



University of Health Sciences



Ministry of Health

**PREVALENCE OF
NON-COMMUNICABLE DISEASE
RISK FACTORS IN CAMBODIA**

STEPS Survey
Country Report, September 2010

This survey was jointly prepared by
the University of Health Sciences and the Preventive Medicine Department of the Ministry
of Health, Kingdom of Cambodia, with support from
the World Health Organization.

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Report prepared by:

OUM Sophal¹

PRAK Piseth Raingsey²

KHUON Eng Mony²

MEY Vannareth¹

AIM Sothea¹

BOUNCHAN Youttiroung¹

CIN Sovannara¹

PEN Linda¹

LOUN Sathia¹

¹ University of Health Sciences, 73 Monivong Blvd., Phnom Penh, Cambodia
(E-mail: uhsc@univ-sante.edu.kh)

² Preventive Medicine Department, Ministry of Health, 151-153 Kampuchea Krom Blvd., Phnom Penh, Cambodia (E-mail: pisethsey@yahoo.com)

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ABBREVIATIONS

BMI	Body Mass Index
CI	Confidence Interval
CVD	Cardiovascular Disease
DBP	Diastolic Blood Pressure
ETS	Environmental Tobacco Smoke
EU	Elementary Unit
i.e.	That is
IFG	Impaired Fasting Glucose
IGT	Impaired Glucose Tolerance
HC	Hip Circumference
HT	Hypertension
KAP	Knowledge, Attitude and Practice
MET	Metabolic Equivalent Test
<i>n</i>	Number of respondents
NA	Not Available
NCD	Non-Communicable Disease(s)
PA	Physical Activity
PDA	Personal Digital Assistant
PSU	Primary Sampling Unit
SSU	Secondary Sampling Unit
SBP	Systolic Blood Pressure
STEPS	WHO STEPwise approach to Surveillance
TSU	Tertiary Sampling Unit
WC	Waist Circumference
WHO	World Health Organization
WHR	Waist to Hip Ratio

FOREWORD

This report of the first ever countrywide survey to assess risk factors of non-communicable diseases in Cambodia provides valuable information that will assist the Ministry of Health to refine its strategies to better prevent and control of these diseases in the country.

Although the prevalence of diabetes and hypertension are found to be relatively low in comparison with many countries in the region, the survey revealed that major risk factors for non-communicable diseases are relatively high including tobacco smoking, alcohol consumption, and overweight.

The Ministry of Health urges relevant ministries, development partners, and the community to join hands in scaling up interventions to prevent and control non-communicable diseases, especially through promoting behavior changes among the high risk population towards healthier lifestyle.

I wish to take this opportunity to express my sincere thanks to the World Health Organization for providing financial and technical support to this survey.

Finally, I wish to extend my appreciation to Prof. OUM Sophal and Dr PRAK Piseth Rainsey for successfully leading the research teams from the University of Health Sciences and the Preventive Medicine Department in conducting the first nationwide representative survey using the WHO standardized protocol to report the prevalence and risk factors of non-communicable diseases in Cambodia. *HB*

Phnom Penh, September, 2010



MAM Bun Heng

H.E. Dr. MAM Bun Heng

Health Minister, Royal Government of Cambodia

ACKNOWLEDGEMENTS

We would like first and foremost to thank the World Health Organization (WHO) both from the Headquarter and Regional Office in Manila for financing this survey and for providing technical assistance throughout the different stages of the survey.

To Dr. Regina Guthold, WHO Geneva, who has provided the training of our data collectors and field supervisors, and Ms. Melanie Cowan who has provided advice and guidance for the data analysis.

To Dr. Cherian Varghese, Technical Officer for Non Communicable Diseases (NCD), Western Pacific Regional Office (WPRO) in Manila, who has provided technical advice and additional financial assistance from WPRO to this study,

To WHO Office in Cambodia, particularly its Representative, Dr Pieter Van Maaren who has given continuous attention and support to NCD programme in Cambodia and the outcomes of this NCD survey. Thanks are also extended to the WHO-Cambodia NCD Team that has provided administrative and technical assistance to this work.

The authors would like to thank all Provincial Health Departments and local authorities for their support through the facilitation of the data collection in their respective catchment area.

We also commend dedication of field supervisors from the Preventive Medicine Department and from the University of Health Sciences-Cambodia and the hard work of the survey Team who undertook data collection throughout the country. Their dedication, meticulous attention to detail and strict adherence to the survey instruction had insured the quality of the data presented in this report.

SUMMARY OF FINDINGS

The survey on the prevalence of non-communicable disease risk factors in Cambodia is a nationwide cross-sectional survey that was carried out in the whole country from February to April 2010 by using the WHO STEPwise approach to chronic disease risk factor Surveillance methodology. The goal of the survey was to determine the prevalence of risk factors of non-communicable diseases and to establish the baseline information for the prevention and control of these diseases in the country.

In accordance with multi-stage cluster sampling for non-communicable disease surveillance, a total 5,643 participants were randomly selected in order to provide an equivalent distribution of the participants in regards to age groups (10-year age groups) and gender taking into consideration a non-response rate of 20%. Survey data were obtained from 5,433 adult participants aged 25-64 years, with a response rate of 96.3%.

Out of the total respondents (n=5433), 29.4% and 37.0% were reportedly current (daily and non-daily) **tobacco smokers** and **users** (smoking and smokeless) respectively, whereas 55.2% were exposed to passive smoking at home and/or workplace in the past 7 days prior to the survey. In addition, 26.4% and 33.7% of the total respondents were daily tobacco smokers and users respectively. Finally, men were more likely than women to smoke and use tobacco daily; whereas rural respondents were more likely than urban respondents to smoke and use tobacco on a daily basis.

Regarding **alcohol** consumption, 1 in every 4 respondents (26.5%) was lifetime alcohol abstainers whereas 1 in every 10 respondents (10.0%) was past 12 months abstainers. On the contrary, 1 in every 2 respondents (53.5%) was past 30 days current drinkers, and this proportion was similar between the urban and rural areas, but 2.4 times higher in men than in women. Finally, men were around 10 times more likely than women to be engaged in heavy episodic drinking in the past 30 days, both in the urban and rural areas.

Fruit and vegetable consumption was in general low, with 84.3% of the total respondents were reportedly eating less than five servings of fruit and/or vegetables per day and are therefore considered at increased risk of developing NCDs. This proportion of respondents eating low fruit and vegetables was similar between men and women and across age groups,

but by almost 10% higher in the rural than urban areas. In addition, 7 in every 10 households used **vegetable oil** for meal preparation, and this proportion of vegetable oil use was slightly higher in the urban than in rural areas.

In terms of **physical activity**, 3 in every 4 (76.1%) respondents were engaged in high level of activities; whereas the median time spent in total physical activity was on average 4 hours and 4 minutes per day, higher in the rural than in the urban area (4h17min. vs. 3h36min.).

In regards to **physical measurements**, the percentage of **overweight** ($BMI \geq 25$ and $< 30 \text{ kg/m}^2$) and **obese** ($BMI \geq 30 \text{ kg/m}^2$) was 15.4% and 1.9% respectively, twice higher among women than among men. Furthermore, the proportion of overweight and obese participants tended to increase with age.

With regards to **hypertension**, 1 in every 10 respondents (11.2%) had (newly and previously diagnosed) mild hypertension ($SBP \geq 140$ and/or $DBP \geq 90$ mmHg); this proportion was significantly higher for the urban and male respondents as compared to rural and female respondents, and increased with age.

Furthermore, the survey revealed that, the overall prevalence of **impaired fasting glycaemia** (a fasting blood glucose greater or equal to 5.6 mmol/l) and **diabetes** (a fasting glucose greater or equal 6.1 mmol/l or previously diagnosed with diabetes and currently on anti-diabetes medication) was 1.4% and 2.9% respectively. The prevalence of diabetes was 2.4 times higher in the urban than rural areas (5.6 vs. 2.3%). Besides, the survey found that 1 in every 5 respondents (20.7%) had raised total **cholesterol**, and this proportion was increasing with age, higher in women than in men, and also higher in the urban than in rural areas.

Finally, the survey revealed that 8 in every 10 people (82.4% of the surveyed population) had one to two risk factors for developing non-communicable diseases, whereas 1 in every 10 people (10.2% of the surveyed population) had three or more risk factors. The proportion of respondents who had three or more risk factors was 2.2 folds higher in men than in women, 1.7 times higher in the urban than in rural areas, and increased with age.

CHAPTER I:

INTRODUCTION



“A mounting problem for Cambodian health services is the growing likelihood of population morbidity and mortality from non-communicable disease before a parallel decrease in communicable disease takes place – i.e. the emergence of a classic double burden of disease scenario” (National Strategy for the Prevention and Control of Non Communicable Diseases in Cambodia 2007-2010)

Cambodia is a developing country with a population of around 14 million inhabitants, of which 85% live in rural areas. The country is located in Southeast Asia, bordered with Thailand to the west, Laos PDR and Thailand to the north and Vietnam to the east. It has an area of 181,035 square kilometers and is comprised of 23 provinces/municipalities and the capital. Districts (Srok in the rural area and Khan in the urban area) are the second-level administrative divisions whereas communes (Khum in the rural area and Sangkat in the urban area) are the third-level administrative divisions of the country. Villages (Phum) are the lowest-level administrative divisions.

Cambodia's per capita income is rapidly increasing, but is lower compared with many other countries in the region. Most rural households depend on agriculture and its related sub-sectors.

1.1 Statement of the problem

Cambodia like many developing countries are presently facing the threat of emerging obesity and non-communicable diseases (NCDs) while they are still struggling with malnutrition, endemic and infectious diseases epidemic (1). The country has therefore to deal with this 'double burden' of diseases in a most cost-effective manner.

1.2 Previous surveys on NCDs

Epidemiological surveys conducted in 2004 showed that in two villages of Siem Reap province representing rural area 5% of adults had **diabetes** and 12% **high blood pressure**, whereas in 2 villages of Kompong Cham province representing semi-urban area 10% of adults had diabetes and 25% high blood pressure (2).

In regards to **tobacco use**, a nation-wide survey in 2005-2006 reported a high prevalence of Environmental Tobacco Smoke (ETS) exposure among adult Cambodians, with one third of nonsmoking respondents exposed to ETS and male urban respondents more likely to be exposed to ETS in workplace (3). The survey also found that 48% of men and 3.6% of

women smoked cigarettes, while 17% of women and 1% of men chewed tobacco; about half of all older women chewed tobacco, especially midwives and traditional healers, and up to two-third of ethnic population smoked cigarette and pipe tobacco (3, 4) .

1.3 Aim and Objectives of the Survey

1.3.1 Survey aim

The overall goal of the survey was to estimate the prevalence of NCD risk factors in order to establish the baseline information for the prevention and control of NCDs in Cambodia.

1.3.2 Survey objectives

- To determine the prevalence of NCD risk factors including tobacco, alcohol, fruit and vegetable consumption, overweight and physical activity of the surveyed population;
- To estimate the prevalence of hypertension, diabetes and raised blood cholesterol among adult male and female population; and
- To compare NCD risk factor prevalence between urban and rural population, men and women, and across age groups.

1.3.3 Survey rationale

- Data on NCDs, on one hand, were not captured by the formal Health Information System (HIS) of the Ministry of Health (MoH). Even if these data were reported by hospitals and other public health facilities, they would not represent the country's situation, as many cases were treated at home, or did not come to public health facilities.
- Data from previous surveys, on the other hand, were either limited in terms of representativeness or scope, or did not reflect the current situation of NCDs in Cambodia. There is a need for comprehensive, updated and representative

information on the prevalence and risk factors of NCDs in order to develop appropriate policy and interventions to effectively prevent and control NCDs before they overwhelm the country's health services and scarce resources.

- Surveys using the WHO STEPwise approach to chronic disease risk factor Surveillance (STEPS) methodology have so far provided reliable and valid information on NCD risk factor prevalence in many countries worldwide. The WHO STEPS survey could provide the main epidemiological surveillance system and the main tool for monitoring progress in the control of NCDs in Cambodia.
- Finally, the survey responded to the National Strategy for the Prevention and Control of NCDs of the Cambodian MoH in developing “a sustainable effective surveillance system based on WHO STEPs framework and in due course strengthening of the existing health information system” (5).

CHAPTER II:

SURVEY METHODOLOGY



2.1 Survey design/scope

The Cambodian survey on the prevalence of NCD risk factors was designed to establish baseline information on the major risk factors of NCDs for the action plan implemented within the framework of the National Strategy for the Prevention and Control of NCDs 2007-2010.

The survey was conducted through three subsequent steps after developing survey instruments in line with the concept of the WHO STEPwise approach to Surveillance taking into account local needs and resources.

Step 1: Face-to-face interview – demographic information, information on tobacco use, alcohol consumption, fruit and vegetable intake, oil and fat consumption, physical activity, previously diagnosed hypertension and diabetes, were collected by using appropriate questionnaires.

Step 2: Physical measurements- body weight and height, waist and hip circumferences, and blood pressure were identified by using specific tests/devices relevant to these measurements.

Step 3: Biochemical measurements – capillary blood to determine glucose and total cholesterol at the data collection sites using dry chemical methods.

The WHO STEPwise questionnaire was used in this survey after translation into the Khmer language by taking into consideration specific country characteristics and similar translated questions used by previous health surveys in Cambodia (See Appendix 4 for the Questionnaire).

2.2 Survey population and sampling

The initial planned sample size was designed to involve 5,760 persons in accordance with the NCD multi-stage cluster survey method (1.5 design effect, 95% confidence interval, 5% margin of error, and 50% baseline levels of the indicators) in order to provide an equivalent distribution of the participants in regards to age groups and gender after taking into consideration that the estimated potential rate for non-response in each age group and refusals in the next stages would equal to 20%. Estimates were obtained for each of the following eight **age/sex groups**: men aged 25-34 years, 35-44 years, 45-54 years, and 55-64 years; and women aged 25-34 years, 35-44 years, 45-54 years, and 55-64 years (See Appendix 1 for the calculation of sample size).

The survey was designed to cover all geographical areas of Cambodia and a 3-stage sampling process as part of the multi-stage cluster sampling was carried out to randomly select the target population: random selection of communes (Khum in rural areas and its equivalent Sangkat in urban area) as primary sampling unit (PSU), followed by villages (Phum) for the secondary sampling unit (SSU), and by households for the elementary unit (EU). Finally all members of the randomly chosen households aged 25-64 years were invited to participate in this survey.

The selection process was performed identically for urban and rural areas in order to get a self-weighted estimate for the whole population of the country.

A total of **180 clusters** with 34 clusters from the urban area and 146 clusters from the rural area were randomly selected (Figure 1). Method for cluster selection is shown on Appendix 2, and the list of selected clusters is shown on Appendix 3.

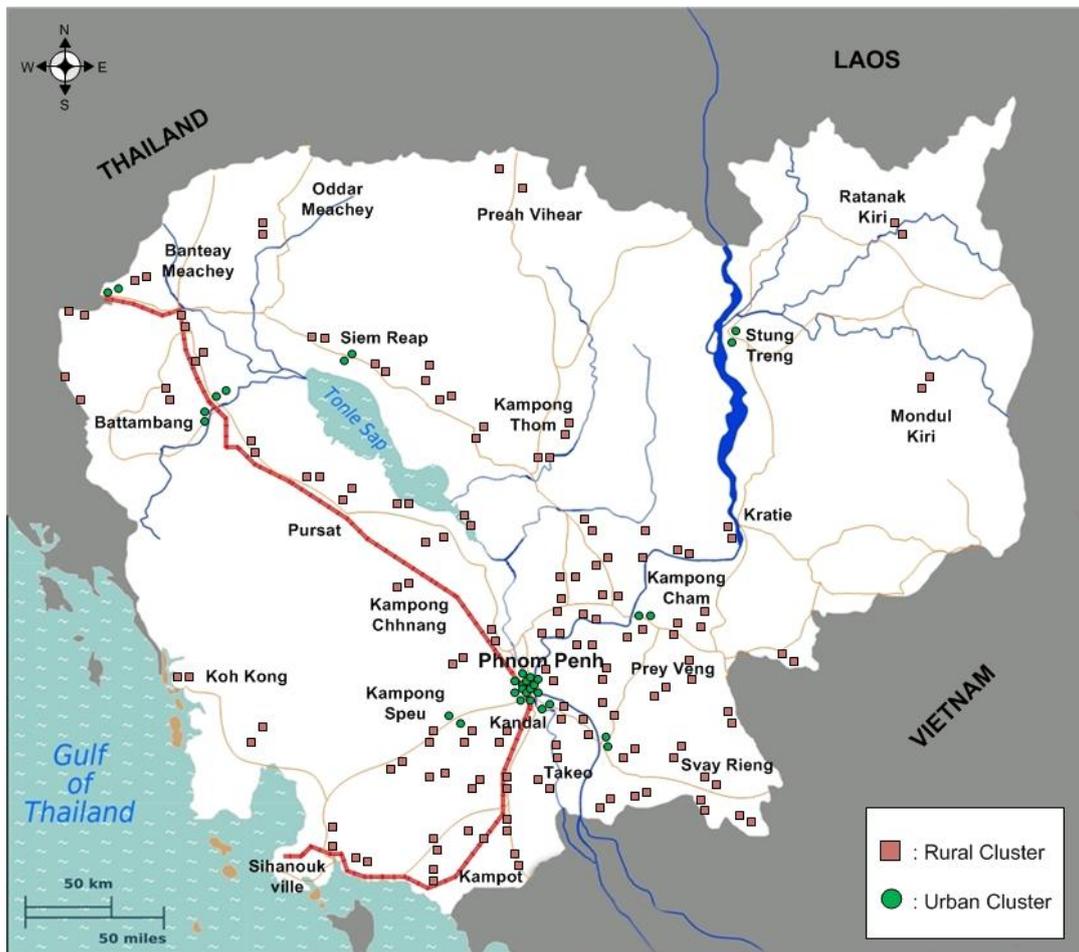


Figure 1: Map of Cambodia with location of survey clusters

2.3 Training

Field investigators were recruited from newly graduated midwives, nurses, and laboratory technicians. Field supervisors were selected from staff of the Preventive Medicine Department of the Ministry of Health (PMD/MoH) and the Research Unit of the University of Health Sciences-Cambodia (UHS-C). Staff of the UHS-C also took care of data management and analysis. The list of survey team members is shown in Appendix 10.

Two training workshops were held at the UHS-C. The **first workshop** was conducted from 24-26 September 2009, with the participation of key staff from PMD/MoH and UHS-C including field supervisors, data managers, laboratory technicians and epidemiologists. The workshop was facilitated by Dr. Regina GUTHOLD, Technical Officer, Chronic Diseases

and Health Promotion, WHO Geneva, and Dr. PRAK Piseth Raingsey, Director of the PMD/MoH. In the 3-day workshop, the WHO STEPwise approach to Surveillance, the STEPS manual and other survey tools were presented and discussed. In addition, participants were explained about planning, role and responsibility of the survey team members, sampling method, the KISH method for the selection of an individual within selected households, data collection procedures, data entry processes and management, and data analysis and reporting.

The **second workshop** was held from 27 to 29 January 2010 by the same facilitator from the WHO Geneva, with assistance from WHO staff in Cambodia and supervisors from the PMD/MoH (Figure 2). During the 3-day workshop, the participants were trained on the WHO cluster sampling methods, on how to collect data on tobacco use, alcohol use, food intake, and levels of physical activity using structured questionnaires including calculation of alcohol consumption by using standard drink classification and how to determine serving sizes for fruit and vegetables. Furthermore, the participants were trained on the methods of physical measurements followed by practical training on performing physical measurements and their measurement mistakes were identified and assessed. The participants were also trained in the use of Personal Digital Assistant (PDA) and how to collect data using PDAs.

Finally, a 2-day **pretest** of the survey was conducted in early February 2010 in a district (Kg Tralach, Kg Chhnang province) before the commencement of field data collection.



Figure 2: Training of data collectors, UHS-C Jan. 2010

2.4 Data collection

The data collection was carried from 24 February to 30 April 2010 by a total of 8 teams, divided into 2 groups. The first group was responsible for collecting data for Step 1, and the second group was responsible for the collection of data for Step 2 (physical measurement) and 3 (biochemical measurement). In Group One, each team comprised 5 persons including a field supervisor and 4 interviewers. In Group Two, each team was composed of 3 persons including one field supervisor, one midwife and one laboratory technician.

Local administrative and health authorities were informed about the survey two weeks prior to the commencement of the data collection.

A day before data collection, village leaders were approached and briefed about the survey goal and objectives. They were also asked to inform the population to remain in the village the next day, and were requested to provide the list of households in the village. The list of households from each village was then used by field supervisors to select households by systemic random sampling.

The day of data collection, each team from Group One interviewed eligible participants in one village per day. The Team arrived in the selected village in the early morning, and each team member went looking for selected households with assistance from village volunteers. Consent forms were distributed to the members of selected households, and individuals were explained about the goal and objectives of the survey.

The selection of an individual in each household was done using the WHO KISH method, in which eligible household members names were entered into the PDA by descending order of age, and men to women. An individual in each household was randomly selected by the PDA for participation in the survey. Participants were interviewed only after giving their written consent.

2.4.1 Step 1

Data on **behavioral risk factors** were collected using a **structured questionnaire** (See Appendix 4). An interview lasted on average 30 minutes. Data were collected by an interviewer with the assistance of a PDA-based questionnaire. The participants were then enrolled in the next stages (Step 2 and 3) only after giving their consent.

- **Methods to assess alcohol consumption**

Alcohol consumption is recognized as one of the risk factors for NCDs. The terminology ‘standard drink’ was used in the survey in order to give a comparative assessment on alcohol consumption across different alcoholic beverages. This also provided an easy way to quantify ethanol intake. In this survey, the volume of **one standard drink** representing 10g pure alcohol approximated 1 bottle/can/pot (330 ml) of beer or fermented palm juice alcohol with 4-5% of ethanol, 1 glass (120 ml) of wine/liquor with 12% of ethanol, 1 glass of 30 ml of rice alcohol or other spirits. **Show cards** illustrating these quantities were used for the assessment (See Appendix 5). The definition of **heavy episodic drinking** for this survey was the consumption of 5 or more standard drinks for males and 4 or more standard drinks for females on any day on the past 30 days.

- **Methods to assess eating habits**

Questions on the number of days per week participants ate fruit and vegetables, and questions on the types of oils used for cooking, were administered to determine eating habits of the surveyed population.

The mean intake of fruit and vegetables was assessed on the number of ‘**serving size(s)**’ and the respondents were asked about the average number of serving sizes for fruit and vegetables consumed per usual day by using **show cards** (See Appendix 5).

In order to assess fruit and vegetable intake in this survey, one serving size equivalent for 80 grams of fruit and vegetables was considered as equal to one middle-sized piece of fresh fruit, a glass of fruit juice, 3 to 5 pieces of small-sized fruit, a half cup of dried fruit, a slice of water melon, a cup of raw vegetables, and a half cup of steamed vegetables.

- **Methods to measure physical activity**

Physical activity was determined by using a set questions directed to measure activity and frequency of different types of physical activity performed at work (work setting/home), during transport (go walking, biking and use of different types of active transport) and at recreation (resting time/recreation settings). Data on the number of days, hours and minutes of physical activity performed at work, transport and recreation settings for at least 10 minutes per day were collected. This complex set of questions allowed to quantify physical activity and its intensity levels on an individual through measuring hours and minutes spent a day. The mean time of total physical activity per day spent for work, transport and recreational activities was measured by using the standard metabolic equivalent time, or MET.

The classification of physical activity was defined by high, moderate and low levels of physical activity and given as follows (6) :

- High levels of physical activity:
 - Vigorous-intensity activity on at least 3 days achieving a minimum total physical activity of at least 1500 MET-minutes/week; or
 - Seven or more days of any combination of walking, moderate intensity or vigorous intensity activities achieving a minimum total physical activity of at least 3,000 MET – minutes/week spent as part of work, during transport or at leisure taken together.
- Moderate levels of physical activity:
 - Three or more days of vigorous activity of at least 20 minutes per day; or
 - Five or more days of moderate-intensity activity or/and walking of at least 30 minutes per day; or
 - Five or more days of any combination of walking, moderate intensity or vigorous intensity activities achieving a minimum total physical activity of at least 600 MET minutes/week
- Low levels of physical activity

Those individuals who do not meet criteria for moderate or high are considered having low levels of physical activity.

2.4.2 Step 2

Step 2 was performed by teams from Group Two the day after the interview was conducted by Teams from Group One. At this stage, physiological measurements on blood pressure, body weight, height, waist and hip circumferences were obtained.

