-8.0	11.3	5.7-16.9	27.6	22.0-33.2	33.8	29.9-37.6	15.3	8.6-22.1	6.9	1.2-12.6
15-64	1399	20.5	18.7-22.3	30.8	26.2-35.4	32.9	30.3-35.4	12.5	9.5-15.6	2.6	1.9-3.3	0.7	0.4-0.9

Percentage of respondents indicating each of the following as the state of health of their teeth													
Women													
Age Group	n	% excellent	95% CI	% very good	95% CI	% good	95% CI	% average	95% CI	% poor	95% CI	% very poor	95% CI
15-24	418	42.0	31.9	26.0-37.9	39.6	35.1-44.2	23.8	20.5-27.1	4.3	2.7-5.9	0.3	0.0	0.0-0.1
25-34	366	36.8	20.3	14.0-26.5	30.7	23.6-37.8	35.9	31.6-40.2	12.7	9.0-16.4	0.0	0.4	0.0-1.1
35-44	311	31.0	16.6	10.7-22.5	16.8	11.3-22.2	46.1	38.5-53.6	17.0	14.6-19.4	1.8	1.8	1.3-2.3
45-54	208	20.8	8.8	6.5-11.1	11.2	9.3-13.0	37.6	18.7-56.6	27.8	19.6-36.0	7.1	7.5	0.0-21.7
55-64	132	13.8	3.9	1.3-6.5	5.9	2.2-9.6	27.9	22.6-33.3	37.3	30.9-43.8	19.7	5.3	0.0-12.9
15-64	1435	34.4	21.2	17.0-25.4	27.3	22.8-31.7	33.5	29.0-38.0	13.9	12.5-15.3	2.5	1.6	0.2-3.1

Percentage of respondents indicating each of the following as the state of health of their teeth													
Both Sexes													
Age Group	n	% excellent	95% CI	% very good	95% CI	% good	95% CI	% average	95% CI	% poor	95% CI	% very poor	95% CI
15-24	799	32.1	27.9-36.4	39.1	34.9-43.3	22.8	19.5-26.2	4.1	1.6-6.6	1.7	0.8-2.7	0.1	0.0-0.3
25-34	700	20.5	16.9-24.2	32.6	27.1-38.1	36.0	33.3-38.6	10.5	7.8-13.2	0.2	0.0-0.4	0.2	0.0-0.6
35-44	589	14.5	12.5-16.5	23.6	15.1-32.0	43.0	38.1-48.0	17.0	12.0-22.0	0.9	0.6-1.3	1.0	0.6-1.3
45-54	442	7.8	4.1-11.5	11.5	8.5-14.6	44.0	34.4-53.7	27.7	22.9-32.6	5.0	3.5-6.4	4.0	0.0-11.5
55-64	313	4.6	2.3-6.8	8.9	6.0-11.7	27.8	24.9-30.6	35.3	32.5-38.2	17.3	12.8-21.8	6.2	3.9-8.5
15-64	2843	20.8	18.1-23.6	29.1	25.2-33.0	33.2	30.9-35.5	13.2	11.5-14.9	2.5	2.0-3.1	1.2	0.4-1.9

Teeth cleaning Description: Frequency of cleaning teeth among all respondents.

Instrument questions:

- How often do you clean your teeth?

Frequency of cleaning teeth, among all respondents															
Men															
Age Group	n	% never	95% CI	% once a month	95% CI	% 2-3 times/month	95% CI	% once a week	95% CI	% 2-3 times/week	95% CI	% once a day	95% CI	% twice a day	95% CI
15-24	381	1.5	0.0-4.1	3.7	1.6-5.9	15.8	0.0-35.0	14.1	4.8-23.5	37.1	28.4-45.9	19.5	15.8-23.2	8.2	3.7-12.7
25-34	330	1.0	0.0-2.4	6.5	0.0-15.9	13.5	10.3-16.7	10.7	2.5-18.9	41.7	33.4-50.0	20.2	7.3-33.1	6.3	1.4-11.2
35-44	281	2.6	0.0-5.5	3.9	2.5-5.3	16.7	12.1-21.2	13.3	4.0-22.6	36.2	20.6-51.7	22.3	14.5-30.0	5.1	3.3-6.9
45-54	235	10.7	7.9-13.6	6.8	0.0-14.2	12.9	9.6-16.3	13.2	8.3-18.1	26.2	7.1-45.3	26.0	10.6-41.4	4.1	0.0-8.5
55-64	174	20.3	12.7-27.9	10.3	5.4-15.2	20.1	12.9-27.2	7.2	0.0-16.7	20.3	10.7-29.9	20.2	13.3-27.2	1.6	0.0-4.1
15-64	1401	4.0	2.6-5.4	5.3	4.0-6.6	15.3	7.7-22.9	12.5	4.4-20.5	35.6	26.5-44.8	21.1	13.8-28.3	6.1	3.9-8.4

Frequency of cleaning teeth, among all respondents															
Women															
Age Group	n	% never	95% CI	% once a month	95% CI	% 2-3 times/month	95% CI	% once a week	95% CI	% 2-3 times/week	95% CI	% once a day	95% CI	% twice a day	95% CI
15-24	420	0.5	0.0-1.3	5.1	2.5-7.7	12.6	8.5-16.7	9.3	4.2-14.4	34.7	21.2-48.1	28.4	26.0-30.7	9.5	5.0-13.9
25-34	370	2.4	0.0-6.4	4.2	2.6-5.9	16.8	12.3-21.2	13.0	4.0-22.0	30.8	25.2-36.4	25.9	17.8-34.0	6.9	3.5-10.3
35-44	316	3.2	0.0-7.8	9.1	3.2-15.1	22.5	7.5-37.5	6.5	3.1-9.8	31.1	24.4-37.9	21.6	19.1-24.1	6.0	1.2-10.8
45-54	207	14.2	11.0-17.4	14.6	12.0-17.2	13.9	6.6-21.2	8.4	4.6-12.1	27.2	14.6-39.7	18.0	13.7-22.3	3.7	1.1-6.2
55-64	138	19.0	9.8-28.1	10.6	5.3-15.8	19.3	2.9-35.7	8.4	0.0-17.6	22.3	9.3-35.2	17.4	8.8-25.9	3.2	0.8-5.6
15-64	1451	4.2	2.0-6.4	7.1	4.2-9.9	16.4	11.8-20.9	9.7	3.8-15.5	31.2	22.9-39.5	24.5	22.8-26.2	7.0	4.4-9.5