- **Body weight and height**

Linkgold Electronic Body Scale, HCS-200-RT model, made by Shanghai Medical Instrument Co. Ltd (<http://www.linkgolddent.com/product-291.html>) was used to measure the weight and height of participants in the survey. The scale, operated by rechargeable batteries, was able to weight from up to 200 kg with a precision of 100 grams, and able to measure height from up to 210 cm with a precision of 0.5 centimeter difference.

- **Body mass index (BMI)**

BMI, calculated by dividing weight (kg) to height (m) squared, is one of the indicators used in adults for the assessment of nutritional and health status. BMI and waist circumference measurements are used for the assessment of body fat (See Appendix 8).

- **Waist circumference (WC)**

A rubber non-stretchy tape with mm(s) precision made from linoleum was used to measure waist circumference. Pregnant women were excluded from the measurement. Waist circumference is essential for defining body fat and its location around the abdomen. Depending on the amount and location of body fat, obesity is classified into central and peripheral. Central obesity is defined by accumulation of body fat around abdomen while peripheral obesity is defined by fat accumulation around hip area.

- **Hip circumference (HC)**

Hip circumference is measured in order to calculate waist to hip ratio (WHR) which is another indicator to define central obesity [(WHR = WC (cm)/ HC (cm)].

BMI, WC and WHR are used as indicators for the assessment of body fat in terms of its amount and location.

- **Blood pressure**

Blood pressure and heart rate were measured 3 times on the left arm in the sitting position using NISSEI Digital Blood Pressure Monitor (Model DS-500) automatic digital blood pressure equipment. The mean from the last 2 measurements were taken for analysis of the systolic and diastolic blood pressure. Only the 3rd measurement was feedback to the participant (See Appendix 6).

2.4.3 Step 3

Step 3 was also performed by teams from Group Two the day after the interview was conducted by Teams from Group One. At this stage, biochemical risk factors for NCDs including fasting blood glucose and total cholesterol were measured.

A portable instrument, Accutrend Plus, was used to measure capillary glucose and total cholesterol on a basis of dry chemical methods. Blood glucose was tested on fasting participants, whereas blood cholesterol was tested for any participants, fasting or not.

Laboratory technicians were recruited for biochemical measurement. They were trained on how to use the Accutrend Plus instrument and how to collect blood in terms of regulations and guidelines for safety and the survey methods on biochemical. This was followed by practical and practice to take measurements on these biochemical factors.

The work flow of Step 3 was that after initiating the equipment for measurement a capillary drop of blood from the participant's finger was taken to cover the yellow test pads of the appropriate test strips for glucose and cholesterol and then the results were documented on paper. Accutrend control glucose and cholesterol solutions were tested on each instrument twice a week or more often when any instrument gave 3 consecutive low measurements (i.e. fasting blood glucose below 50 mg/dl).

All participants were informed of the results of their blood tests whereas those with abnormal test results were given appropriate counseling and/or referral to the nearest health facilities (See Appendix 7).

2.5 Summary of combined risk factors for developing NCDs

Judgment for having a high risk for NCDs was made if the survey participants have at least 3 of 5 risk factors presented including current daily smokers, less than 5 servings of fruit and vegetables per day, low level of physical activity, overweight or obese and raised blood pressure. In contrast if 1-2 of the risk factors were presented then the participants were considered as at moderate risk people.

2.6 Data entry and cleaning

In the field, data obtained from all stages of the survey were immediately entered into the PDA, by using EpiData 3.1 created database.

At the end of the field work, data from each and every PDAs were copied into a micro-computer, then converted to MS EXCEL and merged into one data file. Data were first cleaned for age-range and sex consistency, identification number concordance, and outliers. The data file was subsequently converted into MS ACCESS then converted into EpiInfo 3.5 for second cleaning (valid age and sex) by the pre-defined WHO EpiInfo program. Finally data were analyzed by using the WHO STEPS EpiInfo analysis program 2.1.

2.7 Weighting of data

In this survey estimates were derived from data by using WHO STEPS weighting formulas described in the Appendix 9, taking into account sample weight, non-response weight, and population weight.

2.8 Data analysis

Data analysis was performed by the team of the UHS-C with technical assistance from Ms Melanie COWAN, Technical Officer, Surveillance Department of Chronic and Health Promotion, WHO Geneva, and by using the WHO STEPS templates to fill in the data book.

Data analysis was performed by using the Windows based EpiInfo version 3.5. Frequency distributions with 95% confidence intervals (CI) were calculated using sample frequencies for all categorical variables. Descriptive statistics including sample means with 95% CI were calculated for all numeric variables. Detailed statistics of sample means were calculated in relation to age groups, gender, and residence. Data analysis on physical activity was performed by generating GPAQ formulas in accordance with WHO guidance on physical activity using EpiInfo 3.5.

Finally, the survey methods were discussed and agreed upon between the survey team and WHO consultants prior to the survey implementation. The survey proposal was approved by the Ethics Committee of Cambodian Ministry of Health and the survey findings were communicated to the WHO Geneva for further verification.

CHAPTER III:

SURVEY RESULTS



Data cleaning and analysis by UHS-C Team

Findings of the Cambodian survey on the prevalence of NCD risk factors have been grouped by topic, starting from the description of the sample, to the description of behavioral risks and physical and biochemical measurement, and ending with combined risk factors for NCDs.

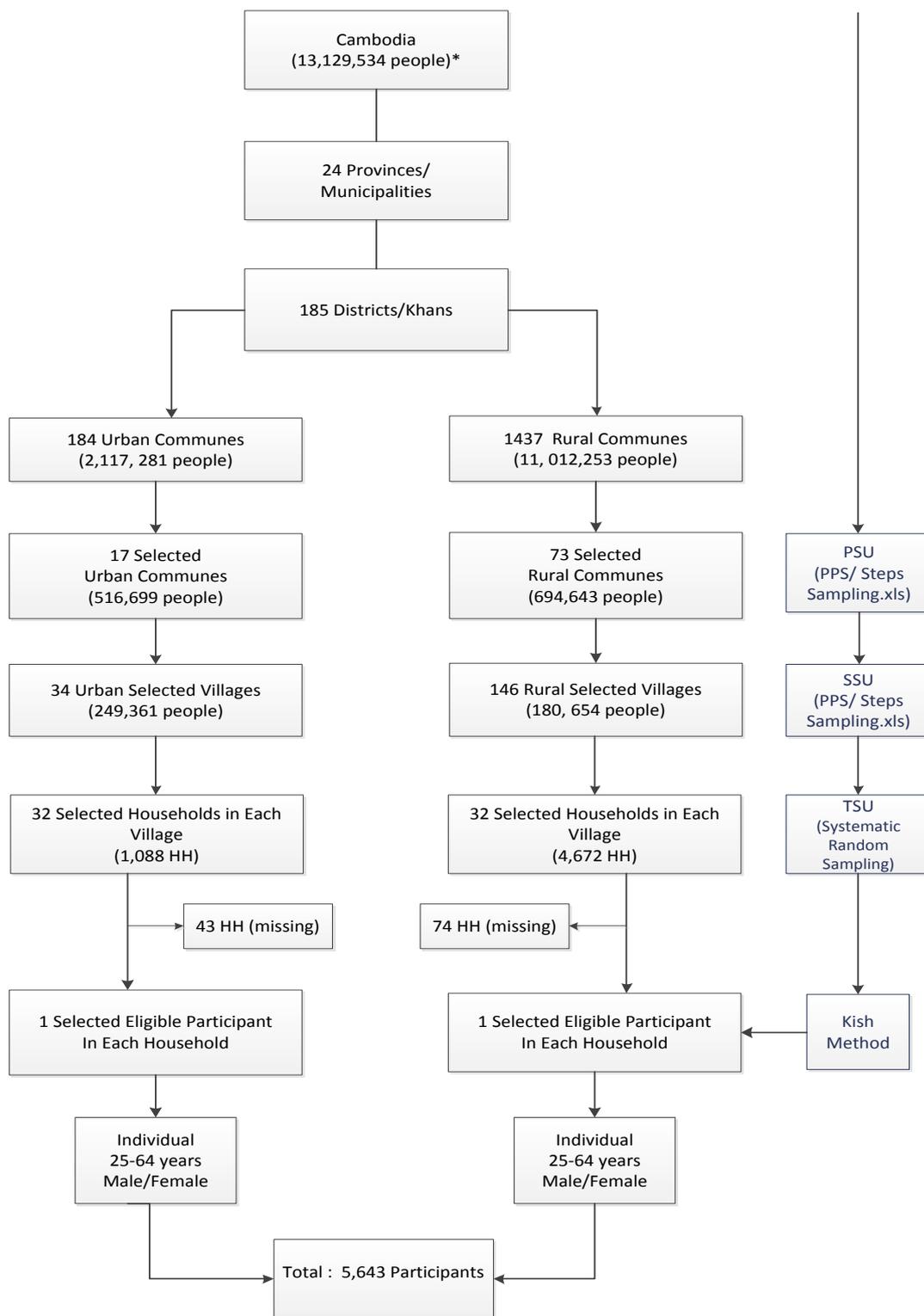
3.1 Description of the sample

3.1.1 Sampling and response proportions

The total sample size calculated for the survey prior to the data collection was 5,760. During the period of data collection, 117 (2.0%) households were missing, being away for farming or other purposes (Figure 3).

Among the remaining 5,643 households available for the survey, 5,433 individuals were interviewed, 5,316 had anthropometric and blood pressure measured, and 5,233 had blood tested. Overall response rates ranged from 96.3% in Step 1, to 94.2% in Step 2, and to 92.7% in Step 3.

Response rates for each and every Steps of the survey were higher in the rural than in urban areas, higher in women than in men, and lower in the youngest age group (25-34 years) than in the other groups (Table 1).



* Source: National Institute of Statistics (NIS), Ministry of Planning, Cambodia. Cambodia Census Frame 2007 Final.xls

Figure 3: Diagram illustrating different stages in data collection

Table 1: Percentage of responses by background characteristic and Steps level

<i>Respondents Characteristic</i>	<i>Eligible</i>	<i>Step 1</i>		<i>Step 2</i>		<i>Step 3</i>	
		Responded	Percent	Responded	Percent	Responded	Percent
Gender							
Male	2,064	989	90.9	1,884	91.3	1,851	89.7
Female	3,579	4,444	96.7	3,432	95.9	3,382	94.5
Residence							
Urban	1,088	1,937	93.8	937	89.7	920	84.6
Rural	4,598	3,496	97.7	4,379	95.2	4,313	93.8
Age group							
25-34	1,532	1,454	94.9	1,410	92.0	1,370	89.4
35-44	1,549	1,501	96.9	1,475	95.2	1,456	94.0
45-54	1,505	1,454	96.6	1,424	94.6	1,412	93.8
55-64	1,057	1,024	96.9	1,007	95.3	995	94.1
Total	5,643	5,433	96.3	5,316	94.2	5,233	92.7

There were similarities and differences between the **survey sample** and the **survey frame** in terms of the distribution of the population by residence, gender, ethnicity, and age groups (Table 2).

In the Step 1 survey sample, respondents from the urban and rural areas represented 18% and 82% of the total respondents respectively, not significantly different from the distribution of the population in the survey frame where the urban and rural population represented 19% and 81% respectively.

However, the proportion of female respondents was by about 20% higher than male respondents (64.3 vs. 35.7%) and about 10% higher than the proportion of women in the survey frame where women and men represented 46.4% and 53.6% respectively. Also, in the survey sample, the proportion of respondents reported to be Khmer was slightly higher than that in the survey frame (98.8 vs. 96.3%).

Furthermore, the proportion of the youngest age group of respondents (25-34 years) in the survey sample was by almost 10% lower than that of the survey frame (26.8 vs. 36.1%). Inversely, the proportion of eldest age groups of respondents (45-54 and 55-64 years) in the survey sample was higher than that of the sample frame. In other words, respondents in the survey sample were older than those of the survey frame.

Anyways, differences in gender and age groups between the survey sample and sample frame, as well as non-responses were corrected in the data analysis through the weighting process described in Appendix 9.

Table 2 shows that respondents from the urban and rural areas represented 18% and 82% of the total respondents respectively, corresponding to the distribution of the population in the survey frame. The proportion of female respondents was by 20% higher than that of male respondents (64.3 vs. 35.7%) and by 10% higher than the proportion of women in the survey frame. Over 98% of the total respondents were reportedly Khmer, whereas the remaining respondents were Chinese, Vietnamese, Cham and minority ethnic groups in the northeast provinces. The distribution of respondents was around 26% for each of the first three age groups (i.e. 25-34, 35-44 and 45-54 years) but only 18% for the last age group (i.e. 55-64 years).

Table 2: Demographic indicators

<i>Respondents Characteristic</i>	<i>Survey sample (Step 1)</i>		<i>Survey frame*</i>	
	n	Proportion (unweighted)	n	Proportion
Residence				
Urban	989	18.2	979,633	18.7
Rural	4,444	81.8	4,259,050	81.3
Gender				
Male	1,937	35.7	2,428,963	46.4
Female	3,496	64.3	2,809,720	53.6
Ethnicity*				
Khmer	5,366	98.8	5,045,376	96.3
Vietnam	13	0.2	26,193	0.5
Chinese	5	0.1	2,619	0.05
Cham	5	0.1	78,580	1.5
Minority**	44	0.8	68,103	1.3
Age group				
25-34	1,454	26.8	1,890,653	36.1
35-44	1,501	27.6	1,562,414	29.8
45-54	1,454	26.8	1,129,140	21.6
55-64	1,024	18.8	656,476	12.5
Total	5,433	100.0	5,238,683	100.0

* National census 2008

**44 participants of Minority group (Mondulkiri and Rattanakiri provinces)

3.1.2 Marital status

Four in every 5 respondents both in the rural and urban areas were currently married. However, the proportion of current marriage respondents was higher for men than for women (90.3 vs. 66.4%).

Furthermore, the remaining respondents were overall single (5%), separated (5.6%), divorced (2.1%) and widowed (12.3%). The proportion of widows was 6 times higher in women than in men, and tended to increase with age (Table 3).

Table 3: Marital status of respondents

<i>Respondents Characteristic</i>	<i>n</i>	<i>Marital status</i>				
		Never married	Currently married	Separated	Divorced	Widowed
Residence						
Urban	989	6.8	74.3	5.9	1.7	11.3
Rural	4,443	4.6	75.1	5.6	2.1	12.5
Gender						
Male	1,937	3.9	90.3	2.5	0.5	2.8
Female	3,495	5.6	66.4	7.4	2.9	17.6
Age group						
25-34	1,454	10.5	78.3	6.7	1.8	2.7
35-44	1,501	3.8	79.1	7.0	2.1	8.0
45-54	1,453	2.8	74.7	5.0	2.5	14.9
55-64	1,024	2.2	64.5	2.9	1.7	28.7
Total	5,432	5.0	75.0	5.6	2.1	12.3

3.1.3 Level of education

The overall number of years that respondents spent in school (pre-school excluded) was on average 4.0 years with schooling years longer in men than in women, and also longer in urban than in rural areas (Figure 4).

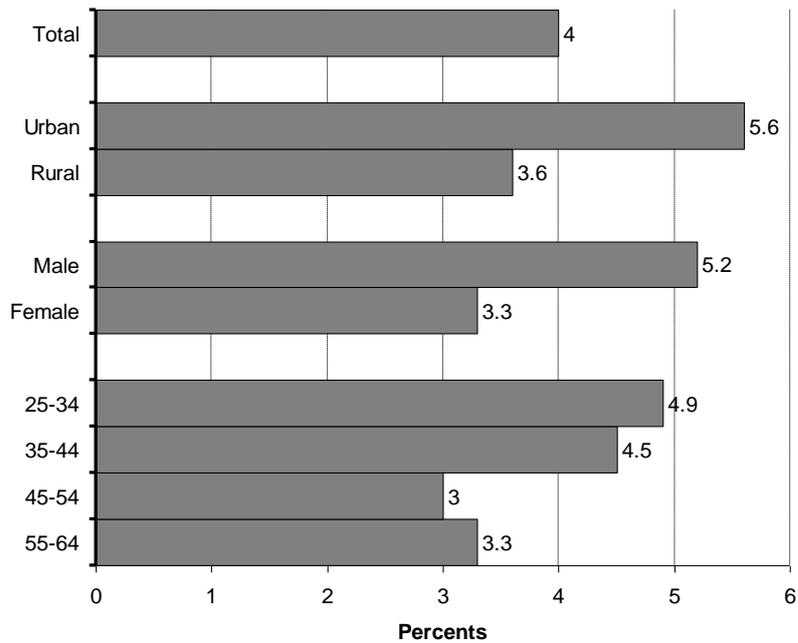


Figure 4: Mean number of years of education among all respondents

In addition, 27.3% of respondents received no formal education and 42.5% did not complete the primary school. Among the remaining respondents who completed at least the primary school, their level of education was on average higher in men than in women, higher in the urban than in rural areas, and tended to be higher in younger than in older respondents. For instance, the prevalence of urban and male respondents who had completed the high school was 3 times higher than that of rural and female respondents.

Finally, the prevalence of respondents who did not receive any formal schooling at all was 1.7 times higher in the rural than in urban areas (29.5 vs. 17.8%) and twice higher in women than in men (33.3 vs. 16.6%) (Table 4).

Table 4: Highest level of education achieved by the survey respondents

<i>Respondents Characteristic</i>	<i>n</i>	<i>No formal schooling</i>	<i>Less than primary school</i>	<i>Completed</i>				
				Primary school	Secun- dary school	High school	College/ Univer- sity	Post graduate degree
Residence								
Urban	988	17.8	34.4	21.2	16.2	7.7	2.3	0.4
Rural	4,444	29.5	44.2	16.7	6.9	2.3	0.4	0.1
Gender								
Male	1,936	16.6	38.3	24.2	13.2	5.7	1.6	0.4
Female	3,496	33.3	44.8	13.7	6.0	1.9	0.3	0.0
Age group								
25-34	1,454	21.1	40.3	21.5	9.8	5.9	1.2	0.1
35-44	1,500	20.6	42.5	20.9	11.6	3.2	1.1	0.1
45-54	1,454	34.7	45.6	12.2	5.9	1.1	0.3	0.2
55-64	1,024	35.5	41.0	14.3	6.2	2.7	0.3	0.0
Total	5,432	27.3	42.5	17.5	8.6	3.3	0.8	0.1

3.1.4 Household income and employment

The estimated annual income of respondents averaged US\$ 481 per capita for the total respondents, and was 1.8 folds higher in the urban than in rural areas. In addition, 6 in every 10 households earned on average US\$ 1,500 or less per year (Table 5).

Table 5: Household income

<i>Respondents Characteristic</i>	<i>Estimated household earnings per year</i>						<i>Estimated annual per capita income</i>	
	Quintile1 (Under \$250)	Quintile2 (\$251- 1,500)	Quintile3 (\$1,501- 3,500)	Quintile4 (\$3,501- 5,500)	Quintile5 (Over \$5,500)			
	<i>n</i>	%	%	%	%	<i>n</i>	Mean	
Urban	915	4.9	53.3	26.4	8.2	7.1	895	\$ 764
Rural	4,286	22.9	61.2	12.2	2.0	1.6	4,045	\$ 419
Total	5,201	19.7	59.8	14.7	3.1	2.6	4,940	\$ 481

In regards to past year's employment, the proportion of self-employed respondents was around 80% for both male and female respondents as well as for all age groups, but was about 1.4 folds higher in the rural than in urban areas (85.1 vs. 61.7%). In addition, the proportion of government employees was 5% for the total respondents, but was four times higher in men than in women, and twice higher in the urban than in rural areas (Table 6).

Table 6: Proportion of respondents in paid employment and those who are unpaid in the past year

<i>Respondents Characteristic</i>	<i>n</i>	<i>Employment status (%)</i>			
		Government employee	Non-government employee	Self-employed	Unpaid
Residence					
Urban	989	8.9	5.0	61.7	24.5
Rural	4,444	4.1	1.2	85.1	9.6
Gender					
Male	1,937	9.7	3.5	83.3	3.6
Female	3,496	2.3	1.1	79.5	17.1
Age group					
25-34	1,454	3.4	2.9	80.7	13.1
35-44	1,501	6.3	2.1	83.3	8.3
45-54	1,454	5.2	1.7	82.9	10.2
55-64	1,024	4.8	0.7	74.5	20.0
Total	5,433	5.0	1.9	80.9	12.3

In addition, respondents who were on unpaid work in the year preceding the survey represented 12.3% of the total respondents, were higher in women than in men, and also higher in the rural than urban areas (See Table 6). Finally, about two-third of unpaid workers were home makers, while the remaining one-third were unemployed (15%), retired (5.4%), non-paid (3.3%) and students (1.2%) (Table 7).

Table 7: Proportion of respondents in unpaid work over the past year

<i>Respondents Characteristic</i>	<i>n</i>	<i>Employed</i>				<i>Unemployed</i>	
		Non-paid	Student	Home-maker	Retired	Able to Work	Not able to work
Residence							
Urban	242	2.5	2.5	76.0	7.9	7.4	3.7
Rural	425	3.8	0.5	74.6	4.0	6.6	10.6
Gender							
Male	70	5.7	8.6	1.4	35.7	28.6	20.0
Female	597	3.0	0.3	83.8	1.8	4.4	6.7
Age group							
25-34	190	1.1	4.2	88.4	0.0	5.3	1.1
35-44	124	2.4	0.0	90.3	0.0	6.5	0.8
45-54	148	3.4	0.0	80.4	0.7	8.1	7.4
55-64	205	5.9	0.0	49.8	17.1	7.8	19.5
Total	667	3.3	1.2	75.1	5.4	6.9	8.1

3.2 Tobacco use

In this survey the participants were asked about tobacco smoking, smokeless tobacco use, tobacco use (smoking and smokeless) and passive smoking, with the objectives to assess the smoking status as one of the risk factors for developing NCDs among population.

3.2.1 Tobacco smoking

The survey found that 26.4% and 2.9% of all respondents were reported to smoke daily and non-daily respectively. The proportion of daily smoking was up to 10 folds higher in men than in women (49.3 vs. 4.8 %), or in order words, 1 in every 2 men interviewed were daily smokers as compared to 1 in every 20 women. Furthermore, daily smoking was up to 1.5 times higher in the rural than in urban areas (28.2 vs. 18.1 %), and tended to increase with age, from 21.4% in the youngest age group of respondents to 30.3% in the eldest one (Table 8).

Table 8: Percent distribution of the smoking status of all respondents

<i>Respondents Characteristic</i>	<i>n</i>	<i>Daily</i>	<i>Non daily</i>	<i>Does not smoke</i>
		<i>% (95% CI)</i>	<i>% (95% CI)</i>	<i>% (95% CI)</i>
Residence				
Urban	989	18.1 (14.0-22.3)	3.3 (1.3-5.2)	78.6 (74.5-82.7)
Rural	4,444	28.2 (26.1-30.4)	2.8 (2.2-3.5)	68.9 (66.7-71.1)
Gender				
Male	1,937	49.3 (46.5-52.1)	4.8 (3.6-6.0)	45.9 (43.1-48.7)
Female	3,496	4.8 (3.3-6.2)	1.1 (0.7-1.6)	94.1 (92.5-95.7)
Age group				
25-34	1,454	21.4 (18.4-24.4)	2.8 (1.8-3.9)	75.7 (72.6-78.9)
35-44	1,501	31.0 (27.8-34.2)	2.8 (1.7-3.8)	66.3 (63.0-69.5)
45-54	1,454	26.7 (23.7-29.6)	2.6 (1.7-3.6)	70.7 (67.8-73.6)
55-64	1,024	30.3 (26.9-33.6)	3.9 (2.5-5.3)	65.8 (62.4-69.2)
Total	5,433	26.4 (24.5-28.3)	2.9 (2.3-3.5)	70.6 (68.7-72.6)

Among current smokers, on one hand, 90% of the total respondents were reportedly **daily smokers**, and this proportion was by 10% higher in men than in women (91.2 vs. 80.8%), and by 16% higher in the rural than in urban areas (90.9 vs. 84.8%). Among daily smokers, on the other hand, the mean starting age of tobacco smoking was on average 20.4 years for the total respondents, almost one year shorter in the rural than in urban areas (21.2 vs. 20.3 years), but not different across age groups, and between men and women (Table 9).

Table 9: Prevalence of daily smokers among current smokers and mean age of initiation of smoking, in years, among daily smokers

<i>Respondents Characteristic</i>	<i>Current smokers</i>		<i>Daily smokers</i>		
	n	% Daily smoking (95% CI)	n	Mean stating age (95% CI)	Mean Duration (95% CI)
Residence					
Urban	176	84.8 (75.7-93.9)	150	21.2 (19.9-22.5)	22.9 (20.4-25.4)
Rural	1,120	90.9 (88.8-92.9)	1,006	20.3 (19.8-20.7)	20.9 (20.1-21.7)
Gender					
Male	1,075	91.2 (89.0-93.4)	978	20.1 (19.7-20.5)	21.3 (20.5-22.0)
Female	221	80.8 (73.1-88.5)	178	23.3 (21.2-25.3)	19.8 (18.1-21.6)
Age group					
25-34	284	88.3 (84.2-92.4)	250	19.0 (18.3-19.6)	10.4 (9.7-11.2)
35-44	379	91.8 (88.8-94.8)	344	19.8 (19.2-20.5)	19.8 (19.1-20.4)
45-54	354	91.0 (87.8-94.3)	320	22.3 (21.4-23.2)	27.1 (26.1-28.0)
55-64	279	88.6 (84.6-92.6)	242	21.7 (20.7-22.7)	37.3 (36.3-38.4)
Total	1,296	90.1 (88.0-92.2)	1,156	20.4 (20.0-20.8)	21.1 (20.4-21.9)

In regards to the **types of cigarettes**, manufactured cigarettes were more smoked than hand-rolled cigarettes (87.1 vs. 17.0%) by daily smokers (Table 10). Manufactured cigarettes were smoked by more men than women (88.1 vs. 77.5%), and also by more urban than rural respondents (92.6 vs. 86.3%). They were smoked on average 12.8 cigarettes per day, twice by men than by women (13.4 vs. 6.9 cigarettes), but not significantly different between the rural and urban respondents, and across age groups. Hand-rolled cigarettes, on the other hand, were smoked at 1.2 cigarettes per day on average, with some respondents reported to

smoke both manufactured and hand-roller cigarettes. This proportion of hand-rolled cigarettes smoking was 2.5 times higher in the rural than in urban areas (18.3 vs. 7.4%), 1.6 times higher in women than in men (26.0 vs. 16.0%), and slightly increased with age from 10.6% for ages 25-34 to 26.7% for ages 55-64.

Table 10: Prevalence and mean amount of smoking by types of tobacco among daily smokers

<i>Respondents Characteristic</i>	<i>n</i>	<i>Manufactured cigarette</i>		<i>Hand-roller cigarette</i>	
		<i>% (95% CI)</i>	<i>Mean (95% CI)</i>	<i>% (95% CI)</i>	<i>Mean (95% CI)</i>
Residence					
Urban	150	92.6 (86.2-99.0)	14.0 (11.3-16.6)	7.4 (1.0-13.8)	0.4 (0.1-0.8)
Rural	1,007	86.3 (82.9-89.8)	12.6 (11.7-13.5)	18.3 (14.1-22.4)	1.3 (1.1-1.6)
Gender					
Male	979	88.1 (85.2-90.9)	13.4 (12.5-14.2)	16.0 (12.5-19.6)	1.2 (0.9-1.4)
Female	178	77.5 (66.4-88.6)	6.9 (5.6-8.2)	26.0 (12.4-39.6)	1.5 (0.7-2.3)
Age group					
25-34	250	92.6 (88.5-96.8)	11.5 (10.3-12.7)	10.6 (5.3-15.8)	0.7 (0.3-1.1)
35-44	345	88.6 (84.0-93.2)	13.7 (12.4-15.0)	15.7 (10.5-20.9)	1.1 (0.7-1.5)
45-54	320	83.4 (78.3-88.5)	13.4 (11.7-15.2)	21.2 (15.7-26.7)	1.6 (1.1-2.0)
55-64	242	77.8 (71.8-83.8)	12.1 (10.5-13.7)	26.7 (20.4-33.0)	2.0 (1.4-2.5)
Total	1,157	87.1 (84.0-90.2)	12.8 (11.9-13.6)	17.0 (13.2-20.7)	1.2 (1.0-1.5)

Ex-daily smokers represented 9.2% of the total respondents, ranging from 8.9% in the rural area to 10.3% in the urban area. This proportion of ex-daily smokers was 7 times higher in men than in women (16.5 vs. 2.2%), and increasing with age, from 4.6% in the youngest age group to 17.0% in the eldest one. The number of years since cessation was on average 8.4 years (Table 11).

Table 11: Percentage of ex-daily smokers among all respondents and the mean duration, in years, since ex-daily smokers quit smoking daily

<i>Respondents Characteristic</i>	<i>Ex-daily smokers Among all respondents</i>		<i>Number of years since cessation Among ex-daily smokers</i>	
	n	% (95% CI)	n	Mean (95% CI)
Residence				
Urban	989	10.3 (8.0-12.7)	98	9.6 (8.1-11.2)
Rural	4,444	8.9 (7.8-10.0)	356	8.1 (7.2-9.0)
Gender				
Male	1,937	16.5 (14.7-18.4)	360	8.2 (7.3-9.0)
Female	3,496	2.2 (1.6-2.7)	94	10.1 (7.9-12.3)
Age group				
25-34	1,454	4.6 (3.2-6.0)	55	4.5 (3.4-5.5)
35-44	1,501	9.2 (7.6-10.8)	107	8.6 (7.2-10.0)
45-54	1,454	12.3 (10.4-14.2)	150	9.6 (7.9-11.2)
55-64	1,024	17.0 (14.2-19.9)	142	9.8 (8.0-11.6)
Total	5,433	9.2 (8.2-10.2)	454	8.4 (7.6-9.2)

3.2.2 Smokeless tobacco

In this survey the participants were also asked about smokeless tobacco (including tobacco snuffing, tobacco chewing, and betel quid) in terms of its current, daily and non-daily use, and its mean times per day use.

The survey found that 8.8% of all respondents were currently using smokeless tobacco, ranging from 7.6% of daily usage to 1.1% of non-daily usage. This proportion of current users of smokeless tobacco was 6.8 times higher in women than in men (14.8 vs. 2.2%), 2.6 times higher in the rural than in urban areas (9.8 vs. 3.8%), and substantially increased with age, from 2.2% for ages 25-24 to 21.9% for ages 55-64 (Table 12).

Table 12: Percentage of current users of smokeless tobacco among all respondents

<i>Respondents Characteristic</i>	<i>Smokeless tobacco</i>				
	<i>n</i>	Current users	Daily users	Non daily users	Non users
		% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Residence					
Urban	989	3.8 (2.5-5.0)	2.8 (1.6-4.0)	1.0 (0.3-1.6)	96.2 (95.0-97.5)
Rural	4,444	9.8 (8.4-11.2)	8.7 (7.4-10.0)	1.1 (0.8-1.5)	90.2 (88.8-91.6)
Gender					
Male	1,937	2.2 (1.4-3.0)	1.3 (0.7-1.9)	0.9 (0.4-1.4)	97.8 (97.0-98.6)
Female	3,496	14.9 (13.0-16.9)	13.7 (11.8-15.5)	1.3 (0.9-1.7)	85.1 (83.1-87.0)
Age group					
25-34	1,454	2.2 (1.4-2.9)	1.7 (1.0-2.4)	0.5 (0.2-0.8)	97.8 (97.1-98.6)
35-44	1,501	7.7 (5.7-9.6)	6.3 (4.6-7.9)	1.4 (0.7-2.1)	92.3 (90.4-94.3)
45-54	1,454	13.7 (11.3-16.1)	12.2 (9.9-14.5)	1.5 (0.7-2.3)	86.3 (83.9-88.7)
55-64	1,024	21.9 (19.0-24.7)	20.2 (17.5-23.0)	1.6 (0.8-2.4)	78.1 (75.3-81.0)
Total	5,433	8.8 (7.6-9.9)	7.6 (6.6-8.7)	1.1 (0.8-1.5)	91.2 (90.1-92.4)

Furthermore, the **frequency of smokeless tobacco use** ranged in total from 0.2 times per day for tobacco snuffing, to 0.6 times for tobacco chewing, and to 3.4 times for betel quid.

Betel quid was on average used more frequently by women than by men (3.5 vs. 2.3 times per day), but this usage was neither significantly different across age groups nor between the urban and rural areas (Table 13).

Table 13: Mean times per day of smokeless tobacco used by smokeless tobacco users

<i>Respondents Characteristic</i>	<i>n</i>	<i>Snuff by mouth</i>	<i>Snuff by nose</i>	<i>Chew</i>	<i>Betel quid</i>
		Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)
Residence					
Urban	42	0.2 (0.0-0.7)	0.1 (0.0-0.2)	0.5 (0.1-0.9)	3.4 (2.5-4.3)
Rural	581	0.2 (0.0-0.3)	0.0 (0.0-0.1)	0.6 (0.5-0.8)	3.4 (3.1-3.7)
Gender					
Male	31	0.6 (0.0-1.8)	0.2 (0.0-0.7)	0.1 (0.0-0.3)	2.3 (1.4-3.2)
Female	592	0.1 (0.0-0.2)	0.0 (0.0-0.0)	0.7 (0.5-0.9)	3.5 (3.2-3.8)
Age Groups					
25-34	32	0.1 (0.0-0.4)	0.0 (0.0-0.0)	1.0 (0.5-1.5)	2.5 (1.7-3.4)
35-44	120	0.1 (0.0-0.3)	0.0 (0.0-0.0)	0.4 (0.1-0.6)	3.2 (2.7-3.7)
45-54	215	0.2 (0.0-0.5)	0.0 (0.0-0.0)	0.5 (0.3-0.7)	3.8 (3.3-4.4)
55-64	256	0.1 (0.0-0.2)	0.1 (0.0-0.2)	0.9 (0.6-1.2)	3.3 (2.9-3.6)
Total	623	0.2 (0.0-0.3)	0.0 (0.0-0.1)	0.6 (0.5-0.8)	3.4 (3.1-3.7)

3.2.3 Smoking and smokeless tobacco use

All types of tobacco use, including smoking and smokeless, current (daily or not) and daily tobacco users, accounted for 37.0% and 33.7% of all respondents respectively.

The prevalence of all types of current tobacco users was 2.8 times higher for men than for women (55.1 vs. 19.8%), and was 1.6 times higher in the rural than in urban areas (39.6 vs. 24.8%). This tobacco usage prevalence was increasing with age, with the prevalence of current tobacco users twice higher in the eldest age group than in the youngest one (53.3 vs. 26.1%) (Table 14).

Table 14: Percentage of daily and current (daily plus non-daily) tobacco users, includes smoking and smokeless, among all respondents

<i>Respondents Characteristic</i>	<i>n</i>	<i>Current tobacco users</i>	<i>Daily tobacco users</i>
		<i>% (95% CI)</i>	<i>% (95% CI)</i>
Residence			
Urban	989	24.8 (20.3-29.4)	20.8 (16.2-25.5)
Rural	4,444	39.6 (37.1-42.0)	36.4 (34.0-38.8)
Gender			
Male	1,937	55.1 (52.3-57.9)	50.2 (47.4-53.0)
Female	3,496	19.8 (17.4-22.10)	18.0 (15.7-20.3)
Age group			
25-34	1,454	26.1 (22.8-29.3)	23.0 (19.9-26.1)
35-44	1,501	40.4 (36.9-43.9)	37.0 (33.4-40.6)
45-54	1,454	41.3 (37.9-44.8)	38.2 (34.6-41.7)
55-64	1,024	53.3 (49.4-57.2)	49.2 (45.3-53.2)
Total	5,433	37.0 (34.8-39.1)	33.7 (31.5-35.8)

3.2.4 Exposition to environmental tobacco smoke

The survey also sought information from the participants on their exposition to environmental tobacco smoke (ETS) or passive smoking.

ETS exposure of the total respondents was slightly higher in home than in workplace (41.1 vs. 36.4%). Women were reported to be more exposed to ETS than men in home, but less exposed to ETS than men in workplace, whereas rural respondents were more exposed to ETS than urban ones both in home and workplace. Overall exposition to ETS in home and/or in workplace was reported more frequently by women than by men as well as by rural than by urban respondents (Table 15).

Table 15: Percentage of respondents exposed to ETS in home and in the workplace on one or more days in the past 7 days

<i>Respondents Characteristic</i>	<i>Exposed to environmental tobacco smoke in</i>			
	<i>n</i>	Home	Workplace	Home and/ or workplace
		% (95% CI)	% (95% CI)	% (95% CI)
Residence				
Urban	989	33.3 (28.4-38.2)	32.7 (26.1-39.4)	50.7 (45.1-56.2)
Rural	4,444	42.8 (40.4-45.2)	37.2 (33.4-40.9)	56.2 (53.6-58.8)
Gender				
Male	1,937	33.3 (29.8-36.8)	44.9 (40.6-49.3)	54.4 (50.6-58.3)
Female	3,496	48.5 (46.2-50.9)	28.3 (25.5-31.2)	56.0 (53.8-58.1)
Age group				
25-34	1,454	41.5 (38.2-44.8)	35.7 (31.7-39.6)	56.6 (53.3-59.8)
35-44	1,501	40.6 (37.3-43.9)	40.1 (35.7-44.6)	56.1 (52.5-59.8)
45-54	1,454	42.1 (39.1-45.2)	35.7 (31.6-39.7)	54.7 (51.5-57.9)
55-64	1,024	39.5 (35.7-43.4)	31.3 (27.1-35.4)	50.1 (46.4-53.8)
Total	5,433	41.1 (39.0-43.3)	36.4 (33.1-39.7)	55.2 (52.9-57.6)

In **summary**, out of the total respondents (n=5433), 29.4% and 37.0% were reportedly **current** (daily and non-daily) tobacco smokers and users (smoking and smokeless) respectively, whereas 55.2% were exposed to ETS at home and/or workplace in the past 7 days prior to the survey. In addition, 26.4% and 33.7% of the total respondents were **daily** tobacco smokers and users respectively. Finally, men were more likely than women to smoke and use tobacco daily; whereas rural respondents were more likely than urban respondents to smoke and use tobacco on a daily basis.

3.3 Alcohol Consumption

In this survey the participants were asked about the frequency and quantity of alcohol consumption in the past week, month, and year prior to the survey, with the objectives to identify and assess their drinking status as one of the risk factors for developing NCDs among the surveyed population.

3.3.1 Alcohol drinking status

The survey found that almost two-thirds of the total respondents (63.5%) were alcohol drinkers and the remaining (36.5%) alcohol abstainers.

In regards to **alcohol drinkers**, over half (53.5%) of the total respondents were reportedly current drinkers in the past 30 days, whereas one-tenth (10.0%) were past 12 months drinkers but not current. Men were reported to be 2.4 times current drinkers than women (76.3 vs. 31.9%), but women were reportedly 1.5 times past 12 months drinkers than men (12.0 vs. 7.9%). In addition, urban respondents were 1.4 times past 12 months drinkers than rural respondents (13.3 vs. 9.3%). Finally the proportions of current and past 12 months drinkers among the eldest age group of respondents (55-64 years) were reportedly lower than those of the three younger age groups (35.2 vs. 51.1-58.0% for current drinkers and 6.1 vs. 10.3-10.8% for past 12 months drinkers).

With regards to **alcohol abstainers**, about one-fourth of the total respondents (26.5%) were lifetime abstainers whereas one-tenth of respondents (10.0%) were past 12 months abstainers. The proportion of lifetime abstainers, on one hand, was 4.7 times higher in women than in men (43.0 vs. 9.1%), and highest in the eldest age group. The proportion of past 12 month alcohol abstainers, on the other hand, was twice higher in women than in men (12.0 vs. 6.7%) and was increasing with age (Table 16).

Table 16: Alcohol consumption status of all respondents

<i>Respondents Characteristic</i>	<i>n</i>	<i>Current Drinker</i>	<i>Past 12 months drinker, not current</i>	<i>Past 12 months abstainer</i>	<i>Lifetime abstainer</i>
		<i>% (95% CI)</i>	<i>% (95% CI)</i>	<i>% (95% CI)</i>	<i>% (95% CI)</i>
Residence					
Urban	989	49.0 (44.5-53.5)	13.3 (10.6-16.0)	9.3 (7.2-11.4)	28.4 (24.2-32.6)
Rural	4,444	54.5 (52.1-56.8)	9.3 (8.3-10.3)	10.2 (9.0-11.3)	26.1 (24.2-27.9)
Gender					
Male	1,937	76.3 (73.9-78.7)	7.9 (6.7-9.2)	6.7 (5.4-8.0)	9.1 (7.5-10.6)
Female	3,496	31.9 (29.6-34.2)	12.0 (10.6-13.4)	13.2 (11.8-14.6)	43.0 (40.5-45.4)
Age group					
25-34	1,454	58.0 (54.7-61.4)	10.8 (9.2-12.5)	6.9 (5.5-8.3)	24.2 (21.4-27.0)
35-44	1,501	57.5 (54.7-60.3)	10.3 (8.7-12.0)	8.6 (7.0-10.1)	23.6 (21.5-25.7)
45-54	1,454	51.1 (47.9-54.4)	10.5 (8.8-12.1)	11.5 (9.7-13.2)	26.9 (24.3-29.6)
55-64	1,024	35.2 (31.6-38.8)	6.1 (4.4-7.8)	19.9 (16.6-23.3)	38.8 (35.0-42.6)
Total	5,433	53.5 (51.4-55.6)	10.0 (9.1-10.9)	10.0 (9.0-11.1)	26.5 (24.8-28.2)

3.3.2 Alcohol drinking categories

In this survey, alcohol consumption was classified in 3 drinking categories, as follows:

- Drinking category III was defined as drinking ≥ 60 g of pure alcohol on average per day for men and ≥ 40 g for women;
- Drinking category II was defined as drinking 40-59.9g of pure alcohol on average per day for men and 20-39.9g for women; and
- Drinking category I was defined as drinking < 40 g of pure alcohol on average per day for men and < 20 for women.

The survey revealed that, among all respondents, few were classified in the category III (3.4%) and II (3.4%) whereas the majority (46.6%) in the category I (Table 17). However, among current (past 30 days) drinkers, the majority (87.3%) were in Category I and the remaining 6.3% and 6.4 % in Category II and III respectively.

Table 17: Drinking categories of all respondents

<i>Respondents Characteristic</i>	<i>n</i>	<i>Category III</i>	<i>Category II</i>	<i>Category I</i>
		% (95% CI)	% (95% CI)	% (95% CI)
Residence				
Urban	988	2.5 (1.3-3.6)	2.3 (1.4-3.3)	44.1 (39.7-48.6)
Rural	4,430	3.6 (2.9-4.3)	3.6 (2.8-4.3)	47.1 (44.8-49.3)
Gender				
Male	1,928	6.6 (5.3-7.8)	5.0 (3.9-6.2)	64.6 (61.9-67.2)
Female	3,490	0.4 (0.2-0.6)	1.8 (1.3-2.3)	29.6 (27.3-31.8)
Age group				
25-34	1,449	3.1 (2.0-4.2)	2.8 (1.7-3.8)	52.0 (48.5-55.4)
35-44	1,497	5.0 (3.5-6.4)	4.0 (2.6-5.3)	48.4 (45.5-51.4)
45-54	1,450	2.8 (1.7-3.8)	4.5 (3.3-5.6)	43.8 (40.7-46.9)
55-64	1,022	1.8 (0.7-3.0)	1.9 (0.7-3.1)	31.3 (27.8-34.7)
Total	5,418	3.4 (2.8-4.0)	3.4 (2.7-4.0)	46.6 (44.5-48.6)

The survey also found that, among drinking category III respondents, men were more prevalent than women (8.6 vs. 1.3%); this proportion was neither significantly different across age groups nor between the urban and rural areas. In other words, more men were heavy drinkers than did women, regardless of age and residence (Table 18).

Table 18: Drinking categories of current (past 30 days) drinkers

<i>Respondents Characteristic</i>	<i>Drinking category among current drinkers</i>			
	<i>n</i>	Category III	Category II	Category I
		% (95% CI)	% (95% CI)	% (95% CI)
Residence				
Urban	430	5.0 (2.7-7.3)	4.8 (2.8-6.8)	90.2 (86.9-93.6)
Rural	2,051	6.6 (5.3-8.0)	6.6 (5.3-8.0)	86.7 (84.9-88.6)
Gender				
Male	1,412	8.6 (7.0-10.2)	6.6 (5.1-8.1)	84.8 (82.5-87.0)
Female	1,069	1.3 (0.6-2.0)	5.6 (4.0-7.3)	93.1 (91.3-94.9)
Age group				
25-34	745	5.3 (3.5-7.2)	4.8 (3.0-6.6)	89.9 (87.5-92.3)
35-44	755	8.7 (6.2-11.2)	6.9 (4.6-9.2)	84.4 (81.1-87.8)
45-54	669	5.4 (3.4-7.4)	8.7 (6.6-10.9)	85.9 (83.0-88.7)
55-64	312	5.3 (2.0-8.6)	5.4 (2.2-8.7)	89.3 (84.6-94.0)
Total	2,481	6.4 (5.2-7.5)	6.3 (5.1-7.5)	87.3 (85.6-89.0)

3.3.2 Alcohol consumption in the past 12 months

Among drinkers in the past 12 months, including current (30 days) drinkers, the proportion of those who reportedly consumed alcohol on a daily basis was on average 13.4%. This proportion of daily drinkers was significantly higher in men than in women (15.5 vs. 9.6%), and was increasing with age, from 9.3% for ages 25-34 to 21.8% for ages 55-64.

When taking into account 4.3 % and 19.0% of respondents who did consume alcohol 5-6 days and 1-4 days a week respectively, the proportion of alcohol consumption for at least once a week went up to over one-third of all respondents who had ever drunk in the past 12 months prior to the survey. The remaining respondents who consumed alcohol in the past 12 months did so occasionally (i.e. up to 3 days a month: 31.1%) and rarely (i.e. less than once a month: 32.2%) (Table 19).

Table 19: Frequency of alcohol consumption of respondents in the past 12 months

<i>Respondents Characteristic</i>	<i>Alcohol consumption in past 12 months</i>					
	<i>n</i>	Daily	5-6 days/ week	1-4 days/ week	1-3 days/ month	< once/ month
		% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Residence						
Urban	553	10.8 (7.5-14.1)	5.0 (2.4-7.6)	13.9 (9.1-18.8)	28.5 (22.0-34.9)	41.8 (36.0-47.5)
Rural	2,498	14.0 (12.1-15.9)	4.1 (3.1-5.2)	20.0 (18.1-22.0)	31.7 (29.1-34.2)	30.2 (27.6-32.8)
Gender						
Male	1,583	15.5 (13.3-17.7)	6.2 (4.7-7.6)	24.3 (21.9-26.7)	31.8 (29.0-34.6)	22.3 (19.6-25.0)
Female	1,468	9.6 (7.7-11.6)	0.8 (0.4-1.3)	9.3 (7.6-11.1)	29.9 (26.4-33.3)	50.3 (46.8-53.8)
Age group						
25-34	924	9.3 (7.0-11.5)	3.2 (1.7-4.6)	19.4 (16.4-22.3)	35.0 (31.3-38.8)	33.2 (29.3-37.0)
35-44	925	14.3 (11.3-17.4)	5.6 (3.8-7.3)	19.4 (16.4-22.4)	30.4 (26.6-34.2)	30.3 (27.0-33.5)
45-54	824	16.7 (13.8-19.5)	5.1 (3.6-6.7)	17.6 (14.1-21.1)	27.7 (23.8-31.6)	32.9 (29.0-36.7)
55-64	378	21.8 (16.7-27.0)	2.6 (0.7-4.4)	19.1 (14.8-23.4)	23.4 (18.6-28.2)	33.1 (27.6-38.6)
Total	3,051	13.4 (11.8-15.1)	4.3 (3.3-5.2)	19.0 (17.2-20.8)	31.1 (28.7-33.5)	32.2 (29.8-34.6)

3.3.3 Alcohol consumption in the past 30 days

Among current (past 30 days) drinkers, which accounted for 53.5% of all respondents (See Table 16), the overall mean of drinking occasions was on average 9.1 occasions. This mean of drinking occasions was significantly lower in women than in men (7.1 vs. 10.0%), and also lower in the youngest age group of respondents than in the rest (7.6 vs. 9.8-11.1%).

Furthermore, the mean number of standard drinks per drinking occasion among current drinkers was overall 4.5, and this mean number of standard drinks was almost 3 folds higher in men than in women (5.6 vs. 1.9%).

In addition, the maximum number of drinks per drinking occasion was on average 6.0 drinks for the total respondents and this average maximum number of drinks was 3.3 times higher in men than in women (7.6 vs. 2.3 drinks), but did neither differ between men and

women nor across age groups. No significant differences were found between the urban and rural areas in terms of mean number of drinking occasions, number of standard drinks or maximum number of drinks per drinking occasion (Table 20).