Frequency of cleaning teeth, among all respondents															
Both Sexes															
Age Group	n	% never	95% CI	% once a month	95% CI	% 2-3 times/month	95% CI	% once a week	95% CI	% 2-3 times/week	95% CI	% once a day	95% CI	% twice a day	95% CI
15-24	801	1.0	0.0-2.3	4.4	3.0-5.8	14.3	4.4-24.3	11.9	5.1-18.6	36.0	26.4-45.6	23.7	20.8-26.5	8.8	4.3-13.3
25-34	700	1.7	0.0-4.2	5.4	0.0-10.7	15.2	11.5-18.8	11.9	3.3-20.5	36.1	29.3-42.9	23.1	18.6-27.7	6.6	3.1-10.1
35-44	597	2.9	1.4-4.3	6.5	3.1-10.0	19.6	12.5-26.7	9.9	3.9-15.9	33.7	22.9-44.4	22.0	17.9-26.0	5.5	2.6-8.5
45-54	442	12.4	9.1-15.6	10.4	8.1-12.8	13.4	8.5-18.3	11.0	6.6-15.3	26.7	14.0-39.3	22.3	11.4-33.2	3.9	1.3-6.5
55-64	312	19.7	18.6-20.8	10.4	5.7-15.1	19.7	8.8-30.7	7.7	0.0-16.9	21.2	11.1-31.2	18.9	11.8-26.1	2.3	1.3-3.3
15-64	2852	4.1	3.6-4.7	6.2	4.3-8.1	15.8	12.7-19.0	11.1	4.4-17.9	33.5	24.7-42.3	22.7	18.7-26.7	6.6	4.4-8.7

Percentage not cleaning teeth at least once a day
 Description: Percentage of respondents not cleaning their teeth at least once a day.
 Instrument questions:
 • How often do you clean your teeth?

Percentage of respondents not cleaning their teeth at least once a day									
Age Group (years)	Men			Women			Both Sexes		
	n	% not cleaning teeth daily	95% CI	n	% not cleaning teeth daily	95% CI	n	% not cleaning teeth daily	95% CI
15-24	381	72.3	66.6-78.1	420	62.2	55.8-68.5	801	67.5	61.2-73.9
25-34	330	73.4	64.8-82.1	370	67.2	59.0-75.4	700	70.3	67.3-73.3
35-44	281	72.6	65.1-80.1	316	72.4	67.7-77.1	597	72.5	69.6-75.4
45-54	235	69.9	57.7-82.1	207	78.3	72.4-84.3	442	73.8	64.2-83.5
55-64	174	78.2	71.3-85.1	138	79.4	70.2-88.7	312	78.7	71.9-85.6
15-64	1401	72.8	66.6-79.0	1451	68.5	66.6-70.5	2852	70.7	67.1-74.4

Percentage using a various tools to clean teeth
 Description: Percentage of respondents each of the tools below to clean their teeth.
 Instrument questions:
 • Which of the following do you use to clean your teeth?

Percentage of respondents using a various tools to clean teeth											
Age Group	n	Men									
		% Toothbrush alone	95% CI	% toothbrush & toothpaste	95% CI	% Wooden tooth-picks	95% CI	% Thread (dental floss)	95% CI	% ash	95% CI
15-24	376	1.1	0.0-3.4	42.1	28.9-55.2	0.6	0.0-1.6	1.1	0.0-3.7	0.2	0.0-0.6
25-34	330	2.9	0.0-6.8	35.4	28.8-41.9	1.1	0.0-2.5	0.0	0.0-0.0	0.1	0.0-0.2
35-44	273	3.2	0.1-6.3	43.3	29.3-57.3	0.8	0.0-2.7	0.0	0.0-0.0	1.1	0.0-3.1
45-54	224	7.5	0.0-15.4	27.5	6.1-48.8	1.7	0.0-4.4	0.0	0.0-0.0	1.8	0.0-5.4
55-64	169	2.5	0.0-7.5	21.6	9.5-33.8	0.1	0.0-0.5	0.0	0.0-0.0	1.0	0.0-3.0
15-64	1372	2.8	1.4-4.3	37.4	25.1-49.6	0.9	0.3-1.4	0.4	0.0-1.2	0.6	0.2-1.0

Percentage of respondents using a various tools to clean teeth									
Age Group	n	Men							
		% betel nut or other leaf	95% CI	% sand	95% CI	% steel wool	95% CI	% other	95% CI
15-24	376	52.5	44.7-60.3	0.4	0.0-1.0	0.0	0.0-0.0	2.0	0.0-6.8
25-34	330	56.1	47.4-64.9	1.7	0.0-3.7	0.8	0.0-2.6	2.0	0.0-5.8
35-44	273	50.0	36.3-63.7	1.1	0.0-2.6	0.2	0.0-0.8	0.2	0.0-0.7
45-54	224	53.1	43.3-62.8	3.9	0.0-8.0	0.3	0.0-1.0	4.3	0.0-12.5
55-64	169	63.6	48.4-78.7	2.4	0.0-5.9	0.9	0.0-3.0	7.8	4.5-11.2
15-64	1372	53.8	44.6-63.0	1.4	0.3-2.6	0.4	0.0-0.9	2.3	0.0-6.2

Percentage of respondents using a various tools to clean teeth											
Women											
Age Group	n	% Toothbrush alone	95% CI	% toothbrush & toothpaste	95% CI	% Wooden tooth-picks	95% CI	% Thread (dental floss)	95% CI	% ash	95% CI
15-24	415	3.2	2.7-3.7	54.3	41.6-67.0	0.9	0.0-2.7	1.1	0.0-2.8	1.1	0.0-2.8
25-34	362	2.3	1.0-3.6	46.8	35.3-58.4	2.0	1.0-3.1	0.3	0.0-0.9	0.5	0.0-1.5
35-44	309	4.6	0.0-9.3	39.9	35.3-44.6	1.9	0.0-5.1	0.0	0.0-0.0	0.0	0.0-0.0
45-54	199	10.9	0.0-22.0	27.7	3.9-51.4	0.1	0.0-0.2	0.0	0.0-0.0	0.0	0.0-0.0
55-64	132	1.5	0.0-4.0	21.8	8.8-34.9	3.4	0.0-8.3	0.0	0.0-0.0	2.8	0.0-7.8
15-64	1417	4.0	1.8-6.2	44.4	35.2-53.5	1.5	0.5-2.5	0.4	0.0-1.1	0.7	0.0-1.7

Percentage of respondents using a various tools to clean teeth										
Women										
Age Group	n	% betel nut or other leaf	95% CI	% sand	95% CI	% steel wool	95% CI	% other	95% CI	
15-24	415	35.5	23.9-47.0	2.4	0.4-4.5	0.8	0.0-2.6	0.8	0.0-2.4	
25-34	362	46.4	35.1-57.8	1.2	0.0-3.3	0.4	0.0-1.2	0.0	0.0-0.1	
35-44	309	51.2	46.1-56.4	1.2	0.0-2.7	0.0	0.0-0.0	1.1	0.0-2.8	
45-54	199	54.0	26.2-81.8	3.4	0.0-6.8	0.1	0.0-0.2	3.9	0.0-12.9	
55-64	132	55.2	44.8-65.6	8.2	0.0-20.2	0.0	0.0-0.0	7.1	0.7-13.4	
15-64	1417	45.1	34.8-55.3	2.3	0.9-3.6	0.4	0.0-1.0	1.4	0.0-3.0	