Table 20: Mean number of drinking occasions in the past 30 days, and number of standard drinks per drinking occasion among current drinkers

<i>Respondents Characteristic</i>	<i>n</i>	<i>Drinking occasions</i>	<i>Standard drink/ occasion</i>	<i>Max no. drinks/ occasion</i>
		Mean (95% CI)	Mean (95% CI)	Mean (95% CI)
Residence				
Urban	430	8.1 (7.1-9.1)	3.8 (3.1-4.5)	5.0 (4.1-6.0)
Rural	2,055	9.3 (8.7-9.9)	4.6 (4.3-4.9)	6.2 (5.7-6.7)
Gender				
Male	1,414	10.0 (9.4-10.6)	5.6 (5.2-6.0)	7.6 (7.0-8.2)
Female	1,071	7.1 (6.3-7.8)	1.9 (1.7-2.1)	2.3 (2.1-2.6)
Age group				
25-34	747	7.6 (6.8-8.3)	4.7 (4.2-5.2)	6.5 (5.7-7.3)
35-44	755	9.8 (8.9-10.8)	4.9 (4.4-5.4)	6.2 (5.5-6.9)
45-54	670	10.2 (9.3-11.1)	3.9 (3.5-4.4)	5.2 (4.6-5.8)
55-64	313	11.1 (9.6-12.7)	3.3 (2.8-3.9)	4.9 (4.0-5.8)
Total	2,485	9.1 (8.6-9.6)	4.5 (4.2-4.8)	6.0 (5.5-6.5)

In regards to **heavy episodic drinking** (i.e. consumption of 5 or more standard drinks for males and 4 or more standard drinks for females on any day on the past 30 days), the survey revealed that the proportion of alcohol consumption of at least 5 drinks in a single occasion was 45.1% and 3.4% for all male respondents and male current drinkers respectively. However, the proportion of alcohol consumption of at least 4 drinks in a single occasion during the past 30 days was only 4.6% and 0.4% for all female respondents and female current drinkers respectively. The predominance of men over women in this type of heavy episodic drinking was found both in the rural and urban areas (Table 21).

Table 21: Heavy drinking among the total respondents and current drinkers

<i>Respondents Characteristic</i>	<i>5/4 or more drinks during a single occasion in the past 30 days among</i>			
	Total population		Current drinkers	
	n	% (95% CI)	n	% (95% CI)
Urban				
Male	341	39.5 (30.7-48.4)	228	3.5 (2.3-4.6)
Female	648	3.5 (1.3-5.7)	193	0.2 (0.0-0.4)
Rural				
Male	1,596	46.2 (42.8-49.6)	1,173	3.4 (3.0-3.8)
Female	2,848	4.8 (3.6-6.0)	874	0.5 (0.3-0.6)
Urban and Rural				
Male	1,937	45.1 (41.9-48.3)	1,401	3.4 (3.0-3.8)
Female	3,496	4.6 (3.5-5.6)	1,067	0.4 (0.3-0.6)

3.3.4 Alcohol consumption in the past 7 days

Table 22 shows that, among current drinkers, men were overall 1.6 times more prevalent than women in consuming alcohol at least 4 days in the past 7 days (30.9 vs. 18.9%). Also among current drinkers, men were almost 7 times more prevalent than women in taking at least 5 drinks on any day in the past 7 days (34.3 vs. 5.0%), and in taking at least 20 drinks in the past 7 days (18.8 vs. 2.7%).

Figure 5 shows that the proportion of respondents who did drink at least 4 days in the past 7 days was overall 26.6%; and ranged from 20.6% for ages 25-34 to 29.7-3.5% for ages 35-64.

Table 22: Frequency and quantity of drinks consumed in the past 7 days among current drinkers

<i>Respondents Characteristic</i>	<i>n</i>	<i>4+ days drinking</i>	<i>5+ drinks on any day</i>	<i>20+ drinks in 7 days</i>
		% (95% CI)	% (95% CI)	% (95% CI)
Urban				
Male	222	28.9 (21.7-36.2)	32.6 (24.2-41.1)	17.3 (11.0-23.7)
Female	192	12.7 (6.4-19.0)	4.1 (0.9-7.4)	1.5 (0.1-3.0)
Rural				
Male	1,133	30.2 (27.3-33.2)	34.6 (30.4-38.8)	19.0 (16.2-21.9)
Female	851	20.4 (16.6-24.1)	5.1 (3.3-7.0)	2.9 (1.8-4.0)
Urban and Rural				
Male	1,355	30.0 (27.3-32.7)	34.3 (30.6-38.1)	18.8 (16.2-21.4)
Female	1,043	18.9 (15.7-22.2)	5.0 (3.4-6.5)	2.7 (1.7-3.6)

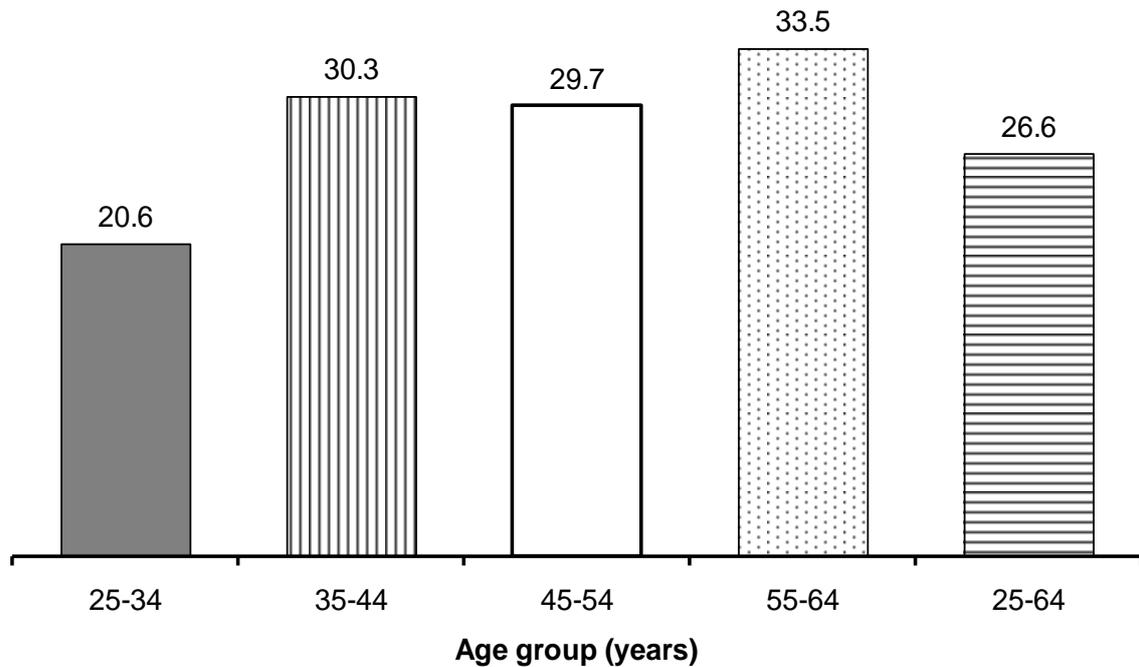


Figure 5: Percent of alcohol drinking for at least 4 days in the past 7 days

3.3.5 Alcohol consumption with meals

Table 23 shows that 2 in every 10 current drinkers (21.2%) reportedly never consumed alcohol with meals whereas almost half of them (45.3%) did drink alcohol with meals. The proportion of respondents who reported to usually drink alcohol with meals was similar between men and women, the urban and rural respondents, and across age groups.

Table 23: Percent distribution of current (past 30 days) drinkers who usually, sometimes, rarely or never drink alcohol with meals

<i>Respondents Characteristic</i>	<i>Drinking alcohol with meals among current drinkers</i>				
	<i>n</i>	Usually	Sometimes	Rarely	Never
		% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Residence					
Urban	431	43.2 (32.2-54.1)	23.2 (15.2-31.2)	5.6 (2.5-8.8)	28.0 (17.2-38.7)
Rural	2,065	45.7 (41.0-50.4)	24.0 (21.1-27.0)	10.3 (8.3-12.4)	20.0 (16.6-23.3)
Gender					
Male	1,421	44.0 (39.5-48.5)	26.4 (22.9-29.8)	9.8 (7.6-12.0)	19.8 (16.3-23.3)
Female	1,075	48.1 (42.7-53.5)	18.3 (15.2-21.3)	9.0 (6.5-11.5)	24.6 (20.3-28.9)
Age group					
25-34	750	43.6 (38.2-49.0)	22.7 (18.3-27.0)	10.4 (7.6-13.2)	23.4 (19.2-27.6)
35-44	759	44.0 (38.4-49.7)	25.0 (20.7-29.2)	10.1 (7.5-12.7)	20.9 (16.7-25.1)
45-54	673	47.3 (41.3-53.3)	25.5 (21.3-29.6)	7.5 (5.3-9.7)	19.7 (15.6-23.7)
55-64	314	53.0 (45.3-60.8)	21.9 (16.2-27.6)	8.9 (5.4-12.4)	16.2 (11.2-21.2)
Total	2,496	45.3 (41.0-49.6)	23.9 (21.1-26.7)	9.6 (7.8-11.4)	21.2 (17.9-24.5)

In summary, 1 in every 4 respondents (26.5%) was lifetime alcohol abstainers whereas 1 in every 10 respondents (10.0%) was past 12 months abstainers. On the contrary, 1 in every 2 respondents (53.5%) was past 30 days current drinkers, and this proportion was similar between the urban and rural areas, but 2.4 times higher in men than in women. Finally, men were around 10 times more likely than women to be engaged in heavy episodic drinking in the past 30 days, both in the urban and rural areas.

3.4 Eating pattern

In order to assess the eating pattern of the surveyed population, the respondents were asked about how often they eat fruit and vegetables, the type of oil or fat most often used for meal preparation in household, and the frequency of meals eaten outside home.

3.4.1 Fruit and vegetable consumption

Fruit consumption by all respondents, on one hand, was on average 2.6 days in a typical week, varying from 2.4 days for men to 2.8 days for women, from 2.5 day in the urban area to 3.1 days in the rural area, and from 2.5 to 2.7 days across age groups. On the other hand, the mean number of days of **vegetable consumption** for all respondents was 5.3 days, twice higher than that of fruit consumption, and was similar between men and women, the urban and rural respondents, and across age groups (Table 24).

Table 24: Mean number of days of fruit and vegetable consumption in a typical week

<i>Respondents Characteristic</i>	<i>Fruit</i>		<i>Vegetables</i>	
	<i>n</i>	Mean (95% CI)	<i>n</i>	Mean (95% CI)
Residence				
Urban	968	3.1 (2.7-3.5)	988	5.7 (5.5-5.9)
Rural	4,401	2.5 (2.3-2.7)	4,444	5.3 (5.2-5.4)
Gender				
Male	1,909	2.4 (2.2-2.6)	1,937	5.4 (5.3-5.5)
Female	3,460	2.8 (2.6-2.9)	3,495	5.3 (5.2-5.4)
Age group				
25-34	1,442	2.7 (2.5-3.0)	1,454	5.3 (5.2-5.4)
35-44	1,481	2.5 (2.3-2.7)	1,501	5.4 (5.2-5.5)
45-54	1,436	2.5 (2.3-2.6)	1,453	5.5 (5.3-5.6)
55-64	1,010	2.7 (2.5-3.0)	1,024	5.3 (5.1-5.4)
Total	5,369	2.6 (2.4-2.8)	5,432	5.3 (5.2-5.5)

The reported **amount** of fruit consumption among all respondents was on average 1.0 serving per day, and this amount was not significantly different between men and women, the urban and rural respondents, and across age groups. Besides, the amount of vegetable consumption was on average 2.0 servings per day, and this amount was also similarly distributed between men and women, the urban and rural respondents, and across age groups (Table 25).

Table 25: Mean number of fruit and vegetable servings per day

<i>Respondents Characteristic</i>	<i>Fruit</i>		<i>Vegetables</i>	
	n	Mean (95% CI)	n	Mean (95% CI)
Residence				
Urban	968	1.2 (1.0-1.4)	988	2.3 (2.0-2.6)
Rural	4,400	1.0 (0.9-1.1)	4,444	1.9 (1.8-2.0)
Gender				
Male	1,908	1.0 (0.9-1.1)	1,937	2.1 (1.9-2.2)
Female	3,460	1.1 (1.0-1.1)	3,495	1.9 (1.8-2.0)
Age group				
25-34	1,441	1.1 (1.0-1.2)	1,454	2.0 (1.8-2.1)
35-44	1,481	1.0 (0.9-1.1)	1,501	2.0 (1.8-2.1)
45-54	1,436	0.9 (0.8-1.0)	1,453	2.0 (1.9-2.1)
55-64	1,010	1.1 (0.9-1.2)	1,024	1.9 (1.8-2.1)
Total	5,368	1.0 (0.9-1.1)	5,432	2.0 (1.8-2.1)

In terms of the **frequency** of daily fruit and/or vegetable consumption, 84.3% of the total respondents were reportedly eating less than five servings of fruit and/or vegetables per day and are therefore considered at increased risk of developing NCDs. This proportion of respondents eating low fruit and vegetables was similar between men and women and across age groups, but by almost 10% higher in the rural than urban areas (86.0 vs. 76.5%) (Table 26).

Table 26: Frequency of fruit and/or vegetable consumption per day

<i>Respondents Characteristic</i>	<i>n</i>	<i>Number of servings of fruit and/or vegetable consumption per day</i>				
		None	1-2	3-4	5+	< 5
		% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Residence						
Urban	988	7.2 (4.6-9.9)	43.4 (36.6-50.2)	25.9 (21.5-30.3)	23.5 (16.8-30.2)	76.5 (69.8-83.2)
Rural	4,444	12.2 (10.5-13.9)	48.9 (46.4-51.5)	24.9 (22.9-26.9)	14.0 (11.7-16.3)	86.0 (83.7-88.3)
Gender						
Male	1,937	10.9 (9.1-12.7)	46.5 (43.3-49.7)	25.9 (23.4-28.5)	16.7 (13.8-19.5)	83.3 (80.5-86.2)
Female	3,495	11.7 (9.9-13.5)	49.3 (46.8-51.9)	24.2 (22.4-26.1)	14.7 (12.5-16.9)	85.3 (83.1-87.5)
Age group						
25-34	1,454	11.5 (9.2-13.7)	46.3 (43.1-49.5)	25.2 (21.6-30.3)	17.0 (14.0-19.9)	83.0 (80.1-86.0)
35-44	1,501	11.6 (9.6-13.6)	48.3 (45.2-51.5)	26.4 (23.6-29.2)	13.7 (11.1-16.3)	86.3 (83.7-88.9)
45-54	1,453	10.7 (8.8-12.7)	49.8 (46.4-53.2)	24.2 (21.4-27.0)	15.2 (12.4-18.1)	84.8 (81.9-87.6)
55-64	1,024	11.2 (8.7-13.7)	48.7 (44.6-52.9)	23.0 (19.8-26.2)	17.1 (13.5-20.6)	82.9 (79.4-86.5)
Total	5,432	11.3 (9.8-12.8)	48.0 (45.6-50.3)	25.1 (23.2-26.9)	15.7 (13.4-17.9)	84.3 (82.1-86.6)

3.4.2 Types of oil or fat used for meal preparation

As shown in Table 27, vegetable oil was used by the majority (71.9%) of households, with the proportion of urban households using vegetable oils by 14% higher than that of rural households (83.2 vs. 69.5%).

Lard, on the contrary, was used by few (14.0%) households, with the proportion of rural households using lard double that of urban households (15.5 vs. 6.7%).

Table 27: Type of oil or fat most often used for meal preparation in household

<i>Respondents Characteristic</i>	<i>n</i>	<i>Vegetable oil</i>	<i>Lard</i>	<i>None in particular</i>	<i>None</i>
		% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Residence					
Urban	989	83.2 (77.2-89.2)	6.7 (3.3-10.2)	9.7 (6.0-13.4)	0.4 (0.0-0.9)
Rural	4,443	69.5 (66.1-73.0)	15.5 (12.7-18.4)	14.2 (11.7-15.1)	0.7 (0.3-1.0)
Total	5,432	71.9 (68.9-75.0)	14.0 (11.6-16.4)	13.4 (11.7-15.1)	0.7 (0.3-1.0)

3.4.3 Meals eaten outside home

The survey revealed that all respondents spent on average 1.6 times per week eating (breakfast, lunch, or dinner) outside home. This frequency of meals eaten outside home was almost twice higher in the urban than in rural areas (2.2 vs. 1.4 times per week), slightly higher for men than for women (1.8 vs. 1.3 times per week), and also higher for younger than for older age groups (Figure 6).

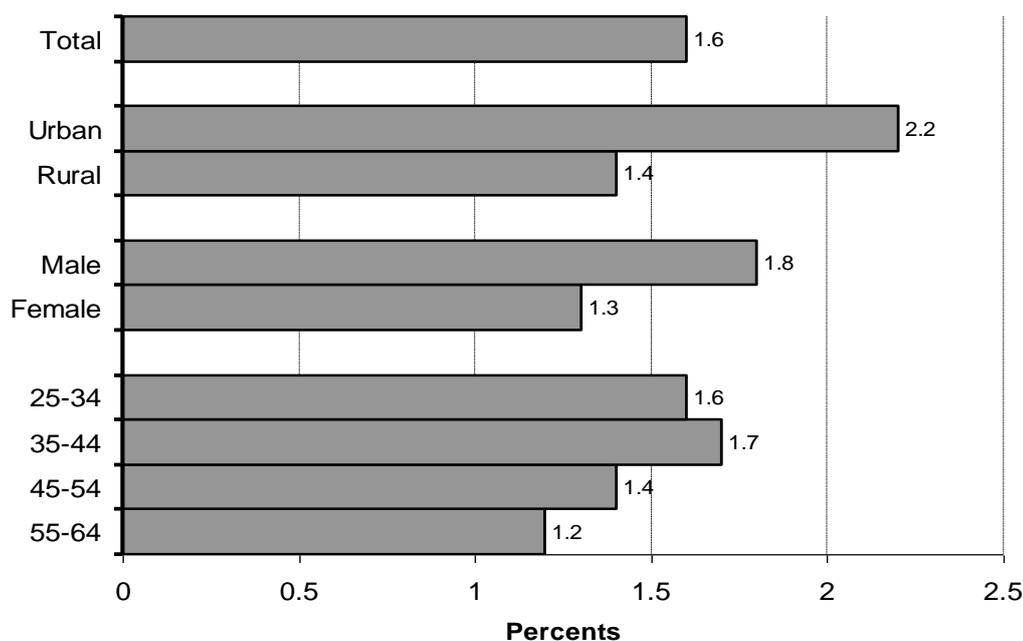


Figure 6: Average numbers of meals per week eaten outside home

3.5 Physical Activity

The survey sought to estimate the prevalence of respondents by category of high, moderate, and low physical activity, and to quantify the amount and frequency of physical activity among all respondents and by gender, residence, and age groups.

3.5.1 Category of physical activity

In total, 3 in every 4 respondents (76.1 %) were reported as having high physical activity, whereas the remaining were reported as having moderate (13.3%) and low (10.6%) physical activity. When broken down by gender, residence, and age groups, women had moderate physical activity higher than men (15.6 vs. 10.9%); urban and older respondents had lower physical activity than rural (14.8 vs. 9.7%) and younger respondents respectively (Table 28).

Table 28: Percentage of respondents classified into three categories of total physical activity

<i>Respondents Characteristic</i>	<i>n</i>	<i>Low</i>	<i>Moderate</i>	<i>High</i>
		<i>physical activity</i>	<i>physical activity</i>	<i>physical activity</i>
		% (95% CI)	% (95% CI)	% (95% CI)
Residence				
Urban	989	14.8 (10.8-18.7)	15.4 (11.7-19.1)	69.8 (63.9-75.8)
Rural	4,441	9.7 (8.3-11.0)	12.9 (11.2-14.5)	77.5 (75.2-79.8)
Gender				
Male	1,936	10.9 (9.1-12.7)	10.9 (9.1-12.7)	78.2 (75.5-80.9)
Female	3,494	10.3 (8.8-11.7)	15.6 (13.8-17.5)	74.1 (71.8-76.5)
Age group				
25-34	1,454	10.1 (8.2-12.1)	12.2 (10.2-14.1)	77.7 (74.9-80.5)
35-44	1,499	9.4 (7.5-11.2)	12.8 (10.6-14.9)	77.9 (74.9-80.8)
45-54	1,453	11.1 (9.1-13.1)	13.5 (11.2-15.8)	75.4 (72.2-78.5)
55-64	1,024	13.6 (11.1-16.2)	17.7 (14.6-20.7)	68.7 (64.5-72.9)
Total	5,430	10.6 (9.3-11.8)	13.3 (11.8-14.8)	76.1 (74.0-78.3)

3.5.2 Amount and frequency of physical activities

Overall, the median time spent in physical activity was on average 4 hours and 4 minutes per day. Broken down by residence, gender and age groups, the median time spent in physical activity was on average higher for the rural than for urban respondents (4h17min. vs. 3h36min.), higher for men than for women (5h vs. 3h34min.), and decreasing with increased age (Table 29).

Table 29: Minutes of total physical activity on average per day

<i>Respondents Characteristic</i>	<i>Physical activity</i>								
	<i>n</i>	Total		Work-Related		Transport- related		Recreational- related	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Residence									
Urban	989	239.5	205.7	215.2	180.0	12.8	0.0	11.5	0.0
Rural	4,441	280.9	257.1	251.0	240.0	24.8	0.0	5.2	0.0
Gender									
Male	1,936	304.2	300.0	271.0	257.1	23.4	0.0	9.8	0.0
Female	3,494	244.7	214.3	219.7	180.0	22.0	0.0	3.0	0.0
Age group									
25-34	1,454	286.7	270.0	255.0	240.0	22.7	0.0	9.0	0.0
35-44	1,499	289.9	270.0	260.2	240.0	25.0	0.0	4.7	0.0
45-54	1,453	260.1	240.0	233.7	210.0	22.0	0.0	4.4	0.0
55-64	1,024	222.0	180.0	198.1	162.9	18.5	0.0	5.4	0.0
Total	5,430	273.7	244.3	244.7	240.0	22.7	0.0	6.3	0.0

Absence of related physical activity

In total, 9.6%, 54.4%, and 86.1% of the total respondents were reported of having no work-, transport- or recreational- related physical activity respectively (Table 30).

In addition, respondents reported as doing no vigorous physical activity was overall 63.0%. The proportion of respondents doing no vigorous physical activity was 1.8 times higher for women than for men (79.7 vs. 45.3%), and higher for urban respondents as compared to rural respondents (70.2 vs. 61.4%).

Table 30: Percentage of respondents classified as doing no physical activity

<i>Respondents Characteristic</i>	<i>Related physical activity</i>				
	<i>n</i>	No Work % (95% CI)	No Transport % (95% CI)	No Recreational % (95% CI)	No Vigorous % (95% CI)
Residence					
Urban	989	16.9 (12.6-21.3)	71.6 (65.6-77.6)	72.8 (66.6-79.0)	70.2 (64.4-76.1)
Rural	4,441	8.0 (6.9-9.2)	50.7 (48.0-53.5)	88.9 (87.2-90.6)	61.4 (59.0-63.9)
Gender					
Male	1,936	9.1 (7.4-10.8)	56.1 (52.8-59.5)	81.2 (78.6-83.7)	45.3 (42.3-48.2)
Female	3,494	10.1 (8.7-11.5)	52.8 (50.1-55.5)	90.7 (89.1-92.3)	79.7 (77.6-81.9)
Age group					
25-34	1,454	9.6 (7.5-11.6)	54.6 (50.9-58.3)	84.5 (81.9-87.1)	60.6 (57.0-64.2)
35-44	1,499	7.9 (6.3-9.5)	52.5 (49.1-55.9)	88.7 (86.8-90.6)	60.0 (57.0-63.1)
45-54	1,453	10.1 (8.3-11.9)	54.4 (50.9-57.9)	86.0 (83.2-88.7)	65.9 (62.8-69.1)
55-64	1,024	12.6 (10.3-15.0)	58.2 (54.6-61.8)	84.7 (81.4-88.0)	71.4 (67.7-75.1)
Total	5,430	9.6 (8.4-10.8)	54.4 (51.9-56.9)	86.1 (84.3-87.9)	63.0 (60.7-65.2)

Activities contributing to total physical activity

In total, 84.9%, 11.3%, and 3.8% of respondents reported as doing work-, transport- or recreational-activity contributing to total physical activity respectively. Recreational activity contributing to total physical activity was found to be 2.3 times higher for men than for women and 3.9 times higher in the urban than in rural areas. Transport activity was seen to be 1.6 times higher in the rural than urban areas in contributing to total physical activity (Table 31). Finally, respondents spent on average 4 hours in **sedentary activities** on a typical day, and this amount of time was similar across age groups, gender and residence (Table 32).