Percentage of respondents using a various tools to clean teeth											
Both Sexes											
Age Group	n	% Toothbrush alone	95% CI	% toothbrush & toothpaste	95% CI	% Wooden tooth-picks	95% CI	% Thread (dental floss)	95% CI	% ash	95% CI
15-24	791	2.1	0.8-3.4	47.9	36.3-59.4	0.7	0.0-1.6	1.1	0.0-3.2	0.6	0.0-1.6
25-34	692	2.6	1.1-4.0	41.2	34.2-48.1	1.6	0.6-2.5	0.1	0.0-0.4	0.3	0.0-0.8
35-44	582	3.9	0.1-7.7	41.6	35.6-47.7	1.4	0.7-2.1	0.0	0.0-0.0	0.6	0.0-1.5
45-54	423	9.1	6.6-11.6	27.6	5.3-49.8	0.9	0.0-2.5	0.0	0.0-0.0	1.0	0.0-2.7
55-64	301	2.0	0.3-3.8	21.7	9.7-33.8	1.6	0.0-3.9	0.0	0.0-0.0	1.8	0.0-5.2
15-64	2789	3.4	1.9-4.9	40.8	30.5-51.0	1.2	0.9-1.4	0.4	0.0-1.1	0.6	0.0-1.2

Percentage of respondents using a various tools to clean teeth									
Both Sexes									
Age Group	n	% betel nut or other leaf	95% CI	% sand	95% CI	% steel wool	95% CI	% other	95% CI
15-24	791	44.4	36.1-52.8	1.3	0.0-2.7	0.4	0.0-1.1	1.4	0.0-4.6
25-34	692	51.2	42.3-60.2	1.5	0.1-2.9	0.6	0.0-1.5	1.0	0.0-2.7
35-44	582	50.6	41.9-59.2	1.1	0.0-2.4	0.1	0.0-0.4	0.7	0.0-1.6
45-54	423	53.5	37.5-69.5	3.6	0.6-6.7	0.2	0.0-0.6	4.1	0.0-12.7
55-64	301	59.9	49.5-70.2	5.0	0.0-11.7	0.5	0.0-1.7	7.5	3.1-11.9
15-64	2789	49.6	40.4-58.8	1.8	0.6-3.1	0.4	0.3-0.4	1.9	0.0-4.5

Percentage of respondents not using toothpaste

Description: Percentage of respondents not using toothpaste.

Instrument questions:
• Do you use toothpaste?

Percentage of respondents not using toothpaste									
Age Group (years)	Men			Women			Both Sexes		
	n	% not using toothpaste	95% CI	n	% not using toothpaste	95% CI	n	% not using toothpaste	95% CI
15-24	347	49.6	36.0-63.1	402	39.4	27.0-51.8	749	44.7	34.0-55.3
25-34	307	56.4	48.1-64.8	349	53.0	43.0-63.1	656	54.7	46.1-63.3
35-44	270	50.8	36.9-64.6	298	57.2	52.5-61.8	568	53.9	45.6-62.3
45-54	216	62.6	51.6-73.6	199	70.9	52.0-89.8	415	66.6	53.9-79.2
55-64	170	79.0	58.6-99.5	129	78.5	71.7-85.3	299	78.8	65.3-92.3
15-64	1310	55.3	47.0-63.6	1377	52.8	44.6-61.1	2687	54.1	46.0-62.2

Percentage of respondents who have not seen a dentist for more than a year

Description: Percentage of respondents who have not seen a dentist for more than a year.

Instrument questions:
• How long has it been since you last saw a dentist?

Percentage of respondents who have not seen a dentist in the last year									
Age Group (years)	Men			Women			Both Sexes		
	n	% not seen a dentist in the last year	95% CI	n	% not seen a dentist in the last year	95% CI	n	% not seen a dentist in the last year	95% CI
15-24	379	98.1	96.2-100.0	418	98.1	96.5-99.6	797	98.1	97.5-98.7
25-34	331	99.3	98.5-100.0	366	96.2	92.0-100.0	697	97.7	96.0-99.4
35-44	280	97.9	94.5-100.0	311	98.1	95.9-100.0	591	98.0	95.5-100.0
45-54	234	98.9	97.3-100.0	208	99.9	99.8-100.0	442	99.3	98.5-100.0
55-64	175	99.2	98.2-100.0	132	99.4	98.1-100.0	307	99.3	98.6-100.0
15-64	1399	98.5	97.9-99.2	1435	97.8	97.3-98.4	2834	98.2	97.7-98.7

Time since last visit to dentist

Description: Percentage of respondents who have not seen a dentist since time indicated.

Instrument questions:
• How long has it been since you last saw a dentist?

Percentage of respondents who have not seen a dentist since time indicated													
Age Group	n	Men											
		% < 6 mos ago	95% CI	% 6-12 mos ago	95% CI	% 1-2 yrs ago	95% CI	% 2-5 yrs ago	95% CI	% > 5 yrs ago	95% CI	% never	95% CI
15-24	379	1.7	0.0-3.7	0.2	0.1-0.3	0.9	0.2-1.5	2.6	0.0-8.2	2.8	1.0-4.6	91.9	86.2-97.7
25-34	331	0.3	0.0-1.0	0.4	0.1-0.7	1.3	0.5-2.1	1.8	0.0-3.7	7.5	0.0-16.3	88.7	78.5-98.8
35-44	280	1.0	0.0-2.8	1.0	0.0-2.8	1.6	0.0-3.5	4.4	2.7-6.1	8.7	5.3-12.1	83.2	76.1-90.2
45-54	234	0.8	0.0-2.4	0.3	0.0-0.9	1.5	0.0-4.8	7.7	3.0-12.5	12.9	9.3-16.6	76.6	68.0-85.3
55-64	175	0.1	0.0-0.2	0.7	0.0-1.7	1.3	0.0-3.0	4.2	0.0-11.0	17.4	9.9-24.8	76.4	63.3-89.4
15-64	1399	1.0	0.3-1.7	0.5	0.0-0.9	1.2	0.5-2.0	3.5	0.5-6.4	7.4	5.1-10.5	86.4	80.6-92.3

Percentage of respondents who have not seen a dentist since time indicated													
Age Group	n	Women											
		% < 6 mos ago	95% CI	% 6-12 mos ago	95% CI	% 1-2 yrs ago	95% CI	% 2-5 yrs ago	95% CI	% > 5 yrs ago	95% CI	% never	95% CI
15-24	418	1.1	0.0-2.7	0.9	0.6-1.1	3.0	0.0-6.9	4.6	1.4-7.9	2.9	0.3-5.5	87.6	79.4-95.8
25-34	366	0.1	0.0-0.2	3.7	0.0-7.8	5.1	0.0-12.1	1.4	0.0-3.6	6.7	0.7-12.7	82.9	71.2-94.6
35-44	311	0.3	0.0-0.7	1.6	0.0-3.7	1.8	0.0-3.7	3.3	2.1-4.5	8.4	3.1-13.7	84.6	76.0-93.3
45-54	208	0.0	0.0-0.0	0.1	0.0-0.2	0.4	0.0-0.8	4.7	0.2-9.2	13.1	6.4-19.8	81.8	71.1-92.4
55-64	132	0.0	0.0-0.0	0.6	0.0-1.9	1.7	0.0-4.7	9.4	0.0-19.7	12.1	2.2-22.1	76.2	55.8-96.5
15-64	1435	0.4	0.0-1.0	1.7	0.8-2.7	3.0	0.0-6.5	3.7	2.3-5.1	6.8	4.2-9.4	84.3	78.3-90.4