Table 31: Percentage of activities contributing to total physical activity

<i>Respondents Characteristic</i>	<i>N</i>	<i>Activities contributing to total physical activity</i>		
		<i>Work % (95% CI)</i>	<i>Transport % (95% CI)</i>	<i>Recreational % (95% CI)</i>
Residence				
Urban	896	82.2 (78.2-86.3)	7.6 (5.8-9.5)	10.1 (6.7-13.6)
Rural	4,217	85.4 (84.0-86.7)	12.0 (10.8-13.3)	2.6 (2.0-3.2)
Gender				
Male	1,837	84.2 (82.5-86.0)	10.4 (9.0-11.8)	5.4 (4.2-6.5)
Female	3,276	85.4 (84.1-86.7)	12.2 (11.0-13.4)	2.4 (1.7-3.0)
Age group				
25-34	1,373	84.4 (83.6-86.2)	11.1 (9.6-12.5)	4.5 (3.2-5.8)
35-44	1,424	86.2 (84.6-87.7)	11.2 (9.9-12.6)	2.6 (1.8-3.4)
45-54	1,369	85.0 (83.2-86.9)	11.2 (9.8-12.6)	3.8 (2.7-4.9)
55-64	947	82.8 (80.7-84.9)	12.3 (10.7-13.9)	4.9 (3.5-6.4)
Total	5,113	84.9 (83.6-86.2)	11.3 (10.2-12.4)	3.8 (3.1-4.6)

Table 32 Minutes spent in sedentary activities on a typical day

<i>Respondents Characteristic</i>	<i>n</i>	<i>Minutes spent in sedentary activities on a typical day</i>	
		<i>Mean (95% CI)</i>	<i>Median (95% CI)</i>
Residence			
Urban	989	257.7 (239.6-275.8)	240.0 (180.0-360.0)
Rural	4,444	242.4 (233.8-251.0)	240.0 (180.0-300.0)
Gender			
Male	1,937	232.2 (223.9-240.4)	240.0 (180.0-300.0)
Female	3,496	257.3 (248.6-266.0)	240.0 (180.0-330.0)
Age group			
25-34	1,454	243.2 (233.6-252.8)	240.0 (150.0-300.0)
35-44	1,501	242.4 (233.2-251.6)	240.0 (180.0-300.0)
45-54	1,454	238.0 (228.3-247.8)	240.0 (150.0-300.0)
55-64	1,024	268.7 (256.5-280.9)	240.0 (180.0-300.0)
Total	5,433	245.1 (237.3-252.8)	240.0 (180.0-300.0)

3.6 Blood Pressure and Diabetes History

Raised blood pressure and raised blood glucose are known risk factors of NCDs. Data on these risk factors were obtained first through the interview of the survey participants on blood pressure and blood glucose history (Step 1), and then through measurement of blood pressure (Step 2) and of blood glucose (Step 3).

3.6.1 Blood pressure measurement and diagnosis history

In the Step 1 of the survey, participants were asked whether they had any blood pressure measurement in the past 12 months prior to the survey, and whether they were on treatment for high blood pressure. Data obtained included details on whether or not respondents had previously been told by a health worker that they had high blood pressure, and on whether or not they were currently receiving medication for high blood pressure.

Table 33 shows that in the past 12 months prior to the survey, 51.0% of all respondents replied they never had their blood pressure measured, 40.8% reported they did have their blood pressure measured but not diagnosed, whereas the remaining 5.1% and 3.1% had their blood pressure diagnosed within and not within the past 12 months respectively.

In addition, the proportion of respondents who had their blood pressure never measured was 1.5 times higher for men than for women (62.1 vs. 40.4%), and also 1.5 times higher in the rural than urban areas (53.9 vs. 37.2%).

Table 33: Percentage of blood pressure measurement and diagnosis among all respondents

<i>Respondents Characteristic</i>	<i>Blood pressure</i>				
		Never measured	Measured, not diagnosed	Diagnosed, but not within past 12 months	Diagnosed within past 12 months
	<i>n</i>	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Residence					
Urban	989	37.2 (31.6-42.9)	50.5 (44.7-56.3)	3.7 (2.3-5.0)	8.6 (6.3-10.9)
Rural	4,444	53.9 (51.1-56.7)	38.7 (36.1-41.3)	3.0 (2.4-3.5)	4.4 (3.7-5.1)
Gender					
Male	1,937	62.1 (58.9-65.3)	32.4 (29.3-35.4)	2.2 (1.5-2.8)	3.4 (2.5-4.2)
Female	3,496	40.4 (37.8-43.0)	48.8 (46.3-51.2)	4.0 (3.2-4.7)	6.8 (5.9-7.8)
Age group					
25-34	1,454	54.9 (51.4-58.5)	42.0 (38.4-45.5)	1.6 (0.9-2.2)	1.6 (0.8-2.3)
35-44	1,501	52.9 (49.5-56.3)	41.4 (38.1-44.6)	2.2 (1.4-3.0)	3.5 (2.6-4.5)
45-54	1,454	46.3 (42.8-49.7)	40.3 (36.8-43.9)	5.0 (3.7-6.2)	8.4 (6.8-10.1)
55-64	1,024	43.1 (48.5-53.5)	36.9 (33.5-40.4)	6.4 (4.9-8.0)	13.6 (10.5-16.6)
Total	5,433	51.0 (48.5-53.5)	40.8 (38.4-43.2)	3.1 (2.6-3.6)	5.1 (4.4-5.8)

Measures taken to control blood pressure

Approximately 4 in every 10 respondents (39.3%) previously diagnosed (within or not within past 12 months) with raised blood pressure took **medicine** for raised blood pressure. This proportion was similar for both men and women but was 1.4 times higher for the urban than rural respondents (50.6 vs. 35.3%) and increasing with age.

Other measures taken by respondents to control their blood pressure included **losing weight** (45.2%), **stop smoking** (48.5%), doing **exercise** (56.2%) and **reducing salt intake** (63.1%). All these measures were more frequently taken by urban than by rural respondents, and less likely adopted by the two youngest age groups of respondents (Table 34).

Table 34: Raised blood pressure treatment results among those previously diagnosed with raised blood pressure

<i>Respondents Characteristic</i>	<i>Raised blood pressure treatment</i>					
		Taking medicines	Lose Weight	Stop Smoking	Exercise	Reduce salt intake
	<i>n</i>	% (95% CI)				
Residence						
Urban	165	50.6 (38.7-62.4)	60.3 (47.6-73.0)	60.2 (47.3-73.1)	68.0 (55.6-80.4)	72.4 (61.5-83.3)
Rural	431	35.3 (29.1-41.4)	39.8 (33.4-46.2)	44.3 (38.3-50.3)	52.0 (45.8-58.2)	59.8 (53.9-65.7)
Gender						
Male	135	38.4 (28.5-48.2)	45.1 (34.6-55.5)	59.1 (48.5-69.7)	58.3 (48.0-68.5)	57.0 (46.6-67.4)
Female	461	39.7 (33.8-45.6)	45.2 (39.4-51.0)	43.3 (37.7-49.0)	55.2 (49.4-61.0)	66.0 (60.9-71.2)
Age group						
25-34	53	21.6 (7.2-36.0)	26.3 (14.5-38.1)	27.2 (15.2-39.2)	27.6 (15.0-40.3)	44.4 (31.0-57.7)
35-44	104	32.9 (23.2-42.5)	40.5 (30.1-50.9)	46.8 (36.4-57.1)	53.1 (42.6-63.5)	62.1 (51.7-72.4)
45-54	213	44.8 (36.8-52.8)	50.6 (43.2-58.0)	51.8 (44.0-59.7)	62.2 (55.0-69.4)	68.4 (61.8-75.0)
55-64	226	45.0 (36.4-53.7)	50.5 (41.1-60.0)	55.2 (47.0-63.4)	64.2 (56.2-72.3)	66.1 (58.1-74.1)
Total	596	39.3 (33.8-44.7)	45.2 (39.4-50.9)	48.5 (42.9-54.0)	56.2 (50.6-61.8)	63.1 (57.9-68.3)

Traditional healer’s advices and remedy for blood pressure:

Table 35 shows that among respondents previously diagnosed with raised blood pressure, few sought advice from **traditional healers** (15.3%) or took herbal or traditional remedy (12.8%).

Table 35 also shows that more women appeared to take remedy from traditional healers than men did (14.6 vs. 9.2%) but the difference was not significant. Also, more respondents from the rural than urban areas sought advice (16.6 vs. 11.5%) and took remedy (15.3 vs. 5.9%) from traditional healers. However, there was no significant difference across age groups in the proportion of respondents who sought advice or received treatment from traditional healers for raised blood pressure.

Table 35: Percentage of respondents who have sought advice or received treatment from traditional healers for raised blood pressure among those previously diagnosed with raised blood pressure

<i>Respondents Characteristic</i>	<i>Respondents with raised blood pressure who had</i>		
	<i>n</i>	Seen traditional healer	Taken herbal or traditional remedy
		% (95% CI)	% (95% CI)
Residence			
Urban	165	11.5 (5.4-17.6)	5.9 (1.8-10.0)
Rural	431	16.6 (3.0-20.3)	15.3 (11.6-19.0)
Gender			
Male	135	13.3 (7.1-19.5)	9.2 (4.1-14.3)
Female	461	16.3 (12.6-19.9)	14.6 (10.8-18.4)
Age group			
25-34	53	14.1 (4.1-24.0)	8.7 (0.5-17.0)
35-44	104	13.8 (6.9-20.7)	12.9 (6.0-19.9)
45-54	213	15.6 (9.9-21.2)	13.2 (8.0-18.5)
55-64	226	16.5 (11.1-21.9)	14.2 (9.1-19.2)
Total	596	15.3 (12.2-18.4)	12.8 (9.9-15.8)

3.6.2 Blood sugar and diabetes history

Blood sugar measurement in the past 12 months

In total, the majority (84.9%) of respondents reported they never had their blood sugar measured in the past 12 months prior to the survey; a small proportion of respondents (13.4%) reportedly had their blood sugar measured but not diagnosed, and few had their blood sugar diagnosed within (1.3%) and not within (0.4%) the past 12 months.

Respondents who never had their blood pressure measured in the past 12 months were significantly lower in the urban than rural areas (71.2 vs. 87.9%), similar between women and men (83.2 vs. 86.7%), and tended to be decreasing with age (Table 36).

Table 36: Blood sugar measurement and diagnosis among all respondents

<i>Respondents Characteristic</i>	<i>n</i>	<i>Blood sugar Never measured</i>	<i>Measured, but not diagnosed</i>	<i>Diagnosed, but not within past 12 months</i>	<i>Diabetes diagnosed within past 12 months</i>
		<i>% (95% CI)</i>	<i>% (95% CI)</i>	<i>% (95% CI)</i>	<i>% (95% CI)</i>
Residence					
Urban	989	71.2 (65.5-77.0)	24.5 (19.4-29.6)	0.8 (0.3-1.2)	3.5 1.8-5.3 ()
Rural	4,444	87.9 (86.2-89.5)	11.0 (9.4-12.6)	0.3 (0.1-0.5)	0.9 (0.6-1.2)
Gender					
Male	1,937	86.7 (84.7-88.7)	12.2 (10.3-14.0)	0.3 (0.1-0.5)	0.8 (0.4-1.2)
Female	3,496	83.2 (81.1-85.3)	14.5 (12.5-16.4)	0.4 (0.2-0.7)	1.9 (1.3-2.4)
Age group					
25-34	1,454	87.4 (85.1-89.6)	12.2 (10.0-14.4)	0.3 (0.0-0.5)	0.2 (0.0-0.3)
35-44	1,501	86.0 (83.6-88.4)	13.3 (10.9-15.7)	0.1 (0.0-0.2)	0.6 (0.2-1.0)
45-54	1,454	81.9 (79.2-84.7)	14.3 (11.9-16.8)	0.8 (0.3-1.3)	2.9 (1.8-4.1)
55-64	1,024	80.6 (77.4-83.8)	15.1 (12.4-17.8)	0.5 (0.1-1.0)	3.7 (2.3-5.2)
Total	5,433	84.9 (83.2-86.6)	13.4 (11.8-14.9)	0.4 (0.2-0.5)	1.3 (1.0-1.7)

Treatment of diabetes

Insulin was used by few (14.5%) respondents previously (within or not within past 12 months) diagnosed with diabetes. This proportion of insulin treatment was not significantly different across residence, gender, or age groups.

Other measures taken by respondents to control their raised blood sugar included taking medicines orally (58.2%), quitting smoking (67.9%), losing weight (71.7%), diet (80.3%) and exercise (80.3%). In terms of residence, urban respondents were significantly more frequent than rural respondents in taking oral medicines (71.7 vs. 47.5%) and losing weight (86.4 vs. 60.0%) to control their diabetes. With regards to gender, men were significantly more frequent than women (86.1 vs. 59.7%) in adopting stop smoking as a measure to control their blood pressure (Table 37).

Table 37: Diabetes treatment results among respondents previously diagnosed with raised blood sugar or diabetes

<i>Respondents Characteristic</i>	<i>Diabetes treatment results</i>						
	Taking insulin	Oral drug	Stop smoking	Lose weight	Prescribed diet	Do exercise	
	<i>n</i>	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	
Residence							
Urban	58	15.9 (4.5-27.4)	71.7 (61.1-82.4)	78.0 (65.1-90.9)	86.4 (76.9-95.9)	89.4 (83.2-95.6)	90.0 (82.6-97.4)
Rural	64	13.3 (4.8-21.8)	47.5 (36.6-58.3)	59.9 (47.1-72.6)	60.0 (46.7-73.3)	73.1 (62.3-83.9)	72.5 (59.8-85.3)
Gender							
Male	32	11.1 (0.0-23.4)	68.2 (51.1-85.2)	86.1 (74.1-98.0)	74.7 (60.2-89.2)	87.0 (75.5-98.5)	80.2 (65.3-95.0)
Female	90	16.0 (7.5-24.5)	53.7 (43.4-64.0)	59.7 (48.2-71.2)	70.3 (61.0-79.6)	77.3 (69.1-85.5)	80.3 (71.9-88.7)
Total	122	14.5 (7.6-21.3)	58.2 (50.3-66.1)	67.9 (58.4-77.3)	71.7 (63.0-80.3)	80.3 (73.5-87.1)	80.3 (72.0-88.5)

Traditional healers and diabetes

Approximately 1 in every 4 respondents previously diagnosed with raised blood sugar sought advice from traditional healers (26.7%) or took traditional medication (23.3%).

There was no gender difference in the consultation of traditional healers for raised blood sugar, but women were 3 times more prevalent than men in taken traditional medication for diabetes (29.5 vs. 9.6%). Similarly, there was no residence difference in taking advice from traditional healers for raised blood sugar, but rural respondents were 3 times more likely than urban respondents (33.9 vs. 10.0%) in taking traditional medication for diabetes. Finally, no difference across age groups was found in regards to taking advices or medication from traditional healers for diabetes (Table 38).

Table 38: Percentage of respondents who had sought advice or treatment from traditional healers for diabetes among those previously diagnosed

<i>Respondents Characteristic</i>	<i>n</i>	<i>Diabetic respondents who had seen traditional healer</i>	<i>Diabetic respondents who had taken traditional remedy</i>
		% (95% CI)	% (95% CI)
Residence			
Urban	58	23.5 (11.6-35.5)	10.0 (0.9-19.0)
Rural	64	29.3 (16.7-41.8)	33.9 (20.7-47.0)
Gender			
Male	32	26.5 (8.0-45.1)	9.6 (0.0-21.2)
Female	90	26.8 (16.9-36.7)	29.5 (18.8-40.2)
Age group			
25-34	7	18.3 (0.0-50.9)	14.6 (0.0-41.6)
35-44	13	16.0 (0.0-37.3)	32.7 (4.4-61.0)
45-54	55	32.4 (17.8-47.0)	16.6 (6.2-27.0)
55-64	47	24.7 (9.2-40.2)	32.2 (15.2-49.2)
Total	122	26.7 (18.0-35.5)	23.3 (14.5-32.1)

3.7 Physical Measurements

Overweight and obesity are risk factors of a number of medical conditions including diabetes, heart disease and stroke. They are characterized by abnormal or excessive fat accumulation. Physical measurements were used to categorize respondents as overweight or obese according to their weight and height, and as centrally or peripherally overweight or obese according to their waist and hip circumference.

3.7.1 Height and weight

In this survey weight and height were measured and used in classifying overweight and obesity in adult respondents.

The survey found that men were on average substantially heavier than women in both the urban (59.9 vs. 54.0 kg) and rural (56.2 vs. 50.0 kg) areas. Also, men were substantially taller than women in both the urban (162.6 vs. 152.4 cm) and rural (161.6 vs. 151.8 cm) areas. In addition, men and women in the urban area appeared to be slightly heavier and taller than their counterpart in the rural area (Figure 7).

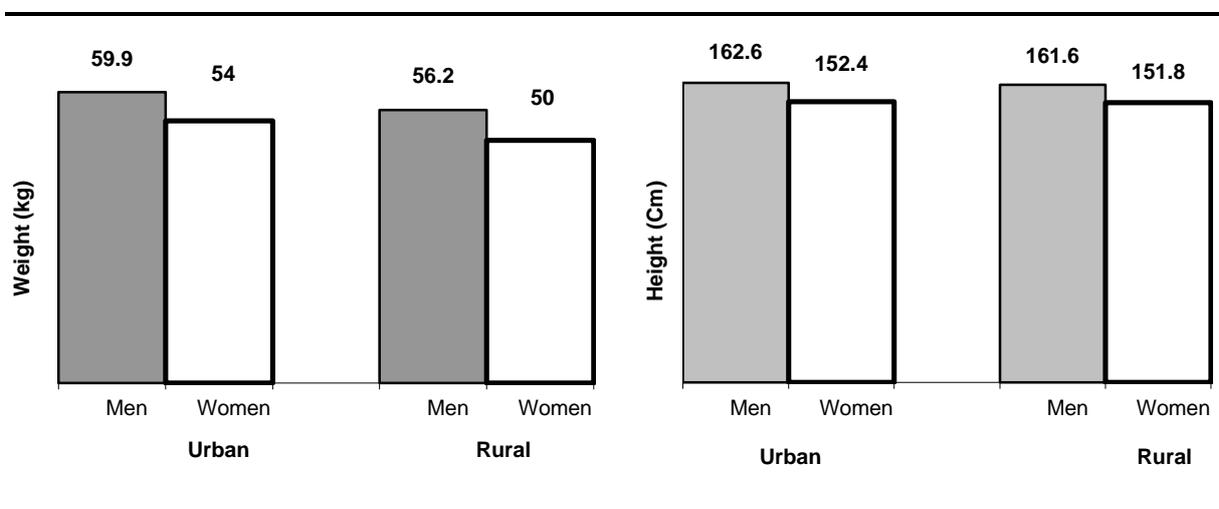


Figure 7: Mean weight (kg) and height (cm) of respondents by residence and gender

3.7.2 BMI category

Overweight is defined as having a BMI greater than or equal to 25 kg/m² and below 30 kg/m² whereas **obesity** is defined as having a BMI greater than or equal to 30 kg/m².

The proportion of respondents classified as overweight and obese by their BMI was 13.5% and 1.9% respectively. The proportion of overweight and obese population was twice in the urban area as compared to the rural area (26.7 vs. 13.0%), and was 1.6 times higher in women than in men (19.0 vs. 11.6%). The youngest age group of respondents (that is 25-34) was found to have the least prevalent for overweight and obesity as compared to other age groups (Table 39).

Table 39: Percentage of respondents (excluding pregnant women) in each BMI category

<i>Respondents Characteristic</i>	<i>n</i>	Underweight	Normal	Overweight	Obese
		< 18.5	18.5-24.9	25-29.9	≥ 30
		%	%	%	%
		(95% CI)	(95% CI)	(95% CI)	(95% CI)
Residence					
Urban	926	10.0	63.2	23.1	3.6
		(5.8-14.3)	(57.5-68.9)	(19.3-26.9)	(2.2-5.0)
Rural	4,286	12.7	74.2	11.5	1.5
		(11.5-14.0)	(72.7-75.8)	(10.2-12.8)	(1.1-2.0)
Gender					
Male	1,878	9.7	78.7	10.5	1.1
		(8.1-11.2)	(76.6-80.8)	(9.0-12.1)	(0.6-1.5)
Female	3,334	14.9	66.1	16.3	2.7
		(13.3-16.4)	(64.1-68.2)	(14.7-18.0)	(2.0-3.3)
Age group					
25-34	1,353	11.8	78.4	8.9	0.9
		(9.6-14.1)	(75.4-81.4)	(7.0-10.8)	(0.4-1.3)
35-44	1,443	10.3	72.2	15.2	2.4
		(8.5-12.0)	(69.4-75.0)	(13.0-17.3)	(1.5-3.3)
45-54	1,420	12.2	67.9	17.5	2.4
		(10.2-14.2)	(65.0-70.8)	(15.0-20.0)	(1.5-3.3)
55-64	9,96	18.3	63.3	15.7	2.7
		(15.6-21.0)	(60.0-66.5)	(13.2-18.2)	(1.6-3.8)
Total	5,212	12.3	72.4	13.5	1.9
		(11.1-13.5)	(70.8-74.0)	(12.2-14.7)	(1.4-2.3)

In addition, the proportion of the respondents in the youngest age group classifying as **overweight and/or obese** ($BMI \geq 25 \text{ kg/m}^2$) was found to be consistently lower than the older age groups in both the urban and rural areas, regardless of gender (Figure 8).

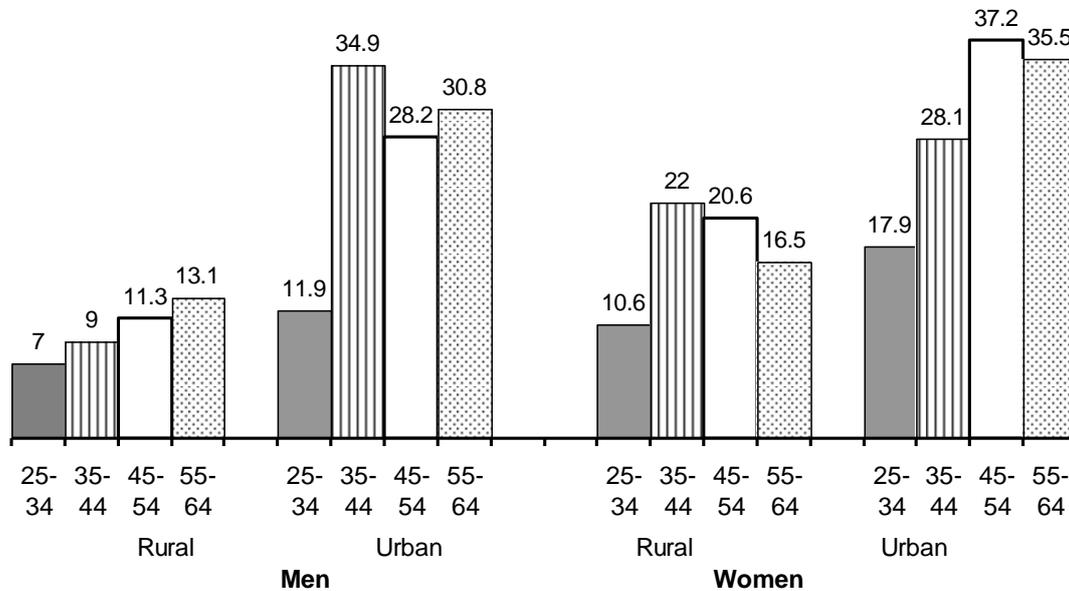


Figure 8: Percentage of $BMI \geq 25 \text{ kg/m}^2$ by age groups, gender and residence

3.7.3 Waist and Hip Circumference

The survey found that, in total, the average waist circumference of men was 76.0 cm, lower in the two youngest age groups than the eldest ones, and the mean waist circumference of women was 75.5 cm, also lower in the two youngest age groups than the others.

With respect to gender, the survey found that the mean hip circumference of the total respondents was 88.5 cm for men and 89.4 cm for women, and not significantly different across age groups.

In regards to residence, respondents in the urban area had on average higher waist circumference (79.4 vs. 74.7-75.3 cm) and hip circumference (90.6 -92.5 vs. 88.1- 88.7cm) than those in the rural area (Table 40).

Waist to hip ratio

Waist and hip circumferences were measured to calculate the waist to hip ratio (WHR) in order to define central obesity. Waist to hip ratio is an indicator of a risk factor in developing cardiovascular disease. People with more weight around their waist are at greater risk of lifestyle related diseases such as heart disease and diabetes than those with weight around their hips.

In this survey, WHR of respondents in the rural area was on average 0.9 for men and 0.8 for women, but was 0.9 for both men and women in the urban area (Table 40).

The proportion of respondents with high WHR (defined as $WHR \geq 1.0$ for men and $WHR \geq 0.85$ for women) was by far higher in women than in men and increased with age in both the urban and rural areas (Figure 9).