Percentage of respondents who have not seen a dentist since time indicated													
Age Group	Both Sexes												
	n	% < 6 mos ago	95% CI	% 6-12 mos ago	95% CI	% 1-2 yrs ago	95% CI	% 2-5 yrs ago	95% CI	% > 5 yrs ago	95% CI	% never	95% CI
15-24	797	1.4	0.8-2.0	0.5	0.3-0.7	1.9	0.0-4.0	3.5	0.0-8.1	2.8	0.8-4.8	89.9	83.2-96.6
25-34	697	0.2	0.0-0.5	2.1	0.3-3.8	3.2	0.0-7.4	1.6	0.0-3.6	7.1	0.2-14.0	85.7	74.7-96.7
35-44	591	0.7	0.0-1.6	1.3	0.0-3.1	1.7	0.1-3.3	3.9	2.9-4.9	8.6	6.3-10.8	83.9	78.1-89.7
45-54	442	0.4	0.0-1.3	0.2	0.0-0.5	1.0	0.0-2.6	6.3	2.0-10.6	13.0	9.7-16.3	79.0	70.5-87.5
55-64	307	0.0	0.0-0.1	0.7	0.0-1.4	1.5	0.4-2.6	6.4	1.7-11.2	15.1	7.3-22.9	76.3	63.9-88.6
15-64	2834	0.7	0.5-0.9	1.1	0.6-1.6	2.1	0.1-4.1	3.6	1.5-5.7	7.1	4.9-9.4	85.4	79.5-91.3

Percentage of respondents having difficulty in chewing foods

Description: Percentage of respondents having difficulty in chewing foods in the past year.

Instrument questions:

- Have you experienced any of the following problems during the past year because of the state of your teeth?
- Difficulty in chewing foods?

Percentage of respondents having difficulty in chewing foods									
Age Group (years)	Men			Women			Both Sexes		
	n	% Difficulty in chewing foods	95% CI	n	% Difficulty in chewing foods	95% CI	n	% Difficulty in chewing foods	95% CI
15-24	374	1.4	0.0-3.3	419	0.1	0.0-0.1	793	0.8	0.0-1.9
25-34	332	1.0	0.0-2.0	370	0.8	0.0-2.3	702	0.9	0.0-1.9
35-44	279	2.4	1.7-3.0	313	1.1	0.0-2.7	592	1.7	1.0-2.5
45-54	236	4.3	0.2-8.3	209	4.0	0.6-7.5	445	4.2	0.7-7.6
55-64	176	12.3	10.5-14.1	138	9.2	3.6-14.9	314	10.9	8.1-13.8
15-64	1397	2.6	2.0-3.2	1449	1.5	0.8-2.1	2846	2.1	1.5-2.6

Percentage of respondents having difficulty with speech/trouble pronouncing words

Description: Percentage of respondents having difficulty with speech/trouble pronouncing words in the past year.

Instrument questions:

- Have you experienced any of the following problems during the past year because of the state of your teeth?
- Difficulty with speech/trouble pronouncing words?

Percentage of respondents having difficulty with speech/trouble pronouncing words									
Age Group (years)	Men			Women			Both Sexes		
	n	% Difficulty with speech/ pronouncing words	95% CI	n	% Difficulty with speech/ pronouncing words	95% CI	n	% Difficulty with speech/ pronouncing words	95% CI
15-24	374	0.2	0.0-0.6	419	0.1	0.0-0.1	793	0.1	0.0-0.3
25-34	332	0.0	0.0-0.0	370	0.0	0.0-0.0	702	0.0	0.0-0.0
35-44	279	1.5	0.0-3.8	313	0.7	0.0-2.3	592	1.1	0.3-2.0
45-54	236	0.0	0.0-0.0	209	0.7	0.0-1.9	445	0.4	0.0-0.9
55-64	176	0.1	0.0-0.3	138	0.1	0.0-0.2	314	0.1	0.1-0.2
15-64	1397	0.4	0.0-0.8	1449	0.3	0.0-0.6	2846	0.3	0.1-0.5

Percentage of respondents having persistent pain

Description: Percentage of respondents having persistent pain.

Instrument questions:

- Have you experienced any of the following problems during the past year because of the state of your teeth?
- Persistent pain?

Age Group (years)	Percentage of respondents having difficulty with persistent pain								
	Men			Women			Both Sexes		
	n	% with persistent pain	95% CI	n	% with persistent pain	95% CI	n	% with persistent pain	95% CI
15-24	374	6.6	4.1-9.0	419	3.9	1.5-6.3	793	5.3	4.2-6.4
25-34	332	10.4	0.6-20.3	370	6.9	4.5-9.3	702	8.6	3.0-14.2
35-44	279	12.2	4.6-19.7	313	16.9	10.7-23.1	592	14.5	12.9-16.1
45-54	236	27.2	24.7-29.8	209	21.9	4.6-39.1	445	24.7	17.0-32.4
55-64	176	34.0	26.2-41.9	138	25.6	16.1-35.1	314	30.3	26.2-34.4
15-64	1397	13.2	6.9-19.5	1449	10.7	7.1-14.3	2846	12.0	10.1-13.8

Percentage of respondents being embarrassed about appearance of teeth

Description: Percentage of respondents being embarrassed about appearance of teeth in the past year.

Instrument questions:

- Have you experienced any of the following problems during the past year because of the state of your teeth?
- Embarrassed about appearance of teeth?

Age Group (years)	Percentage of respondents being embarrassed because of appearance of teeth								
	Men			Women			Both Sexes		
	n	% Embarrassed because of appearance of teeth	95% CI	n	% Embarrassed because of appearance of teeth	95% CI	n	% Embarrassed because of appearance of teeth	95% CI
15-24	374	2.0	1.3-2.7	419	0.2	0.0-0.4	793	1.1	0.9-1.3
25-34	332	0.2	0.0-0.6	370	0.4	0.0-1.4	702	0.3	0.0-0.9
35-44	279	2.7	1.2-4.1	313	1.8	0.0-4.9	592	2.2	1.3-3.1
45-54	236	0.5	0.0-1.4	209	2.8	0.0-7.6	445	1.6	0.0-4.2
55-64	176	0.9	0.0-2.9	138	1.4	0.0-3.9	314	1.2	0.0-3.3
15-64	1397	1.4	1.1-1.7	1449	0.9	0.6-1.3	2846	1.2	0.9-1.4

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

Age Group (years)	Mean height (cm)					
	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
15-24	380	161.0	159.1-162.8	422	153.9	152.6-155.2
25-34	334	163.1	161.8-164.4	370	155.0	153.4-156.7
35-44	283	163.1	161.9-164.2	313	154.8	153.7-156.0
45-54	236	160.5	159.4-161.6	208	153.5	152.3-154.8
55-64	175	158.4	157.6-159.3	138	152.0	150.5-153.4
15-64	1408	161.7	160.6-162.8	1451	154.3	153.5-155.0

Age Group (years)	Mean weight (kg)					
	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
15-24	378	60.6	57.9-63.4	417	56.8	54.8-58.8
25-34	334	64.4	63.4-65.4	370	57.9	56.0-59.9
35-44	281	66.2	62.5-69.8	314	57.6	55.7-59.5
45-54	236	60.8	58.4-63.2	208	55.2	54.2-56.2
55-64	175	57.8	55.6-59.9	136	51.1	47.6-54.6
15-64	1404	62.5	60.5-64.5	1445	56.8	55.0-58.6

Age Group (years)	Mean BMI (kg/m ²)								
	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	372	23.5	22.8-24.2	416	24.0	23.3-24.7	788	23.7	23.1-24.4
25-34	333	24.4	23.6-25.1	366	24.2	23.6-24.8	699	24.3	23.8-24.8
35-44	280	24.9	23.7-26.1	311	24.1	23.4-24.8	591	24.5	23.7-25.2
45-54	234	23.6	23.0-24.3	205	23.3	22.6-24.0	439	23.5	23.0-24.0
55-64	174	22.9	22.2-23.7	135	22.1	21.0-23.2	309	22.6	21.8-23.3
15-64	1393	24.0	23.3-24.6	1433	23.9	23.3-24.5	2826	23.9	23.3-24.5

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

Instrument questions:

- Height
- Weight

BMI classifications									
Men									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
15-24	372	3.8	0.3-7.2	70.5	63.5-77.5	22.0	11.5-32.6	3.7	0.1-7.2
25-34	333	1.0	0.0-2.1	63.1	53.0-73.2	30.6	24.0-37.2	5.3	1.6-9.0
35-44	280	0.4	0.0-1.4	63.2	45.7-80.7	28.9	14.2-43.6	7.5	2.9-12.0
45-54	234	1.7	0.0-5.1	73.2	63.5-82.9	19.4	12.9-25.8	5.7	3.3-8.1
55-64	174	4.8	2.5-7.0	70.5	61.4-79.6	21.2	13.3-29.2	3.5	0.9-6.2
15-64	1393	2.2	0.6-3.9	67.5	60.9-74.0	25.3	20.0-30.6	5.1	2.2-7.9

BMI classifications									
Women									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
15-24	416	3.9	1.4-6.5	59.0	48.2-69.7	32.1	23.0-41.2	5.0	2.3-7.8
25-34	366	3.9	0.4-7.3	61.9	50.2-73.5	23.7	15.8-31.6	10.6	8.0-13.2
35-44	311	3.7	0.0-9.0	60.7	51.8-69.7	23.2	16.5-30.0	12.4	9.2-15.5
45-54	205	8.2	4.5-11.9	63.2	57.8-68.6	18.4	15.3-21.6	10.2	6.0-14.4
55-64	135	16.2	8.6-23.9	65.2	61.4-68.9	13.9	8.7-19.0	4.8	1.2-8.3
15-64	1433	5.1	3.3-6.8	61.0	55.1-66.9	25.3	19.8-30.7	8.7	6.5-10.9

BMI classifications									
Both Sexes									
Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
15-24	788	3.8	0.9-6.8	65.0	58.9-71.1	26.8	20.7-33.0	4.3	1.3-7.3
25-34	699	2.5	1.0-3.9	62.5	55.2-69.7	27.1	21.6-32.5	8.0	5.0-10.9
35-44	591	2.0	0.0-4.9	62.0	50.2-73.7	26.1	16.6-35.6	9.9	7.0-12.8
45-54	439	4.7	1.2-8.3	68.5	60.7-76.4	18.9	14.9-22.9	7.8	4.6-11.0
55-64	309	9.7	6.3-13.2	68.2	62.6-73.7	18.0	11.3-24.7	4.1	1.6-6.6
15-64	2826	3.6	2.0-5.2	64.3	58.5-70.2	25.3	20.3-30.2	6.8	4.8-8.8

Over-weight Description: Percentage of respondents (excluding pregnant women) who are overweight (BMI ≥ 25.0)

Instrument questions:

- Height
- Weight

Percentage of respondents who are overweight (BMI ≥ 25.0)									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	372	25.7	16.8-34.6	416	37.1	25.5-48.6	788	31.1	23.2-39.1
25-34	333	35.9	25.9-45.9	366	34.3	24.5-44.0	699	35.1	27.7-42.4
35-44	280	36.4	18.9-53.9	311	35.6	28.9-42.4	591	36.0	25.6-46.4
45-54	234	25.1	17.2-32.9	205	28.6	24.9-32.4	439	26.7	21.5-32.0
55-64	174	24.7	16.1-33.4	135	18.6	11.1-26.2	309	22.1	13.9-30.2
15-64	1393	30.3	23.0-37.6	1433	33.9	26.9-41.0	2826	32.1	25.2-39.0

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
15-24	378	78.8	76.5-81.2	413	81.5	79.5-83.5
25-34	335	81.7	81.0-82.5	364	81.2	79.0-83.4
35-44	281	83.8	80.8-86.8	314	83.0	80.5-85.6
45-54	234	83.2	81.0-85.5	207	83.2	81.9-84.5
55-64	174	82.2	79.6-84.7	136	80.5	75.9-85.2
15-64	1402	81.3	80.6-82.0	1434	81.9	79.9-83.8

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
15-24	378	85.9	80.8-90.9	411	87.4	80.6-94.2
25-34	331	88.2	84.4-92.1	364	87.5	81.5-93.5
35-44	279	89.5	85.0-94.0	312	89.1	83.7-94.6
45-54	233	87.5	81.7-93.4	205	88.4	85.3-91.6
55-64	172	85.2	79.6-90.9	134	85.9	78.3-93.5
15-64	1393	87.3	82.8-91.9	1426	87.8	81.9-93.7

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
15-24	377	0.9	0.9-1.0	411	0.9	0.9-1.0
25-34	331	0.9	0.9-1.0	363	0.9	0.9-1.0
35-44	279	0.9	0.9-1.0	312	0.9	0.9-1.0
45-54	232	1.0	0.9-1.0	205	0.9	0.9-1.0
55-64	171	1.0	0.9-1.0	133	0.9	0.9-1.0
15-64	1390	0.9	0.9-1.0	1424	0.9	0.9-1.0

Blood pressure Description: Mean blood pressure among all respondents, excluding those currently on medication for raised blood pressure.