Table 40: Mean waist and hip circumference measurement (cm) and waist to hip ratio (pregnant women excluded)

<i>Respondents Characteristic</i>	<i>Men</i>			<i>Women</i>				
	n	Waist (cm) (95% CI)	Hip (cm) (95% CI)	Waist/ Hip Ratio (95% CI)	n	Waist (cm) (95% CI)	Hip (cm) (95% CI)	Waist/ Hip Ratio (95% CI)
Residence								
Urban	322	79.4 (77.6-81.2)	90.6 (89.4-91.9)	0.9 (0.9-0.9)	606	79.4 (77.9-80.8)	92.5 (91.4-93.5)	0.9 (0.8-0.9)
Rural	1,561	75.3 (74.8-75.9)	88.1 (87.7-88.5)	0.9 (0.9-0.9)	2,737	74.7 (74.1-75.3)	88.7 (88.3-89.2)	0.8 (0.8-0.8)
Age group								
25-34	526	74.1 (73.4-74.7)	88.2 (87.7-88.7)	0.8 (0.8-0.8)	827	72.6 (71.9-73.3)	88.5 (87.9-89.0)	0.8 (0.8-0.8)
35-44	518	76.5 (75.6-77.4)	89.1 (88.4-89.7)	0.9 (0.9-0.9)	925	76.5 (75.7-77.3)	90.3 (89.6-91.0)	0.8 (0.8-0.9)
45-54	483	77.8 (76.9-78.7)	88.5 (87.9-89.2)	0.9 (0.9-0.9)	941	77.8 (76.9-78.6)	90.2 (89.6-90.8)	0.9 (0.9-0.9)
55-64	356	77.5 (76.5-78.5)	88.0 (87.2-88.8)	0.9 (0.9-0.9)	650	77.4 (76.2-78.5)	88.8 (87.9-89.6)	0.9 (0.9-0.9)
Total	1,883	76.0 (75.5-76.5)	88.5 (88.1-88.9)	0.9 (0.9-0.9)	3,343	75.5 (75.0-76.1)	89.4 (89.0-89.8)	0.8 (0.8-0.8)

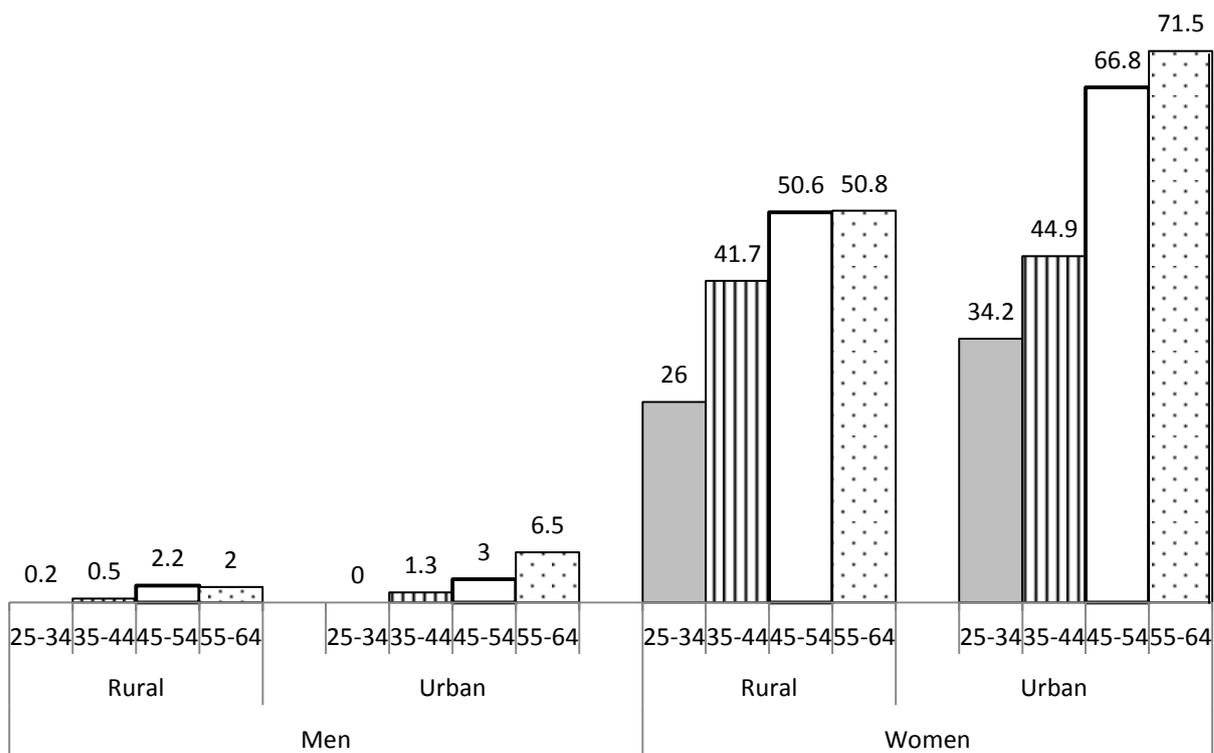


Figure 9: Percentage of respondents with high WHR by age groups, residence and gender

Waist circumference and risk in developing NCDs

Waist circumference alone had been used to indicate risk of developing NCDs. In Cambodia, people with a waist circumference from 85 to 94 cm for men and from 81 to 88 cm for women are classified as having moderate risk for NCDs, whereas those with a waist circumference beyond 94 cm for men and over 88 cm for women are classified as having severe risk for NCDs.

According to the above classification, 11.8% and 3.1% of all male respondents in this survey were classified as having moderate and high risk for NCDs respectively. However, urban male respondents with moderate and high risk for NCDs were 2.5 and 4.3 folds more prevalent than rural respondents. In addition, the youngest age group of respondents was at lower risk for NCDs than the other age groups. For women, 16.9% and 10.5% were classified according to their waist circumference as having moderate and high risk

prevalence for NCDs respectively. However, women with moderate and high risk for NCDs were 1.5 and 2.3 folds more prevalent in the urban area than those in the rural area (Table 41).

In regards to age, the waist circumference of the youngest age group (25-34 years) of respondents classified as out of the normal range (≥ 85 cm for men; ≥ 81 cm for women) was consistently lower than the older age groups across residence and gender (Table 41 and Figure 10).

Table 41: Category of waist circumference of respondents (pregnant women excluded) by urban and rural residence

<i>Respondents Characteristic</i>	<i>Waist circumference category</i>							
	Men				Women			
		<85cm	85-94cm	>94cm		<81cm	81-88cm	>88cm
	n	(%)	(%)	(%)	n	(%)	(%)	(%)
Residence								
Urban	322	67.3	23.8	9.0	606	57.6	23.1	19.3
Rural	1561	88.3	9.6	2.1	2737	76.0	15.5	8.4
Age group								
25-34	526	91.2	7.9	1.0	827	84.9	11.9	3.1
35-44	518	84	11.7	4.4	925	68.9	18.9	12.2
45-54	483	79.1	17.3	3.7	941	63.4	20.7	15.9
55-64	356	78.8	15.5	5.8	650	64.3	19.3	16.4
Total	1883	85.0	11.8	3.1	3343	72.6	16.9	10.5

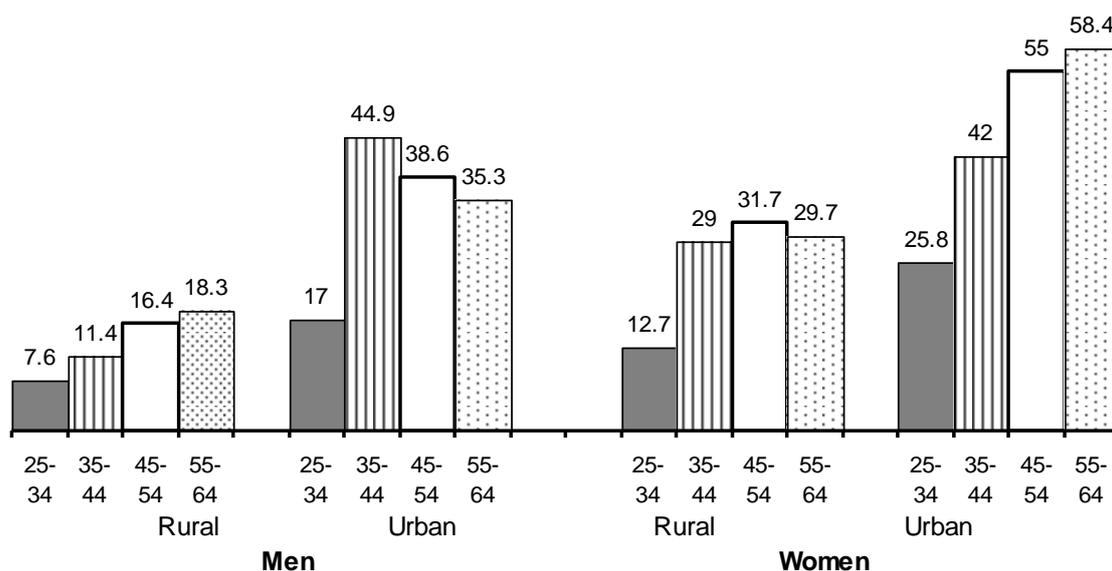


Figure 10: Percentage of respondents with waist circumference out of the normal range by residence, gender, and age groups (pregnant women excluded)

3.7.4 Blood pressure and heart rate

Blood pressure

The survey found that the mean blood pressure among all respondents, including those currently on medications for raised blood pressure, was 116 mmHg for the systolic and 72 mmHg for the diastolic (Table 42).

In regards to residence, the mean blood pressure (both systolic and diastolic) was not substantially different between the urban and rural respondents, but was significantly higher in men than in women (Systolic 120 vs. 112 mmHg; diastolic 74 vs. 71 mmHg).

With respect to age, the mean blood pressure tended to increase with age, with the youngest age group (25-34 years) having the lowest systolic (112 mmHg) and diastolic (69 mmHg) blood pressure, and the eldest age group (55-64 years) having the highest systolic (123 mmHg) and diastolic (75 mmHg) blood pressure.

Heart rate

The survey revealed that the mean heart rate was 80 beats per minute for the total respondents; and this rate was similar for both the urban and rural respondents, but significantly faster in women than in men (83 vs. 76 beats per minute). In addition, the mean heart rate tended to decreased with decreased age, from 81beats per minutes in the 25-34 years age group to 78 beats per minutes in the 55-74 years age group (Table 42).

Table 42: Mean blood pressure and heart rate

<i>Respondents Characteristic</i>	<i>n</i>	<i>Systolic blood pressure</i>	<i>Diastolic blood pressure</i>	<i>Heart rate (Beats/ min.)</i>
		Mean (95% CI)	Mean (95% CI)	Mean 95% CI
Residence				
Urban	937	118 (116-120)	74 (72-76)	79 (78-81)
Rural	4,379	116 (115-116)	72.0 (71-73)	80 (79-80)
Gender				
Male	1,884	120 (119-121)	74 (73-75)	76 (75-77)
Female	3,432	112 (112-113)	71 (70-71)	83 (82-83)
Age group				
25-34	1,410	112 (111-113)	69 (69-70)	81 (80-82)
35-44	1,475	116 (115-117)	73 (72-74)	80 (79-80)
45-54	1,424	119 (118-121)	75 (74-76)	79 (78-79)
55-64	1,007	123 (121-125)	75 (74-76)	78 (77-79)
Total	5,316	116 (115-117)	72 (72-73)	80 (79-80)

3.7.5 Raised blood pressure or hypertension

In this survey, respondents' blood pressure was classified as “**normal**” when they had a mean systolic pressure < 140 mmHg AND a mean diastolic pressure < 90 mmHg, without currently taking any medication for high blood pressure.

A person was considered being **mildly hypertensive** if the systolic value (SBP) ≥ 140 mmHg and/or the diastolic value (DBP) ≥ 90 mmHg. **Moderate hypertension** had been defined as SBP ≥ 160 mmHg and/or DBP ≥ 100 mmHg.

Finally respondents who had previously been told by a health worker that they had high blood pressure and were currently receiving anti-hypertensive medication, whether or not their blood pressure was currently normal were also classified as having “raised blood pressure or hypertension”.

Prevalence of hypertension

In **total**, respondents with mild hypertension (SBP ≥ 140 and/or DBP ≥ 90 mmHg) and moderate hypertension (SBP ≥ 160 and/or DBP ≥ 100 mmHg) including those currently on medication for hypertension, were on average 11.2% and 4.6% respectively (Table 43).

By **gender**, men were found to have mild hypertension 1.3 times more prevalent than women (12.8 vs. 9.6%), but were not more frequent than women in having moderate hypertension (4.8 vs. 4.5%).

By **residence**, the urban respondents were 1.7 and 2.5 times more frequent than rural respondents in having mild (16.9 vs. 10.0%) and moderate hypertension (9.1 vs. 3.7%) respectively.

By **age groups**, blood pressure was found to increase substantially with age, with the proportion of mild hypertension in the eldest age group 6 times higher than that of the youngest one (24.2 vs. 4.2%), and the prevalence of moderate hypertension 10 times higher in the eldest age group as compared to the youngest one (12.9 vs. 1.3%).

In **summary**, 1 in every 10 respondents (11.2%) had (newly and previously diagnosed) mild hypertension (SBP ≥ 140 and/or DBP ≥ 90 mmHg); this proportion was significantly higher for the urban and male respondents as compared to rural and female respondents, and increased with age. In addition, 1 in every 20 respondents (4.6%) had moderate hypertension (SBP ≥ 160 and/or DBP ≥ 100 mmHg); this proportion was higher for the urban and aging respondents than for rural and young respondents.

Table 43: Percentage of respondents with raised blood pressure including those currently on medication for raised blood pressure

<i>Respondents Characteristic</i>	<i>Raised blood pressure including those currently on medication for raised blood pressure</i>		
	<i>n</i>	SBP \geq 140 and/or DBP \geq 90 mmHg	SBP \geq 160 and/or DBP \geq 100 mmHg
		% (95% CI)	% (95% CI)
Residence			
Urban	937	16.9 (14.1-19.6)	9.1 (6.7-11.4)
Rural	4,379	10.0 (8.9-11.2)	3.7 (3.0-4.5)
Gender			
Male	1,884	12.8 (11.1-14.5)	4.8 (3.7-6.0)
Female	3,432	9.6 (8.5-10.8)	4.5 (3.7-5.30)
Age group			
25-34	1,410	4.2 (2.8-5.6)	1.3 (0.5-2.2)
35-44	1,475	10.1 (8.3-11.9)	3.1 (2.1-4.0)
45-54	1,424	16.9 (14.4-19.4)	7.5 (5.9-9.2)
55-64	1,007	24.2 (20.7-27.7)	12.9 (10.2-15.7)
Total	5,316	11.2 (10.1-12.3)	4.6 (3.9-5.4)

Newly diagnosed raised blood pressure

Excluding respondents on medication for raised blood pressure, the proportion of respondents with mild to severe and with severe raised blood pressure (newly diagnosed by the survey) was 9.4% and 2.7% respectively.

The prevalence of mild to severe raised blood pressure newly diagnosed was 1.6 times higher in men than in women (11.7 vs. 7.2%), and 1.5 times higher in the urban than in rural areas (12.8 vs. 8.7%). In addition, the proportion of mild to severe and severe raised blood pressure were found to be increasing with age, with the eldest age group having mild to severe and severe raised blood pressure 5 and 6 times higher than the youngest age group respectively (Table 44).

Table 44: Percentage of respondents with raised blood pressure excluding those on medication for raised blood pressure

<i>Background Characteristic</i>	<i>Raised blood pressure excluding those on medication</i>		
	<i>n</i>	SBP \geq 140 and/or DBP \geq 90 mmHg	SBP \geq 160 and/or DBP \geq 100 mmHg
		% (95% CI)	% 95% CI)
Residence			
Urban	867	12.8 (9.9-15.6)	4.6 (2.5-6.7)
Rural	4,291	8.7 (7.6-9.8)	2.4 (1.8-2.9)
Gender			
Male	1,848	11.7 (10.1-13.3)	3.7 (2.6-4.7)
Female	3,310	7.2 (6.2-8.2)	1.8 (1.4-2.3)
Age group			
25-34	1,406	3.9 (2.5-5.3)	1.1 (0.2-1.9)
35-44	1,460	9.4 (7.6-11.2)	2.3 (1.5-3.1)
45-54	1,364	13.8 (11.5-16.1)	4.1 (2.8-5.4)
55-64	928	18.7 (15.4-22.0)	6.6 (4.3-8.8)
Total	5,158	9.4 (8.4-10.4)	2.7 (2.1-3.3)

3.7.6 Treatment and control of raised blood pressure

Over 8 in every 10 respondents (82.4%) with mild to severe raised blood pressure were not on medication and were newly diagnosed by our survey. This proportion of untreated raised blood pressure was 1.3 times higher in men than in women (90.4 vs. 72.3%), slightly but not significantly higher in the rural than in urban areas (85.8 vs. 72.2%), and was decreasing with increased age (Table 45).

Among respondents with mild to severe raised blood pressure, 17.6% were on medication and 11.3% had their blood pressure under control (i.e. SBP <140 and DBP <90 mmHg). The proportion of respondents with blood pressure under control after medication was 2.8 times higher in women than in men (17.6 vs. 6.2%), twice (but not significantly) higher in the urban than in rural areas (18.1 vs. 8.9%), and was increasing with age.

Table 45: Percentage of respondents with treated and/or controlled raised blood pressure among those with raised blood pressure or currently on medication for raised blood pressure

<i>Respondents Characteristic</i>	<i>n</i>	<i>On medication and SBP<140 and DBP<90</i>	<i>On medication and SBP≥140 and/or DBP≥90</i>	<i>Not on medication and SBP≥140 and/or DBP≥90</i>
		<i>% 95% CI)</i>	<i>% 95% CI)</i>	<i>% 95% CI)</i>
Residence				
Urban	179	18.1 (10.5-25.7)	9.7 (4.4-14.9)	72.2 (61.4-83.1)
Rural	492	8.9 (6.1-11.8)	5.2 (2.9-7.5)	85.8 (82.0-89.7)
Gender				
Male	273	6.2 (3.2-9.2)	3.4 (1.4-5.5)	90.4 (86.8-94.0)
Female	398	17.6 (13.1-22.1)	10.1 (6.3-13.8)	72.3 (66.4-78.3)
Age group				
25-34	47	6.5 (0.0-13.7)	0.0 (0.0-0.0)	93.5 (86.3-100.0)
35-44	142	3.7 (0.5-6.8)	4.0 (1.3-6.8)	92.3 (88.0-96.6)
45-54	239	14.8 (10.2-19.4)	6.7 (3.0-10.4)	78.5 (72.4-84.6)
55-64	243	16.7 (11.2-22.2)	11.4 (6.9-15.9)	71.9 (64.3-79.5)
Total	671	11.3 (8.5-14.1)	6.4 (4.2-8.5)	82.4 (78.4-86.3)

In **summary**, 11.2% and 4.6% of the total respondents had mild to moderate hypertension respectively; this prevalence was higher in men than in women, higher in the urban than in rural areas, and increasing with age. In addition, 82.4% of respondents with hypertension were newly diagnosed by the survey, and this proportion of newly diagnosed hypertension was higher for the rural, male and younger population than for the urban, female and older population.

3.8 BIOCHEMICAL MEASUREMENTS

Out of 5,433 respondents in the Step 1 survey, 5,210 had their blood cholesterol tested whereas 5,123 had their fasting blood glucose measured.

3.8.1 Fasting blood glucose

Mean fasting glucose

Table 46 shows that, among 5123 respondents who had their blood glucose measured, the mean fasting glucose was 4.0 mmol/L. This mean fasting blood glucose was lower in the rural than in urban areas (3.9 vs. 4.3 mmol/L), and lowest in the youngest age group of respondents, but did not significantly differ between men and women (4.0 vs. 3.9 mmol/L).

Table 46: Mean fasting blood glucose results including those currently on medication for diabetes (non-fasting recipients excluded)

<i>Respondents Characteristic</i>	<i>Fasting blood glucose</i>		
	<i>n</i>	mmol/L	mg/dl
		Mean (95% CI)	Mean (95% CI)
Residence			
Urban	899	4.3 (4.1-4.4)	76.8 (74.1-79.5)
Rural	,4224	3.9 (3.8-4.0)	70.4 (69.2-71.6)
Gender			
Male	1,795	4.0 (3.9-4.1)	72.1 (70.8-73.3)
Female	3,328	3.9 (3.9-4.0)	70.9 (69.6-72.3)
Age group			
25-34	1,332	3.8 (3.7-3.9)	68.7 (67.5-70.0)
35-44	1,430	3.9 (3.8-4.0)	70.1 (68.8-71.4)
45-54	1,385	4.2 (4.1-4.3)	75.8 (73.8-77.8)
55-64	976	4.2 (4.0-4.3)	75.2 (72.8-77.5)
Total	5,123	4.0 (3.9-4.0)	71.5 (70.4-72.6)

Fasting blood glucose categories

In this survey, participants were classified into blood glucose categories as follows:

- Impaired fasting glucose: a fasting blood glucose greater or equal to 5.6 mmol/l, unless previously diagnosed with diabetes and on medical treatment;
- Diabetes: a fasting glucose greater or equal 6.1 mmol/l or previously diagnosed with diabetes and currently on anti-diabetes medication; and
- Currently on medication for diabetes: Participants previously diagnosed with diabetes and currently on anti-diabetes medication.

Table 47 shows that 1.4% of the total respondents had impaired blood glucose and 2.9% had raised blood glucose or diabetes including 1.3% currently on medication for diabetes.

Table 47 also shows that there was no difference between men and women in their prevalence of impaired fasting blood glucose, diabetes, and current medication for diabetes. However, the prevalence of diabetes was 2.4 times higher in the urban than in rural areas (5.6 vs. 2.3%). Also, urban respondents who were on medication for diabetes were more prevalent than rural respondents (3.6 vs. 0.8%). Finally, the overall prevalence of diabetes increased with age, from 1.1% for ages 25-34 to 6.0% for ages 55-64.

Table 47: Proportion of respondents with impaired, raised blood glucose or currently on medication for diabetes (non-fasting recipients excluded)

<i>Respondents Characteristic</i>	<i>n</i>	<i>Impaired fasting glycaemia</i>	<i>Raised blood Glucose or on medication</i>	<i>Currently on medication for diabetes</i>
		<i>% (95% CI)</i>	<i>% (95% CI)</i>	<i>% (95% CI)</i>
Residence				
Urban	899	1.7 (0.6-2.8)	5.6 (4.0-7.20)	3.6 (2.0-5.3)
Rural	4,224	1.4 (0.9-1.8)	2.3 (1.7-2.9)	0.8 (0.5-1.1)
Gender				
Male	1,795	1.8 (1.2-2.5)	2.5 (1.7-3.3)	1.1 (0.5-1.7)
Female	3,328	1.0 (0.6-1.4)	3.3 (2.5-4.0)	1.5 (1.0-1.9)
Age group				
25-34	1,332	1.5 (0.7-2.3)	1.1 (0.4-1.8)	0.5 (0.0-1.0)
35-44	1,430	0.9 (0.3-1.5)	2.2 (1.4-3.0)	0.5 (0.1-0.8)
45-54	1,385	1.5 (0.9-2.2)	4.8 (3.5-6.1)	2.4 (1.3-3.4)
55-64	976	2.1 (1.0-3.2)	6.0 (4.4-7.7)	3.5 (2.2-4.8)
Total	5,123	1.4 (1.0-1.8)	2.9 (2.3-3.4)	1.3 (0.9-1.7)

3.8.2 Total cholesterol

Mean total cholesterol

The mean total cholesterol among all respondents including those currently on medication for raised cholesterol was 4.5 mmol/L, higher in women than in men (4.6 vs. 4.4 mmol/L), higher in the urban than in rural areas (4.7 vs. 4.4 mmol/L), and highest in the age group 45-64 years (Table 48).

Table 48: Mean total cholesterol among all respondents including those currently on medication for raised cholesterol

<i>Respondents Characteristic</i>	<i>N</i>	<i>Total blood cholesterol in mmol/L</i>	<i>Total blood cholesterol in mg/dl</i>
		Mean (95% CI)	Mean (95% CI)
Residence			
Urban	918	4.7 (4.6-4.8)	182.6 (178.4-186.8)
Rural	4,292	4.4 (4.4-4.5)	171.3 (170.0-172.6)
Gender			
Male	1,844	4.4 (4.4-4.4)	169.9 (168.4-171.4)
Female	3,366	4.6 (4.5-4.6)	176.4 (175.0-177.9)
Age group			
25-34	1,362	4.4 (4.3-4.4)	168.6 (167.3-170.0)
35-44	1,449	4.4 (4.4-4.5)	171.6 (169.9-173.3)
45-54	1,405	4.6 (4.6-4.7)	178.7 (176.7-180.7)
55-64	994	4.7 (4.6-4.7)	180.9 (178.4-183.4)
Total	5,210	4.5 (4.4-4.5)	173.2 (172.0-174.5)

Raised total cholesterol

Table 49 shows that the proportion of respondents with a total cholesterol ≥ 5.0 mmol/L or currently on medication for raised cholesterol, on one hand, was overall 20.7%. This proportion was 1.4 folds higher in women than in men (24.2 vs. 17.0%), 1.8 times higher in the urban than in rural areas (32.5 vs. 18.3%), and increasing with age.