Instrument question:
 • During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?
 • 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
15-24	382	120.9	119.4-122.3	423	116.6	113.8-119.3	805	118.8	117.1-120.6
25-34	335	120.3	117.8-122.8	370	114.7	111.3-118.1	705	117.4	115.1-119.8
35-44	283	119.5	117.9-121.0	315	116.1	113.3-118.9	598	117.8	115.6-119.9
45-54	236	121.3	117.5-125.1	208	120.5	118.3-122.6	444	120.9	118.5-123.3
55-64	175	121.9	117.8-126.1	138	122.4	120.2-124.6	313	122.1	120.1-124.2
15-64	1411	120.6	119.5-121.6	1454	116.7	114.1-119.2	2865	118.7	117.1-120.3

Mean diastolic blood pressure (mmHg)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	382	66.0	64.7-67.2	423	70.1	68.3-71.9	805	67.9	66.1-69.8
25-34	335	68.8	67.5-70.1	370	69.9	68.4-71.3	705	69.3	68.0-70.7
35-44	283	71.6	70.0-73.2	315	71.0	69.3-72.6	598	71.3	69.8-72.8
45-54	236	72.4	69.2-75.7	208	71.5	69.8-73.2	444	72.0	70.1-73.9
55-64	175	69.8	68.4-71.2	138	70.0	68.1-72.0	313	69.9	69.1-70.7
15-64	1411	68.8	67.3-70.4	1454	70.4	69.1-71.6	2865	69.6	68.2-70.9

Raised blood pressure

Description: Percentage of respondents with raised blood pressure and percentage on medication for raised blood pressure.

Instrument question:

- During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?
- Reading 1-3 systolic and diastolic blood pressure

SBP ≥140 and/or DBP ≥ 90 mmHg, excluding those on meds									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	381	9.2	5.6-12.9	423	5.7	1.5-10.0	804	7.6	4.6-10.6
25-34	334	9.6	4.6-14.5	370	4.0	0.8-7.2	704	6.7	4.2-9.3
35-44	283	6.1	2.3-10.0	315	8.4	3.1-13.6	598	7.2	3.1-11.4
45-54	234	12.5	10.0-15.1	208	14.2	9.8-18.5	442	13.3	10.2-16.4
55-64	175	19.8	10.7-28.8	138	14.0	9.8-18.2	313	17.2	12.0-22.4
15-64	1407	9.9	8.0-11.7	1454	7.2	4.0-10.4	2861	8.6	6.3-10.8

SBP ≥140 and/or DBP ≥ 90 mmHg or currently on medication for raised blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	382	10.1	7.4-12.8	423	5.7	1.5-10.0	805	8.0	5.7-10.4
25-34	335	9.6	4.7-14.5	370	4.0	0.8-7.2	705	6.8	4.2-9.3
35-44	283	6.1	2.3-10.0	315	8.4	3.1-13.6	598	7.2	3.1-11.4
45-54	236	12.7	10.2-15.2	208	14.2	9.8-18.5	444	13.4	10.3-16.5
55-64	175	19.8	10.7-28.8	138	14.0	9.8-18.2	313	17.2	12.0-22.4
15-64	1411	10.2	8.4-12.0	1454	7.2	4.0-10.4	2865	8.8	6.6-10.9

Currently on medication for raised blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	382	1.0	0.0-2.8	423	0.0	0.0-0.0	805	0.5	0.0-1.6
25-34	335	0.1	0.0-0.2	370	0.0	0.0-0.0	705	0.0	0.0-0.1
35-44	283	0.0	0.0-0.0	315	0.0	0.0-0.0	598	0.0	0.0-0.0
45-54	236	0.2	0.0-0.3	208	0.0	0.0-0.0	444	0.1	0.0-0.2
55-64	175	0.0	0.0-0.0	138	0.0	0.0-0.0	313	0.0	0.0-0.0
15-64	1411	0.4	0.0-1.1	1454	0.0	0.0-0.0	2865	0.2	0.0-0.6

Raised blood pressure

Description: Percentage of respondents with raised blood pressure and percentage on medication for raised blood pressure.

Instrument question:

- During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?
- Reading 1-3 systolic and diastolic blood pressure

SBP ≥160 and/or DBP ≥ 100 mmHg, excluding those on meds									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	381	1.6	0.0-3.6	423	0.0	0.0-0.0	804	0.8	0.0-2.0
25-34	334	0.8	0.0-2.1	370	0.2	0.1-0.4	704	0.5	0.0-1.3
35-44	283	0.8	0.0-2.5	315	1.8	0.0-4.9	598	1.3	0.0-3.0
45-54	234	0.4	0.0-1.1	208	4.2	2.8-5.6	442	2.1	1.3-3.0
55-64	175	1.8	0.0-4.3	138	0.4	0.0-1.2	313	1.2	0.0-2.7
15-64	1407	1.1	0.1-2.1	1454	0.9	0.2-1.6	2861	1.0	0.1-1.9

SBP ≥160 and/or DBP ≥ 100 mmHg or currently on medication for raised blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	382	2.6	0.0-6.2	423	0.0	0.0-0.0	805	1.3	0.0-3.5
25-34	335	0.8	0.0-2.2	370	0.2	0.1-0.4	705	0.5	0.0-1.3
35-44	283	0.8	0.0-2.5	315	1.8	0.0-4.9	598	1.3	0.0-3.0
45-54	236	0.5	0.0-1.2	208	4.2	2.8-5.6	444	2.2	1.4-3.1
55-64	175	1.8	0.0-4.3	138	0.4	0.0-1.2	313	1.2	0.0-2.7
15-64	1411	1.5	0.0-3.2	1454	0.9	0.2-1.6	2865	1.2	0.0-2.4

Heart rate

Description: Mean heart rate among all respondents and percentage with a raised heart rate.

Instrument question:

- Heart Rate measurement

Mean beats per minute									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	382	72.2	68.6-75.9	422	80.8	79.1-82.6	804	76.3	73.4-79.3
25-34	334	72.8	71.1-74.5	370	79.4	77.6-81.2	704	76.1	74.7-77.6
35-44	283	73.7	72.0-75.4	314	78.4	76.7-80.1	597	76.0	74.7-77.3
45-54	234	74.4	72.5-76.3	209	76.0	72.6-79.5	443	75.2	72.8-77.6
55-64	174	73.7	72.4-75.0	138	72.6	70.1-75.1	312	73.2	71.6-74.9
15-64	1407	73.0	72.2-73.8	1453	78.9	77.5-80.2	2860	75.9	74.9-76.8

Percentage with beats per minute over 100									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	382	2.7	1.0-4.3	422	7.0	1.8-12.2	804	4.7	1.0-8.4
25-34	334	1.3	0.0-2.8	370	6.6	3.0-10.3	704	4.0	2.0-6.0
35-44	283	0.9	0.0-2.7	314	3.6	0.3-6.9	597	2.3	0.3-4.2
45-54	234	2.6	0.0-5.5	209	5.7	2.8-8.6	443	4.0	2.5-5.6
55-64	174	1.9	0.0-4.6	138	2.6	0.0-7.4	312	2.2	0.0-5.7
15-64	1407	1.9	0.9-2.9	1453	5.8	2.5-9.1	2860	3.8	1.6-6.0

Body fat

Description: Mean percent body fat among all respondents.

Instrument question:

- Bioelectric impedance measurement

Mean beats per minute									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	367	14.8	14.1-15.5	419	22.0	20.4-23.6	786	18.2	16.7-19.8
25-34	330	16.4	15.0-17.8	368	21.9	21.2-22.6	698	19.2	18.1-20.3
35-44	279	18.4	17.6-19.2	312	23.7	22.6-24.9	591	21.0	20.3-21.8
45-54	236	19.0	17.3-20.8	208	25.0	23.2-26.8	444	21.8	19.6-24.1
55-64	169	20.9	20.1-21.6	132	25.7	24.2-27.3	301	23.0	21.9-24.1
15-64	1381	16.9	16.5-17.2	1439	22.9	22.2-23.6	2820	19.8	19.1-20.5

Biochemical Measurements

Mean blood glucose

Description: Mean blood glucose results, including those currently on medication for diabetes (Non-fasting recipients excluded from fasting blood glucose results).
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
15-24	372	5.2	5.1-5.3	414	5.4	5.1-5.6	786	5.3	5.1-5.4
25-34	325	5.4	5.0-5.9	359	5.3	5.1-5.4	686	5.3	5.1-5.6
35-44	272	5.4	5.2-5.6	307	5.2	5.0-5.3	579	5.3	5.1-5.4
45-54	231	5.4	5.0-5.7	203	5.3	4.9-5.7	434	5.3	5.0-5.7
55-64	168	5.5	5.1-5.9	135	5.3	5.1-5.4	304	5.4	5.2-5.6
15-64	1368	5.3	5.1-5.6	1418	5.3	5.1-5.5	2789	5.3	5.1-5.5

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
15-24	372	94.1	92.0-96.2	414	96.6	92.6-100.6	786	95.3	92.7-97.9
25-34	325	97.6	89.5-105.7	359	94.9	92.5-97.3	686	96.2	91.7-100.7
35-44	272	97.3	94.2-100.4	307	92.9	89.5-96.2	579	95.1	92.1-98.0
45-54	231	96.4	90.8-102.0	203	95.6	88.7-102.4	434	96.0	89.9-102.1
55-64	168	98.6	91.9-105.4	135	94.6	91.7-97.4	304	96.8	93.4-100.2
15-64	1368	96.2	92.4-100.0	1418	95.1	91.9-98.3	2789	95.7	92.3-99.0

Mean glucose following oral glucose tolerance test (mmol/L)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	186	7.0	6.7-7.3	209	7.1	6.9-7.3	395	7.0	6.8-7.2
25-34	167	7.2	6.9-7.4	194	6.7	6.2-7.3	361	6.9	6.6-7.3
35-44	143	7.1	6.6-7.5	162	7.2	6.8-7.5	305	7.1	6.9-7.3
45-54	128	8.0	7.1-8.8	121	7.8	6.8-8.7	249	7.9	7.6-8.1
55-64	80	8.3	7.3-9.3	66	7.4	7.0-7.9	146	7.9	7.3-8.5
15-64	704	7.2	7.0-7.5	752	7.1	6.9-7.3	1456	7.2	7.0-7.3

Mean glucose following oral glucose tolerance test (mg/dl)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	186	125.6	120.4-130.8	209	127.4	124.0-130.8	395	126.5	123.1-129.9
25-34	167	128.8	124.4-133.3	194	121.2	111.2-131.2	361	124.8	118.7-131.0
35-44	143	127.1	119.0-135.2	162	129.0	123.2-134.7	305	128.0	124.5-131.5
45-54	128	143.4	127.4-159.4	121	139.6	122.1-157.1	249	141.6	137.1-146.2
55-64	80	149.6	131.8-167.3	66	134.1	126.0-142.2	146	142.1	131.8-152.4
15-64	704	130.5	125.5-135.5	752	127.8	123.6-132.0	1456	129.2	126.9-131.5

Raised blood glucose (using only fasting blood glucose reading)

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

Instrument questions:

- During the last 12 hours have you had anything to eat or drink, other than water?
- Fasting blood glucose measurement
- Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker?

Impaired Fasting Glycaemia*									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	372	19.5	13.8-25.1	414	19.7	13.0-26.4	786	19.6	15.1-24.0
25-34	327	20.1	10.2-30.0	359	23.9	11.4-36.4	686	22.0	15.3-28.7
35-44	272	25.7	19.3-32.0	307	18.6	12.0-25.2	579	22.1	16.2-28.1
45-54	232	17.2	8.3-26.0	203	15.1	6.6-23.5	435	16.2	7.9-24.5
55-64	169	22.5	17.9-27.1	135	19.6	15.0-24.1	304	21.2	17.5-24.9
15-64	1372	20.7	16.2-25.3	1418	20.2	13.8-26.5	2790	20.5	16.1-24.8

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
15-24	372	13.1	10.3-15.9	414	17.7	10.4-25.1	786	15.3	10.7-19.9
25-34	327	16.3	7.9-24.7	359	11.1	9.5-12.7	686	13.6	9.9-17.3
35-44	272	13.6	8.2-19.0	307	11.5	7.1-16.0	579	12.6	10.1-15.0
45-54	232	17.2	10.1-24.3	203	16.1	8.4-23.7	435	16.6	9.9-23.4
55-64	169	15.4	6.8-24.0	135	11.5	6.1-17.0	304	13.7	10.2-17.2
15-64	1372	14.7	10.4-19.0	1418	14.0	11.1-16.9	2790	14.4	10.9-17.8

Currently on medication for diabetes									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	388	0.0	0.0-0.0	440	0.0	0.0-0.1	828	0.0	0.0-0.1
25-34	342	0.7	0.0-2.5	380	0.0	0.0-0.0	722	0.4	0.0-1.1
35-44	290	0.0	0.0-0.0	323	0.0	0.0-0.0	613	0.0	0.0-0.0
45-54	242	0.1	0.0-0.2	215	0.0	0.0-0.0	457	0.0	0.0-0.1
55-64	179	0.4	0.0-1.4	145	0.0	0.0-0.0	324	0.2	0.0-0.8
15-64	1441	0.2	0.0-0.7	1503	0.0	0.0-0.0	2944	0.1	0.0-0.3

Raised blood glucose (using both fasting and ogtt measures)

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

Instrument questions:

- During the last 12 hours have you had anything to eat or drink, other than water?
- Fasting blood glucose measurements & oral glucose tolerance test (ogtt)
- Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker?