Table 49 also shows that the proportion of respondents with a total cholesterol ≥ 6.2 mmol/L or currently on medication for raised cholesterol, on the other hand, was overall 3.2%. This proportion was 1.6 folds higher in women than in men (3.9 vs. 2.5%), 2.8 times higher in the urban than in rural areas (7.0 vs. 2.5%), and increasing with age.

Table 49: Proportion of respondents with raised cholesterol or currently on medication for raised cholesterol

<i>Respondents Characteristic</i>	<i>n</i>	<i>Total cholesterol ≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol</i>	<i>Total cholesterol ≥ 6.2 mmol/L or ≥ 240 mg/dl or currently on medication for raised cholesterol</i>
		% (95% CI)	% (95% CI)
Residence			
Urban	918	32.5 (27.0-38.0)	7.0 (4.4-9.7)
Rural	4,292	18.3 (16.5-20.2)	2.5 (1.8-3.1)
Gender			
Male	1,844	17.0 (14.8-19.2)	2.5 (1.6-3.4)
Female	3,366	24.2 (22.2-26.3)	3.9 (3.2-4.7)
Age group			
25-34	1,362	14.5 (12.4-16.7)	1.0 (0.5-1.6)
35-44	1,449	19.2 (16.5-21.9)	2.6 (1.6-3.6)
45-54	1,405	27.7 (24.7-30.6)	5.4 (4.0-6.7)
55-64	994	30.2 (26.9-33.6)	7.4 (5.2-9.7)
Total	5,210	20.7 (19.0-22.5)	3.2 (2.6-3.9)

3.9 Summary of Combined Risk Factors

Combined risk factors of NCDs can be summarized as respondents with 0, 1-2, or 3-5 of the following risk factors:

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

Table 50 shows that, in total, 7.3% of respondents had no risk factors for NCDs above defined, whereas 82.4% had 1-2 risk factors and the remaining 10.2% had 3-5 risk factors.

Table 50: Summary of Combined Risk Factors for NCDs

<i>Respondents Characteristic</i>	<i>N</i>	<i>0 risk factor</i>	<i>1-2 risk factors</i>	<i>3-5 risk factors</i>
		<i>% (95% CI)</i>	<i>% (95% CI)</i>	<i>% (95% CI)</i>
Residence				
Urban	918	10.3 (6.6-13.9)	73.8 (69.1-78.5)	15.9 (13.7-18.2)
Rural	4,214	6.7 (5.3-8.1)	84.2 (82.6-85.9)	9.1 (8.0-10.1)
Gender				
Male	1,864	5.9 (4.4-7.4)	80.0 (77.9-82.2)	14.1 (12.5-15.7)
Female	3,268	8.7 (7.1-10.3)	84.8 (83.0-86.7)	6.5 (5.6-7.3)
Age group				
25-44	2,765	8.1 (6.5-9.7)	84.5 (82.6-86.5)	7.3 (6.2-8.5)
45-64	2,367	5.8 (4.5-7.1)	78.5 (76.6-80.3)	15.7 (14.2-17.3)
Total	5,132	7.3 (6.0-8.60)	82.4 (80.9-84.0)	10.2 (9.3-11.2)

Table 50 also shows that, in terms of gender, men were less prevalent than women in having 1-2 risk factors (80.0 vs. 84.8%) but more prevalent than women in having 3-5 risk factors (14.1 vs. 6.5%).

With respect to residence, the urban respondents were less prevalent than rural respondents in having 1-2 risk factors (73.8 vs. 84.2%) but more prevalent in having 3-5 risk factors (15.9 vs. 9.1%).

In regards to age, respondents aged 25-44 were more prevalent than those aged 45-64 in having 1-2 risk factors (84.5 vs. 78.5%) but less prevalent in having 3-5 risk factors (7.3 vs. 15.7%).

In **summary**, 9 in every 10 surveyed populations had one or more risk factors for NCDs. In addition, male, urban, and aged respondents were more likely to have 3 or more risk factors for NCDs than female, rural, and younger respondents respectively.

Chapter IV:



Discussion

This is the first nationwide representative survey using the WHO standardized protocol to report the prevalence of NCD risk factors in Cambodia.

4.1 NCD Risk Factors

Diabetes and hypertension

The current survey found that the prevalence of raised fasting blood glucose or **diabetes** was 2.9% for the total respondents, not significantly different between men and women (2.5 vs. 3.3%), twice higher in the urban than in rural areas (5.6 vs. 2.3%), and increased with age. This prevalence of diabetes is by half lower than that found by a survey in 2004 in a semi-urban (5.6 vs. 11.4%) and rural (2.3 vs. 4.8%) province of Cambodia (2). This difference might be mainly due to the fact that, on one hand, the 2004 survey had the sample population from 25 to 65 years and above, the prevalence of diabetes based on non-fasting blood glucose, and only 4 villages were selected to represent rural and semi-urban areas,. In the present survey, on the other hand, the sample population were limited to 25-64 years of age, blood samples were tested in the early morning by trained laboratory technicians using Accutrend Plus instruments and solutions purchased by the WHO Geneva in order to accurately measuring fasting blood glucose, 180 surveyed villages were stratified and randomly selected from the recent sampling frame to represent the urban and rural areas of the country, and data were properly weighted and analyzed by using the WHO STEPS EpiInfo program.

In regards to **blood pressure**, the present survey found that 11.2% of the total population had mild hypertension (SBP \geq 140 and/or DBP \geq 90mmHg), and this prevalence of hypertension was higher in men than in women (12.8 vs. 9.6%), higher in the urban than in rural areas (16.9 vs. 10.0%), and increasing with age. This prevalence hypertension is lower than that reported 5 years ago by a survey in a semi-urban and rural province of Cambodia where up to 25% and 11.7% of the surveyed population had raised blood pressure respectively (2).

Behavioral risk factors for NCDs

The survey found that current (daily and non-daily) **tobacco smoking** was overall reported by 3 in every 10 respondents (29.4%); and this prevalence was almost 10 times higher in men than in women (54.1 vs. 5.9%), 1.5 times higher in the rural area than in urban areas (31.1 vs. 21.4%), and increased with age. The prevalence of tobacco smoking in the current survey was higher than that in a country-wide survey in 2005-2006 where only 48% of men and 3.6% of women smoked cigarettes (5-6).

Other behavioral risk factors of NCDs found in this survey included the high prevalence of raised total blood **cholesterol** (1 in every 5 respondents), the low prevalence of fruit and vegetable consumption (8 in every 10 respondents ate less than five servings of **fruit and/or vegetables** on average per day); and the high prevalence of **alcohol consumption** (1 in every 2 respondents were current drinkers, with men drink more often and much more than women). These results have not been previously published in Cambodia. The high prevalence of alcohol drinking found by the current survey might be partly resulted from aggressive advertisements of beer and other alcohol products throughout the country in recent decades.

Non-behavioral risk factors for NCDs

The proportion of the total respondents classified as overweight (BMI greater than or equal to 25 kg/m² and below 30 kg/m²) and obese (BMI greater than or equal to 30 kg/m²) was 13.5% and 1.9% respectively. The proportion of overweight and/or obese population (BMI greater than or equal to 25 kg/m²) was twice in the urban area as compared to the rural area (26.7 vs. 13.0%), and was 1.6 times higher in women than in men (19.0 vs. 11.6%).

The overall prevalence of overweight and/or obese in urban and rural Cambodia found in the current survey is similar with that reported by a survey 6 years ago (2).

Combined risk factors for NCDs

Finally, the survey revealed that over 9 in every 10 surveyed populations had one or more risk factors for NCDs and 1 in every 10 respondents had 3 -5 risk factors. The prevalence of respondents with 3 or more risk factors for NCDs was twice higher in men than in women (14.1 vs. 6.5%), also twice higher for ages 45-64 than for ages 25-44 (15.7 vs. 7.3%), and significantly higher in the urban area than in rural areas (15.9 vs. 9.1%). There were no data available on these combined risk factors for NCDs from previous surveys in Cambodia (2).

4.2 Strengths and Limitations

Some findings of this survey were subject to limitations seen in any interview surveys, including recall bias, under-reporting and unwillingness to report; non-respondents; and interviewers' bias (7). For instance, questions on alcohol and cigarette consumption were likely to induce under reporting from some respondents, whereas the estimation of the amount of physical activity, and of fruit and vegetable consumption might be over reporting. In addition, the fact that the proportion of men enrolled in the survey was lower than that of the parent population suggested that interviewers came across more eligible women than men. However, the overall estimates had been appropriately adjusted with the weighting that had been undertaken.

On the other hand, the use of the WHO STEPS standardized survey protocol, thorough training of data collectors by the WHO consultant, the close supervision of the survey team members during data collection, and the use of WHO STEPS programs for data analysis taking into account the complex survey design, were all undertaken in order to minimize biases and enhance the survey output quality. Furthermore, this survey used a sampling design that allowed deriving representative estimates for the whole country as well as for the urban and rural areas. Finally, the use of PDAs to enter responses ensured that questionnaire skip patterns were followed correctly and that responses were entered and edited for consistency at the time of the interview.

4.3 Conclusion

The Cambodian STEPS survey results provide valuable baseline information on the prevalence of major NCD risk factors at the national level as well as at the urban and rural levels of Cambodia. The survey reveals that the prevalence of diabetes and hypertension in Cambodia are lower than that reported in previous surveys in Cambodia. Even though, major risk factors for NCDs have been found to be alarmingly prevalent, including alcohol consumption and tobacco use (especially among urban and male population), and overweight among women and aging population.

4.4 Recommendations

1. Based on the survey findings, the MoH and relevant ministries should reinforced existing measures and devise innovative policy and interventions to more effectively tackle NCDs and their risk factors in the country, especially drinking and smoking behavioral changes targeted on male and urban population.
2. The information from this survey shall be largely disseminated to all stakeholders and the public through all channels of mass media in order to raise awareness on the threat of NCDs and to promote healthy lifestyle.
3. The Cambodian STEPS survey should be repeated every 3-5 years in order to provide valid and representative information for the MoH and development partners to assess and enhance strategies and interventions aiming at preventing and controlling NCDs in Cambodia.
4. Finally, it is also advisable that rooted causes of NCD risk behaviors be further explored in order to address NCD issues most effectively.

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APPENDICES



Data Collection Team

(Photo taken in front of the UHS-C before field data collection)

1. Sample size calculation
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Appendix 1: Sample Size Calculation

The sample size in this survey was calculated in 3 steps:

1. Calculation of the sample size for a simple random sampling, using the following equation:

$$n = z^2 \frac{P(1-P)}{e^2}$$

Where:

- Z = level of confidence
- P = baseline level of the indicators
- e = margin of error

With 95% confidence interval, a margin of error of 5%, baseline levels of the indicators of 50%, the initial calculation proceeded as follows:

$$n = 1.96^2 \times \frac{0.5(1-0.5)}{0.05^2} = 384$$

2. This initial sample size (n) was then multiplied by the design effect of 1.5 (for a cluster survey) and the 8 age-sex estimates desired for the survey results:

$$n_2 = 384 \times 1.5 \times 8 = 4,608$$

3. Finally, n_2 was divided by 0.80 to adjust for the anticipated 20% non-response rate:

$$n_3 = \frac{4,608}{0.80} = 5,760 \text{ (Final Sample Size)}$$

The number of clusters and sample size per urban and rural areas are shown below:

<i>Area (Stratum)</i>	<i>% Total Population</i>	<i># Persons/cluster</i>	<i># Clusters</i>	Sample Size
Urban	19.5	32	35	1120
Rural	80.5	32	145	4640
Total (Cambodia)			180	5760

Appendix 2: Selection of clusters

- **Multistage cluster sampling**

The following steps were taken to select participants for the survey:

- 1- Primary Sampling Unit (**PSU**): Communes were the first selected clusters (PSU). These PSU were numeration areas (EAs) from Cambodia Census Frame 2007 Final. The whole population was divided in to 2 categories proportionate to their population size: **rural (81.3%)** and **urban (18.3%)**. The total selected **communes** were 90 out of 1621 (73 rural communes and 17 urban communes).
 - 2- Secondary Sampling Unit (**SSU**): Villages were the second selected clusters. In each selected commune (PSU) **2 villages** were randomly selected by probability proportionate to size. The total selected villages were **180** (146 rural villages and 34 urban villages).
- Note: PSU and SSU were selected by using **STEPS sampling.xls** program provided by WHO which helped automate the sampling process and provides weights for the dataset.
- 3- Tertiary Sampling Unit (**TSU**) or Elementary Unit (EU): **Households** were the third selected clusters, separately within each selected SSU. 32 Households were selected in each selected village by using Systematic Random Sampling.
 - 4- The last stage was the selection of **Participants**. Only one participant of eligible persons was selected within each household.

Note: A participant was selected within each household by using WHO **Kish Method**, a method that allows the data collection team to randomly select participants from the household (regardless of sampling method used) and provides proper documentation so the sample can be weighted during data analysis.

Appendix 3: List of selected clusters

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
001	Kbal Spean	Urban	Paoy Paet	Ou Chrov	Banteay Meanchey
002	Ou Neang	Urban	Paoy Paet	Ou Chrov	Banteay Meanchey
003	Banteay Neang	Rural	Banteay Neang	Mongkol Borei	Banteay Meanchey
004	Ou Snguot	Rural	Banteay Neang	Mongkol Borei	Banteay Meanchey
005	Kouk Kraol	Rural	Srah Chik	Phnum Srok	Banteay Meanchey
006	Srah Chhuk Khang Kaeut	Rural	Srah Chik	Phnum Srok	Banteay Meanchey
007	Soeng Tboung	Rural	Soengh	Ou Chrov	Banteay Meanchey
008	Run	Rural	Soengh	Ou Chrov	Banteay Meanchey
009	Ou Sampoar Muoy	Rural	Ou Sampoar	Malai	Banteay Meanchey
010	Kbal Tumnob	Rural	Ou Sampoar	Malai	Banteay Meanchey
011	Kaksekam	Urban	Ta Pung	Thma Koul	Battambang
012	Ang Tboung	Urban	Ta Pung	Thma Koul	Battambang
013	Preaek Moha Tep	Urban	Svay Pao	Bat Dambang	Battambang
014	Mphey Osakphea	Urban	Svay Pao	Bat Dambang	Battambang
015	Sla Slak	Rural	Anlong Run	Thma Koul	Battambang
016	Kruos	Rural	Anlong Run	Thma Koul	Battambang
017	Samraong Snao	Rural	Samraong Knong	Aek Phnum	Battambang
018	Samraong Ta Kok	Rural	Samraong Knong	Aek Phnum	Battambang

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
019	Thmei	Rural	Prey Touch	Moung Ruessei	Battambang
020	Prey Damrei	Rural	Prey Touch	Moung Ruessei	Battambang
021	Kampong Chlang	Rural	Vaot Ta Moem	Sangkae	Battambang
022	Sla Kram	Rural	Vaot Ta Moem	Sangkae	Battambang
023	Ou Anlok	Rural	Ta Saen	Kamrieng	Battambang
024	Ou Tuek Thla (Trachakchetr)	Rural	Ta Saen	Kamrieng	Battambang
025	Slaboratory Kdaong	Urban	Chob	Tboung Khmum	Kampong Cham
026	Phum Sounbuon Sounpram	Urban	Chob	Tboung Khmum	Kampong Cham
027	Saray	Rural	Bos Khnaor	Chamkar Leu	Kampong Cham
028	Chranaom	Rural	Bos Khnaor	Chamkar Leu	Kampong Cham
029	Trapeang Sla	Rural	Sampong Chey	Cheung Prey	Kampong Cham
030	Sampong Chey	Rural	Sampong Chey	Cheung Prey	Kampong Cham
031	Kaoh Paen Kho	Rural	Kaoh Mitt	Kampong Siem	Kampong Cham
032	Kaoh Chas	Rural	Kaoh Mitt	Kampong Siem	Kampong Cham
033	Tuol Bei	Rural	Reay Pay	Kang Meas	Kampong Cham
034	Kok Krabei	Rural	Reay Pay	Kang Meas	Kampong Cham
035	Daeum Chrey	Rural	Krouch Chhmar	Krouch Chhmar	Kampong Cham
036	Khsach Prachheh Leu	Rural	Krouch Chhmar	Krouch Chhmar	Kampong Cham
037	Masin	Rural	Rung	Memot	Kampong Cham
038	Chambak	Rural	Rung	Memot	Kampong Cham
039	Pouthi Proeks Lech	Rural	Dountei	Ponhea Kraek	Kampong Cham
040	Kouk Neavea	Rural	Dountei	Ponhea Kraek	Kampong Cham
041	Trapeang Thum	Rural	Boeng Nay	Prey Chhor	Kampong Cham

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
042	Chonloat Dai	Rural	Boeng Nay	Prey Chhor	Kampong Cham
043	Pram Yam	Rural	Pram Yam	Srei Santhor	Kampong Cham
044	Cheung Doek	Rural	Pram Yam	Srei Santhor	Kampong Cham
045	Boeng Daeng	Rural	Preak Kak	Stueng Trang	Kampong Cham
046	Andoung Svay	Rural	Preak Kak	Stueng Trang	Kampong Cham
047	Khlaong	Rural	Sralaboratory	Tboung Khmum	Kampong Cham
048	Andoung Pok	Rural	Sralaboratory	Tboung Khmum	Kampong Cham
049	Pralay Measurement	Rural	Pralay Meas	Kampong Leaeng	Kampong Chhnang
050	Anlong Kanhchoh	Rural	Pralay Meas	Kampong Leaeng	Kampong Chhnang
051	Srangam Ter	Rural	Prasneb	Rolea B'ier	Kampong Chhnang
052	Chor	Rural	Prasneb	Rolea B'ier	Kampong Chhnang
053	Trapeang Mlu	Rural	Krang Skear	Tuek Phos	Kampong Chhnang
054	Krang Skear Tboung	Rural	Krang Skear	Tuek Phos	Kampong Chhnang
055	Thlok Chheu Teal	Urban	Sopoar Tep	Chbar Mon	Kampong Speu
056	Snao Ti Pir	Urban	Sopoar Tep	Chbar Mon	Kampong Speu
057	Lvea	Rural	Angk Popel	Kong Pisei	Kampong Speu
058	Kamnab	Rural	Angk Popel	Kong Pisei	Kampong Speu
059	Sdok Taol Thmei	Rural	Chant Saen	Odongk	Kampong Speu
060	Chanteak Saen	Rural	Chant Saen	Odongk	Kampong Speu
061	Ou Lvea	Rural	Ou	Phnum Sruoch	Kampong Speu
062	Prey Sraong	Rural	Ou	Phnum Sruoch	Kampong Speu
063	Prey Kantrong	Rural	Thummoda Ar	Samraong Tong	Kampong Speu
064	Prey Kampok	Rural	Thummoda Ar	Samraong Tong	Kampong Speu

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
065	Ponnoreay	Rural	Chaeung Daeung	Baray	Kampong Thom
066	Chaeung Daeung	Rural	Chaeung Daeung	Baray	Kampong Thom
067	Tiem Chas	Rural	Kampong Svay	Kampong Svay	Kampong Thom
068	Ta Am	Rural	Kampong Svay	Kampong Svay	Kampong Thom
069	Tuek Andoung	Rural	Tang Krasau	Prasat Sambour	Kampong Thom
070	Ta Paong	Rural	Tang Krasau	Prasat Sambour	Kampong Thom
071	Prasat	Rural	Chamnar Leu	Stoung	Kampong Thom
072	Andoung Trom	Rural	Chamnar Leu	Stoung	Kampong Thom
073	Pou	Rural	Phnum Kong	Angkor Chey	Kampot
074	Trapeang Khva	Rural	Phnum Kong	Angkor Chey	Kampot
075	Prey Khmum	Rural	Doun Yay	Chhuk	Kampot
076	Trapeang Kakaoh	Rural	Doun Yay	Chhuk	Kampot
077	Trapeang Kdar	Rural	Srae Chea Khang Tboung	Dang Tong	Kampot
078	Khpos	Rural	Srae Chea Khang Tboung	Dang Tong	Kampot
079	Trapeang Ropov	Rural	Preaek Tnoat	Kampot	Kampot
080	Preaek Kraeng	Rural	Preaek Tnoat	Kampot	Kampot
081	Ta Reab Doun Sa	Urban	Kokir	Kien Svay	Kandal
082	Chanlak	Urban	Kokir	Kien Svay	Kandal
083	Khsom	Rural	Banteay Daek	Kien Svay	Kandal
084	Kandal Leu	Rural	Banteay Daek	Kien Svay	Kandal
085	Preaek Krabau Ti Muoy	Rural	Preaek Ampil	Khsach Kandal	Kandal
086	Preaek Doun Haem	Rural	Preaek Ampil	Khsach Kandal	Kandal
087	Preaek Hang	Rural	Pouthi Ban	Kaoh Thum	Kandal

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
088	Preaek Ta Doh	Rural	Pouthi Ban	Kaoh Thum	Kandal
089	Khnaor Kar	Rural	Barong	Lvea Aem	Kandal
090	Barong	Rural	Barong	Lvea Aem	Kandal
091	Doun Kok	Rural	Boeng Thum	Angk Snuol	Kandal
092	Prey Ta Kae	Rural	Boeng Thum	Angk Snuol	Kandal
093	Thommeak Trai	Rural	Phsar Daek	Popnhea Lueu	Kandal
094	Tuol Angkunh	Rural	Phsar Daek	Popnhea Lueu	Kandal
095	Setbou	Rural	Setbou	S'ang	Kandal
096	Kampong Pring	Rural	Setbou	S'ang	Kandal
097	Phum Ti Muoy	Urban	Smach Mean Chey	Smach Mean Chey	Koh Kong
098	Phum Ti Bei	Urban	Smach Mean Chey	Smach Mean Chey	Koh Kong
099	Chi Phat	Rural	Chi Phat	Thma Bang	Koh Kong
100	Kamlot	Rural	Chi Phat	Thma Bang	Koh Kong
101	Dei Doh Leu	Rural	Preaek Prasab	Preaek Prasab	Kratie
102	Preaek Prasab Kraom	Rural	Preaek Prasab	Preaek Prasab	Kratie
103	Ou Buon Leu	Rural	Ou Buon Leu	Kaoh Nheaek	Mondul Kiri
104	Antreh	Rural	Ou Buon Leu	Kaoh Nheaek	Mondul Kiri
105	Phum 4	Urban	Tuol Svay Prey Ti Muoy	Chamkar Mon	Phnom Penh
106	Phum 7	Urban	Tuol Svay Prey Ti Muoy	Chamkar Mon	Phnom Penh
107	Phum 5	Urban	Srah Chak	Doun Penh	Phnom Penh
108	Phum 13	Urban	Srah Chak	Doun Penh	Phnom Penh
109	Phum 7	Urban	Tuek L'ak Ti Pir	Tuol Kouk	Phnom Penh
110	Phum 13	Urban	Tuek L'ak Ti Pir	Tuol Kouk	Phnom Penh
111	Phum Chrey	Urban	Chaom Chau	Dangkao	Phnom Penh

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
	Kaong				
112	Phum Angkaer	Urban	Chaom Chau	Dangkao	Phnom Penh
113	Phum Trea	Urban	Stueng Mean chy	Mean Chey	Phnom Penh
114	Phum Damnak Thum	Urban	Stueng Mean chey	Mean Chey	Phnom Penh
115	Phum Tuol Roka	Urban	Chak Angrae Kraom	Mean Chey	Phnom Penh
116	Phum Preaek Ta Long	Urban	Chak Angrae Kraom	Mean Chey	Phnom Penh
117	Phum Sammeakki	Urban	Ruessei Kaev	Ruessei Kaev	Phnom Penh
118	Phum Boeng Salang	Urban	Ruessei Kaev	Ruessei Kaev	Phnom Penh
119	Kantuot	Rural	Kantuot	Choam Khsant	Preah Vihear
120	Sra'aem	Rural	Kantuot	Choam Khsant	Preah Vihear
121	Preaek Khsay	Urban	Preaek Khsay Ka	Peam Ro	Prey Veng
122	Otdam	Urban	Preaek Khsay Ka	Peam Ro	Prey Veng
123	Snuol	Rural	Spueu Ka	Ba Phnum	Prey Veng
124	Prech	Rural	Spueu Ka	Ba Phnum	Prey Veng
125	Chruol	Rural	Kansoam Ak	Kampong Trabaek	Prey Veng
126	Krouch	Rural	Kansoam Ak	Kampong Trabaek	Prey Veng
127	Beng	Rural	Thma Pun	Kanhchriech	Prey Veng
128	Prongey Ti Muoy	Rural	Thma Pun	Kanhchriech	Prey Veng
129	Ampov Prey	Rural	Kaoh Sampov	Peam Chor	Prey Veng
130	Khsach	Rural	Kaoh Sampov	Peam Chor	Prey Veng
131	Snay Phleung	Rural	Prey Pnov	Pea Reang	Prey Veng
132	Prey Pnov	Rural	Prey Pnov	Pea Reang	Prey Veng