Raised fasting or ogtt measure* for those participants who have BOTH measures									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	183	14.9	4.4-25.4	205	18.7	7.9-29.5	388	16.8	13.7-19.8
25-34	167	14.7	7.9-21.5	192	10.6	4.0-17.2	359	12.6	11.4-13.8
35-44	140	12.3	6.4-18.2	156	16.4	6.9-25.9	296	14.2	12.4-16.1
45-54	127	20.5	13.9-27.2	119	17.8	7.7-28.0	246	19.3	12.8-25.7
55-64	80	19.7	13.1-26.3	65	7.9	0.6-15.2	145	14.0	7.3-20.7
15-64	697	15.4	13.8-17.0	737	15.3	13.1-17.5	1434	15.3	13.7-17.0

Raised fasting or ogtt measure* for those participants who have AT LEAST ONE measure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	375	14.2	11.5-16.8	419	18.8	12.1-25.5	794	16.4	13.1-19.6
25-34	328	16.3	7.9-24.7	361	11.7	9.5-14.0	689	14.0	10.0-18.0
35-44	275	14.6	7.6-21.5	313	12.7	7.7-17.8	588	13.7	11.5-15.8
45-54	233	19.6	12.1-27.0	205	20.7	15.8-25.6	438	20.1	14.3-25.9
55-64	169	15.5	7.0-24.1	136	12.1	6.3-17.8	305	14.0	10.3-17.7
15-64	1380	15.6	11.3-19.9	1434	15.4	13.4-17.3	2814	15.5	12.5-18.4

Impaired Glucose Tolerance** for those participants who have BOTH measures									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	183	21.8	16.4-27.2	205	20.4	9.2-31.7	388	21.1	17.0-25.2
25-34	167	18.6	11.7-25.6	192	12.1	2.8-21.4	359	15.3	8.2-22.3
35-44	140	19.3	9.3-29.4	156	21.7	15.1-28.3	296	20.5	16.6-24.3
45-54	127	27.3	20.9-33.7	119	15.8	6.4-25.2	246	21.9	19.2-24.7
55-64	80	40.3	8.9-71.6	65	33.3	16.8-49.8	145	36.9	24.7-49.1
15-64	697	22.3	20.8-23.9	737	18.5	15.2-21.7	1434	20.4	18.3-22.5

Impaired Fasting Glycaemia*** for those participants who have BOTH measures									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	183	7.3	0.0-17.5	205	13.3	8.7-17.9	388	10.3	3.7-16.8
25-34	167	13.0	1.4-24.7	192	9.9	1.1-18.7	359	11.4	6.4-16.4
35-44	140	14.6	10.6-18.6	156	10.8	5.8-15.7	296	12.8	10.5-15.1
45-54	127	8.3	0.0-17.5	119	4.9	0.0-11.8	246	6.7	1.4-12.0
55-64	80	3.4	0.0-8.7	65	12.2	0.0-25.3	145	7.7	0.0-16.9
15-64	697	10.1	4.2-16.0	737	10.8	6.0-15.6	1434	10.4	6.2-14.6

* Raised glucose is defined as either

- Fasting blood glucose ≥ 6.1 mmol/L
- OGTT value ≥ 11.1 mmol/L

** Impaired glucose tolerance is defined as:

- Fasting glucose < 6.1 mmol/L AND OGTT ≥ 7.8 & < 11.1 mmol/L

*** Impaired fasting glycaemia is defined as:

- OGTT value < 7.8 mmol/L AND Fasting glucose ≥ 5.6 & < 6.1 mmol/L

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 ≥ 25 kg/m²)
- raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP).

Instrument question: combined from Step 1 and Step 2

Summary of Combined Risk Factors							
Age Group (years)	Men						
	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	554	0.1	0.0-0.4	70.3	60.4-80.3	29.6	19.7-39.5
45-64	361	0.9	0.0-3.1	74.4	69.6-79.3	24.6	20.5-28.8
25-64	915	0.3	0.0-0.9	71.5	64.2-78.8	28.1	20.5-35.7

Summary of Combined Risk Factors							
Age Group (years)	Women						
	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
25-44	587	0.5	0.0-1.5	85.2	80.5-89.9	14.3	9.0-19.7
45-64	300	0.0	0.0-0.0	81.8	78.5-85.0	18.2	15.0-21.5
25-64	887	0.4	0.0-1.1	84.3	80.8-87.8	15.3	11.5-19.2

Summary of Combined Risk Factors							
Age Group (years)	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	1141	0.3	0.0-0.9	77.7	72.8-82.7	22.0	17.1-26.9
45-64	661	0.5	0.0-1.6	77.8	74.9-80.7	21.7	18.6-24.8
25-64	1802	0.4	0.2-0.5	77.7	73.5-82.0	21.9	17.7-26.1

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

- current daily smoker
- less than 5 servings of fruits & vegetables per day
- low level of activity (<600 MET -minutes)

Instrument question: combined from Step 1

Summary of Combined Risk Factors							
Age Group (years)	n	Men					
		% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3 risk factors	95% CI
15-44	879	0.2	0.0-0.5	72.9	67.4-78.4	26.9	21.5-32.4
45-64	361	0.9	0.0-3.1	74.4	69.6-79.3	24.6	20.5-28.8
15-64	1240	0.3	0.0-0.7	73.2	68.1-78.3	26.5	21.4-31.6

Summary of Combined Risk Factors							
Age Group (years)	n	Women					
		% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3 risk factors	95% CI
15-44	949	0.3	0.0-0.9	84.9	81.7-88.0	14.8	11.8-17.9
45-64	300	0.0	0.0-0.0	81.8	78.5-85.0	18.2	15.0-21.5
15-64	1249	0.3	0.0-0.8	84.3	81.5-87.2	15.4	12.6-18.2

Summary of Combined Risk Factors							
Age Group (years)	n	Both Sexes					
		% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3 risk factors	95% CI
15-44	1828	0.2	0.0-0.6	78.8	74.9-82.6	21.0	17.1-24.9
45-64	661	0.5	0.0-1.6	77.8	74.9-80.7	21.7	18.6-24.8
15-64	2489	0.3	0.1-0.4	78.6	75.0-82.2	21.1	17.6-24.7

Appendix 3. List of STEPS Field Survey Staff from the Papua New Guinea

Name	Responsibility and Task
Dr Graham Ogle	Team Leader
Mr Robert Pugu	Assistant Team Leader
Mr Augustine Kose	Assistant Team Leader
Dr Thomas Vinit	Advisor
Dr Lloyd Ipai	Advisor
Prof. John Vince	Advisor
NCD	
Keneth Walter	Volunteer
Elma	Volunteer
David Koi	Volunteer
Latin Nidralin	Volunteer
Sr. Rose Tupat	Support Staff – Medical
Sr. Florence Mutanyami	Support Staff – Medical
Steven Pokap	Accommodation
Angela Pokap	Volunteer
Nancy Nlarahon	Volunteer
Kenny Nangas	Volunteer
Sr. Betty	Volunteer/CHW
Michael Maran	Support Staff – Medical
CHIMBU	

Kumani Kuman	Support Staff
Dixon Daii	Support Staff
Petrus Sine	Accommodation
Stela Kumani	Volunteer
Peter Sine	Volunteer
Moses	Volunteer
Gabriel	Volunteer
Sr. Mary John	Support Staff - Medical
GULF	
Greg Korotic	Logistics support
Lucy Fae	Volunteer
Ben Tasi	Volunteer
Catherine Kou	Volunteer
Albert Kose	Volunteer
Lese Havihava	Volunteer
Denis Oro	Medical supplies
Peter Karulaka	Volunteer
Sarufa Sese	Volunteer
Joe Meafaro	Volunteer
Ms. Meafaro	Volunteer
MADANG	
Steven	Accommodation
John	Volunteer
Susan	Volunteer

Albetha	Volunteer
Joseph	Volunteer
Greg	Volunteer
Sharon	Volunteer
Betty	Volunteer
Peter	Volunteer
John	Accommodation

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