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
133	Phot	Rural	Preah Sdach	Preah Sdach	Prey Veng
134	Ta Ket	Rural	Preah Sdach	Preah Sdach	Prey Veng
135	Baray Kaeut	Rural	Baray	Kampong Leav	Prey Veng
136	Baray Lech	Rural	Baray	Kampong Leav	Prey Veng
137	Cha Yov	Rural	Me Tuek	Bakan	Pursat
138	Kaoh Khsach	Rural	Me Tuek	Bakan	Pursat
139	Phsar	Rural	Anlong Tnot	Krakor	Pursat
140	Papet	Rural	Anlong Tnot	Krakor	Pursat
141	Dang Rung	Rural	Kaoh Chum	Sampov Meas	Pursat
142	Phteah Pring	Rural	Kaoh Chum	Sampov Meas	Pursat
143	Phnum Kok Lav	Rural	Phnum Kok	Veun Sai	Ratanak Kiri
144	Kalai Sapun	Rural	Phnum Kok	Veun Sai	Ratanak Kiri
145	Kantrak	Urban	Svay Dankum	Siem Reab	Siemreap
146	Vihear Chen	Urban	Svay Dankum	Siem Reab	Siemreap
147	Slaeng	Rural	Kampong Kdei	Chi Kraeng	Siemreap
148	Kampong Kdei Pir	Rural	Kampong Kdei	Chi Kraeng	Siemreap
149	Kouk Kandal	Rural	Sasar Sdam	Puok	Siemreap
150	Damnak Slanh	Rural	Sasar Sdam	Puok	Siemreap
151	Kantreang	Rural	Kantreang	Prasat Bakong	Siemreap
152	Trapeang Thnal	Rural	Kantreang	Prasat Bakong	Siemreap
153	Boeng Ngat	Rural	Ta Yaek	Soutr Nikom	Siemreap
154	Paoy Smach	Rural	Ta Yaek	Soutr Nikom	Siemreap
155	Boeng Reang	Rural	Sameakki	Prey Nob	Sihanoukville
156	Preaek Kranh	Rural	Sameakki	Prey Nob	Sihanoukville
157	Preaek	Urban	Stueng Traeng	Stueng Traeng	Stung Treng

Cluster Number	Cluster Name	STRATUM	Commune Name	District Name	Province Name
158	Reacheanukoul	Urban	Stueng Traeng	Stueng Traeng	Stung Treng
159	Trapeang Run	Rural	Chres	Chantrea	Svay Rieng
160	Trapeang Die Leu	Rural	Chres	Chantrea	Svay Rieng
161	Thnong	Rural	Thna Thnong	Rumduol	Svay Rieng
162	Thmei	Rural	Thna Thnong	Rumduol	Svay Rieng
163	Svay Ta Phlo	Rural	Basak	Svay Chrum	Svay Rieng
164	Pou Ta Ros	Rural	Basak	Svay Chrum	Svay Rieng
165	Kbal Spean	Rural	Pou Ta Hao	Svay Rieng	Svay Rieng
166	Thnal Kaeng	Rural	Pou Ta Hao	Svay Rieng	Svay Rieng
167	Krasang	Rural	Kandoeng	Bati	Takeo
168	Trapeang Leuk	Rural	Kandoeng	Bati	Takeo
169	Pou Khvet	Rural	Preah Bat Choan Chum	Kiri Vong	Takeo
170	Traeuy Tonloab	Rural	Preah Bat Choan Chum	Kiri Vong	Takeo
171	Doung Khpos	Rural	Ban Kam	Prey Kabbas	Takeo
172	Pongtong	Rural	Ban Kam	Prey Kabbas	Takeo
173	Svay Prey	Rural	Lumchang	Samraong	Takeo
174	Rung	Rural	Lumchang	Samraong	Takeo
175	Chrae	Rural	Leay Bour	Tram Kak	Takeo
176	Trapeang Trach	Rural	Leay Bour	Tram Kak	Takeo
177	Daeum Phdiek	Rural	Prey Sloek	Treang	Takeo
178	Samraong Mean Chey	Rural	Prey Sloek	Treang	Takeo
179	Chhuk	Rural	Krasang	Chong Kal	Oddar Meanchey
180	Kouk Samrech	Rural	Krasang	Chong Kal	Oddar Meanchey

Appendix 4: Questionnaires



WHO STEPS INSTRUMENT

FOR CHRONIC DISEASE RISK FACTOR SURVEILLANCE

CAMBODIA 2010

Survey Information

Location and Date		Response	Code
1	Cluster/Centre/Village ID	_____	I1
2	Cluster/Centre/Village name		I2
3	Interviewer ID	_____	I3
4	Date of completion of the instrument	_____ dd mm year	I4

Participant Id Number		_____	_____	_____	_____
Consent, Interview Language and Name		Response		Code	
5	Consent has been read and obtained	Yes 1	No 2	If NO, END	
6	Interview Language	Khmer	1		
7	Time of interview (24 hour clock)	_____	:	_____	
		hrs		mins	
8	Family Surname			I8	
9	First Name			I9	
Additional Information that may be helpful					
10	Contact phone number where possible			I10	

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

Step 1 Demographic Information

CORE: Demographic Information		
Question	Response	Code
11	Sex (<i>Record Male / Female as observed</i>) Male 1 Female 2	C1
12	What is your date of birth? <i>Don't Know 77 77 7777</i> <div style="display: flex; justify-content: space-around; align-items: center;"> ▬▬▬ ▬▬▬ ▬▬▬▬▬▬ <i>If</i> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 5px;"> dd mm year </div>	C2
13	How old are you? Years ▬▬▬	C3
14	In total, how many years have you spent at school or in full-time study (excluding pre-school)? Years ▬▬▬	C4

EXPANDED: Demographic Information			
15	What is the highest level of education you have completed?	No formal schooling 1 Less than primary school 2 Primary school completed 3 Secondary school completed 4 High school completed 5 College/University completed 6 Post graduate degree 7 Refused 88	C5
16	What is your [<i>insert relevant ethnic group / racial group / cultural subgroup / others</i>] background ?	Khmer 1 Vietnamese 2 Chinese 3 Cham 4 Other 5 Refused 88	C6
17	What is your marital status ?	Never married 1 Currently married 2 Separated 3 Divorced 4 Widowed 5 Refused 88	C7
18	Which of the following best describes your main work status over the past 12 months? <i>(USE SHOWCARD)</i>	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 88	C8
19	How many people older than 18 years, including yourself, live in your household?	Number of people ▬▬▬	C9

CORE: Alcohol Consumption			
The next questions ask about the consumption of alcohol.			
Question		Response	Code
36	Have you ever consumed an alcoholic drink such as beer, wine, spirits, fermented cider or <i>[add other local examples]</i> ?	Yes 1 No 2 <i>If No, go to D1</i>	A1a
37	Have you consumed an alcoholic drink within the past 12 months ?	Yes 1 No 2 <i>If No, go to D1</i>	A1b
38	During the past 12 months, how frequently have you had at least one alcoholic drink? <i>(READ RESPONSES, USE SHOWCARD)</i>	Daily 1 5-6 days per week 2 1-4 days per week 3 1-3 days per month 4 Less than once a month 5	A2
39	Have you consumed an alcoholic drink within the past 30 days ?	Yes 1 No 2 <i>If No, go to D1</i>	A3
40	During the past 30 days, on how many occasions did you have at least one alcoholic drink?	Number Don't know 77 <input type="text"/>	A4
41	During the past 30 days, when you drank alcohol, on average , how many standard alcoholic drinks did you have during one drinking occasion? <i>(USE SHOWCARD)</i>	Number Don't know 77 <input type="text"/>	A5
42	During the past 30 days, what was the largest number of standard alcoholic drinks you had on a single occasion, counting all types of alcoholic drinks together?	Largest number Don't Know 77 <input type="text"/>	A6
43	During the past 30 days, how many times did you have for men: five or more for women: four or more standard alcoholic drinks in a single drinking occasion?	Number of times Don't Know 77 <input type="text"/>	A7
EXPANDED: Alcohol Consumption			
44	During the past 30 days, when you consumed an alcoholic drink, how often was it with meals? Please do not count snacks.	Usually with meals 1 Sometimes with meals 2 Rarely with meals 3 Never with meals 4	A8
45	During each of the past 7 days , how many	Monday <input type="text"/>	A9a

standard alcoholic drinks did you have each day? (USE SHOWCARD) Don't Know 77	Tuesday	<input type="text"/>	A9b
	Wednesday	<input type="text"/>	A9c
	Thursday	<input type="text"/>	A9d
	Friday	<input type="text"/>	A9e
	Saturday	<input type="text"/>	A9f
	Sunday	<input type="text"/>	A9g

CORE: Diet			
The next questions ask about the fruit and vegetables that you usually eat. I have a nutrition card here that shows you some examples of local fruit and vegetables. Each picture represents the size of a serving. As you answer these questions please think of a typical week in the last year.			
Question	Response		Code
46	In a typical week, on how many days do you eat fruit ? (USE SHOWCARD)	Number of days <input type="text"/> <i>If Zero days, go to D3</i> Don't Know 77	D1
47	How many servings of fruit do you eat on one of those days? (USE SHOWCARD)	Number of servings <input type="text"/> Don't Know 77	D2
48	In a typical week, on how many days do you eat vegetables ? (USE SHOWCARD)	Number of days <input type="text"/> <i>If Zero days, go to D5</i> Don't Know 77	D3
49	How many servings of vegetables do you eat on one of those days? (USE SHOWCARD)	Number of servings <input type="text"/> Don't know 77	D4
50	What type of oil or fat is most often used for meal preparation in your household? (USE SHOWCARD) (SELECT ONLY ONE)	Vegetable oil 1 Lard or suet 2 Butter or ghee 3 Margarine 4 Other 5 <i>If Other, go to D5 other</i> None in particular 6 None used 7 Don't know 77	D5
		Other <input type="text"/>	D5 other
51	On average, how many meals per week do you eat that were not prepared at a home? By meal, I mean breakfast, lunch and	Number <input type="text"/> Don't know 77	D6

CORE: Physical Activity		
<p>Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. <i>[Insert other examples if needed]</i>. 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.</p>		
Question	Response	Code
Work		
52	<p>Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like <i>[carrying or lifting heavy loads, digging or construction work]</i> for at least 10 minutes continuously?</p> <p>Yes 1</p> <p>No 2 <i>If No, go to P 4</i></p>	P1
53	<p>In a typical week, on how many days do you do vigorous-intensity activities as part of your work?</p> <p>Number of days <input type="text"/></p>	P2
54	<p>How much time do you spend doing vigorous-intensity activities at work on a typical day?</p> <p>Hours : minutes <input type="text"/> : <input type="text"/></p> <p>hrs mins</p>	P3 (a-b)
55	<p>Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking <i>[or carrying light loads]</i> for at least 10 minutes continuously?</p> <p>Yes 1</p> <p>No 2 <i>If No, go to P 7</i></p>	P4
56	<p>In a typical week, on how many days do you do moderate-intensity activities as part of your work?</p> <p>Number of days <input type="text"/></p>	P5
57	<p>How much time do you spend doing moderate-intensity activities at work on a typical day?</p> <p>Hours : minutes <input type="text"/> : <input type="text"/></p> <p>hrs mins</p>	P6 (a-b)
Travel to and from places		
<p>The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship. <i>[Insert other examples if needed]</i></p>		
58	<p>Do you walk or use a bicycle (<i>pedal cycle</i>) for at least 10 minutes continuously to get to and from places?</p> <p>Yes 1</p> <p>No 2 <i>If No, go to P 10</i></p>	P7

59	In a typical week, on how many days do you walk or bicycle for at least 10 minutes	Number of days <input type="text"/>	P8
60	How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P9 (a-b)
Recreational activities			
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure), <i>[Insert relevant terms]</i> .			
61	Do you do any vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause large increases in breathing or heart rate like <i>[running or football]</i> for at	Yes 1 No 2 <i>If No, go to P 13</i>	P10
62	In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days <input type="text"/>	P11
63	How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P12 (a-b)
64	Do you do any moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause a small increase in breathing or heart rate such as brisk walking, <i>[cycling]</i> ,	Yes 1 No 2 <i>If No, go to P16</i>	P13
65	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days <input type="text"/>	P14
66	How much time do you spend doing moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P15 (a-b)
EXPANDED: Physical Activity			
Sedentary behavior			
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television, but do not include time spent sleeping. <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>			
67	How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P16 (a-b)

CORE: History of Raised Blood Pressure				
Question		Response		Code
68	Have you ever had your blood pressure measured by a doctor or other health worker?	Yes 1 No 2 <i>If No, go to H6</i>		H1
69	Have you ever been told by a doctor or other health worker that you have raised blood pressure?	Yes 1 No 2 <i>If No, go to H6</i>		H2a
70	Have you been told in the past 12 months?	Yes 1 No 2		H2b
EXPANDED: History of Raised Blood Pressure				
71	Are you currently receiving any of the following treatments/advice for high blood pressure prescribed by a doctor or other health worker?			
	Drugs (medication) that you have taken in the past two weeks	Yes 1 No 2		H3a
	Advice to reduce salt intake	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
72	Have you ever seen a traditional healer for raised blood pressure or hypertension?	Yes 1 No 2		H4
73	Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes 1 No 2		H5

CORE: History of Diabetes				
Question		Response		Code
74	Have you ever had your blood sugar measured by a doctor or other health worker?	Yes 1 No 2 <i>If No, go to M1</i>		H6
75	Have you ever been told by a doctor or other health worker that you have raised blood sugar?	Yes 1 No 2 <i>If No, go to M1</i>		H7a
76	Have you been told in the past 12 months?	Yes 1 No 2		H7b

EXPANDED: History of Diabetes

	Are you currently receiving any of the following treatments/advice for diabetes prescribed by a doctor or other health worker?		
77	Insulin	Yes 1 No 2	H8a
	Drugs (medication) that you have taken in the past two weeks	Yes 1 No 2	H8b
	Special prescribed diet	Yes 1 No 2	H8c
	Advice 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
78	Have you ever seen a traditional healer for diabetes or raised blood sugar?	Yes 1 No 2	H9
79	Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	H10

Step 2 Physical Measurements

CORE: Height and Weight			
Question		Response	Code
80	Interviewer ID	_ _ _ _	M1
81	Device IDs for height and weight	Height _ _ _	M2a
		Weight _ _ _	M2b
82	Height	in Centimetres (cm) _ _ _ _ . _	M3
83	Weight <i>If too large for scale 666.6</i>	in Kilograms (kg) _ _ _ _ . _	M4
84	For women: Are you pregnant?	Yes 1 <i>If Yes, go to M 8</i>	M5
		No 2	
CORE: Waist			
85	Device ID for waist	_ _ _	M6
86	Waist circumference	in Centimetres (cm) _ _ _ _ . _	M7
CORE: Blood Pressure			
87	Interviewer ID	_ _ _ _	M8
88	Device ID for blood pressure	_ _ _	M9
89	Cuff size used	Small 1	M10
		Medium 2	
		Large 3	
90	Reading 1	Systolic (mmHg) _ _ _ _	M11a
		Diastolic (mmHg) _ _ _ _	M11b
91	Reading 2	Systolic (mmHg) _ _ _ _	M12a
		Diastolic (mmHg) _ _ _ _	M12b
92	Reading 3	Systolic (mmHg) _ _ _ _	M13a
		Diastolic (mmHg) _ _ _ _	M13b
93	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	

EXPANDED: Hip Circumference and Heart Rate

94	Hip circumference	in Centimeters (cm)	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	M15
95	Heart Rate			
	Reading 1	Beats per minute	<input type="text"/> <input type="text"/> <input type="text"/>	M16a
	Reading 2	Beats per minute	<input type="text"/> <input type="text"/> <input type="text"/>	M16b
	Reading 3	Beats per minute	<input type="text"/> <input type="text"/> <input type="text"/>	M16c

Step 3 Biochemical Measurements

CORE: Blood Glucose			
Question		Response	Code
96	During the past 12 hours have you had anything to eat or drink, other than water?	Yes 1 No 2	B1
97	Technician ID	_ _ _ _	B2
98	Device ID	_ _ _	B3
99	Time of day blood specimen taken (24 hour clock)	Hours : minutes _ _ _ : _ _ _ hrs mins	B4
100	Fasting blood glucose <i>Choose accordingly: mmol/l or mg/dl</i>	mg/dl _ _ _ _ . _	B5
101	Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker for raised blood glucose?	Yes 1 No 2	B6
CORE: Blood Lipids			
102	Device ID	_ _ _	B7
103	Total cholesterol <i>Choose accordingly: mmol/l or mg/dl</i>	mg/dl _ _ _ _ . _	B8
104	During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker?	Yes 1 No 2	B9

Appendix 5: Show cards

<p>LEISURE/ SPARE TIME RELATED PHYSICAL ACTIVITY (VIGOROUS - Intensity Activities)</p>		<p>WORK RELATED PHYSICAL ACTIVITY (VIGOROUS - Intensity Activities)</p>	 	<p>WORK RELATED PHYSICAL ACTIVITY (MODERATE - Intensity Activities)</p>	 	<p>LEISURE/ SPARE TIME RELATED PHYSICAL ACTIVITY (MODERATE - Intensity Activities)</p>		<p>Surveillance of Chronic Diseases Risk Factor</p>		<p>SHOW CARD</p>	<p>University of Health Sciences in cooperate with Ministry of Health - CAMBODIA sponsored by World Health Organization</p>	
---	--	--	---	--	---	---	---	--	---	-------------------------	--	---

Tobaccos SHOW CARD



Alcohol Consumption SHOW CARD

1 Standard drink =



1 Single measure of Beer / Fermented Palm Juice (285 ml)



1 Single measure of Spirits / Rice Alcohol (30 ml)



1 Single measure of Wine (120 ml)

Note: Net alcohol content of a **standard drink** is **approximately 10g** of ethanol

Diet SHOW CARD (Typical Fruit and Vegetables and Serving Sizes)

Vegetable



- 1 Cup of Raw green leafy vegetables
- 1/2 - 3/4 Cup of Other vegetables, cooked or chopped raw
- 1 Cup = 50g -75g or 150 ml

Fruit



Note:

- 1/2 Cup =
- 1 small size of banana
 - 1 medium size of apple
 - 1 orange or 3/4 cup of grape
 - 2 cups of papaya
 - 4 slices of pineapple
 - Chopped, cooked, canned fruit
 - Fruit juice (not artificially flavoured)

Appendix 6: Participant Feedback Form (Step 2)

Dear Participant,

We thank you very much for participating in the STEPS Surveillance of Risk Factors for Chronic Diseases in CAMBODIA, conducted by University of Health Sciences, and Preventive Medicine Department of Ministry of Health, CAMBODIA.

This study was undertaken in order to gather information on the following risk factors for chronic diseases in CAMBODIA: tobacco use, alcohol consumption, low intake of fruit and vegetables, physical inactivity, raised blood pressure, obesity, raised fasting blood glucose, and high levels of blood cholesterol.

We would like to provide you with an overview of your results from the physical measurements.

Blood pressure Systolic: _____ mmHg (average of reading 2 and 3)

Diastolic: _____ mmHg (average of reading 2 and 3)

Blood pressure classification

- Normal (SBP<140 and DBP<90)
 - Elevated (SBP 140-159 and/or DBP 90-99)
 - Raised (SBP≥160 and/or DBP≥100)
 - Currently on medication
-

Height Height: _____ cm

Weight Weight: _____ kg

Body Mass Index BMI: _____ kg/m² (weight in kg divided by height in meters squared; ex. for height 170 cm and weight 68 kg
BMI=(68/(1.7²))=23.5)

BMI classification

- Underweight (BMI<18.5)
 - Normal weight (BMI 18.5-24.9)
 - Overweight (BMI 25-29.9)
 - Obese (BMI≥30)
-

Waist circumference Waist: _____ cm

Hip circumference Hip: _____ cm

Appendix 7: Participant Feedback Form (Step 3)

Dear Participant,

We thank you very much for participating in the STEPS Surveillance of Risk Factors for Chronic Diseases in CAMBODIA, conducted by University of Health Sciences, and Preventive Medicine Department of Ministry of Health, CAMBODIA.

This study was undertaken in order to gather information on the following risk factors for chronic diseases in CAMBODIA: tobacco use, alcohol consumption, low intake of fruit and vegetables, physical inactivity, raised blood pressure, obesity, raised fasting blood glucose, and high levels of blood cholesterol.

We would like to provide you with an overview of your results from the biochemical measurements.

Fasting blood glucose: _____ mg/dl

***Fasting blood
glucose***

***Fasting blood
glucose
classification***

- Normal (< 110 mg/dl)
 - Raised (\geq 110 mg/dl)
 - Currently on medication
-

Total cholesterol: _____ mg/dl

***Total blood
cholesterol***

***Total blood
cholesterol
classification***

- Normal (< 190 mg/dl)
- Elevated (190 – 239 mg/dl)
- High (\geq 240 mg/dl)

Appendix 8: BMI Classification Chart

Height (cm)	Weight (kg)																																															
	30	32.5	35	37.5	40	42.5	45	47.5	50	52.5	55	57.5	60	62.5	65	67.5	70	72.5	75	77.5	80	82.5	85	87.5	90	92.5	95	97.5	100	102.5	105	107.5	110	112.5	115	117.5	120	122.5	125	127.5	130							
140	15	17	18	19	20	22	23	24	26	27	28	29	31	32	33	34	36	37	38	40	41	42	43	45	46	47	48	50	51	52	54	55	56	57	59	60	61	63	64	65	66							
142	15	16	17	19	20	21	22	24	25	26	27	29	30	31	32	33	35	36	37	38	40	41	42	43	45	46	47	48	50	51	52	53	55	56	57	58	60	61	62	63	64							
144	14	16	17	18	19	20	22	23	24	25	27	28	29	30	31	33	34	35	36	37	39	40	41	42	43	45	46	47	48	49	51	52	53	54	55	57	58	59	60	61	63							
146	14	15	16	18	19	20	21	22	23	25	26	27	28	29	30	32	33	34	35	36	38	39	40	41	42	43	45	46	47	48	49	50	52	53	54	55	56	57	59	60	61							
148	14	15	16	17	18	19	21	22	23	24	25	26	27	29	30	31	32	33	34	35	37	38	39	40	41	42	43	45	46	47	48	49	50	51	53	54	55	56	57	58	59							
150	13	14	16	17	18	19	20	21	22	23	24	26	27	28	29	30	31	32	33	34	36	37	38	39	40	41	42	43	44	46	47	48	49	50	51	52	53	54	56	57	58							
152	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	29	30	31	32	34	35	36	37	38	39	40	41	42	43	44	45	46	48	49	50	51	52	53	54	55	56							
154	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	50	51	52	53	54	55							
156	12	13	14	15	16	17	18	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	50	51	52	53	54	55						
158	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53						
160	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53						
162	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53					
164	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53					
166	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53					
168	11	12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52					
170	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52					
172	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53				
174	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53				
176	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52				
178	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52				
180	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52				
182	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52				
184	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52			
186	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52				
188	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52			
190	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52			
192	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
194	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
196	8	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
198	8	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
200	8	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
202	7	8	9	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
204	7	8	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52

 Underweight (<18.5)
 Normal weight (18.5-24.9)
 Overweight (25-29.9)
 Obese (30-39.9)
 Morbidly Obese (≥ 40)

Appendix 9: Weighting of data

I-Sample weight (W1)

The sample weight was used to adjust for the probability of selection of each participant. It was calculated as follows:

Step 1-Probability of selection at all stages (commune and village) of sampling: The STEPS sampling.xls file had been used to calculate the sample weights at commune (ProbPSU) and village (ProbSSU) levels for our dataset.

Step 2- Probability for selecting households in each village (ProbHH) was calculated by dividing 32 (number of selected households) by total number of households in the village.

$$\text{ProbHH} = \frac{\text{number of selected households of the village (32)}}{\text{Total number households in the village}}$$

Step 3-Within-household probability of selection for each participant (ProbParticipant) was calculated by dividing the number of person selected (i.e 1) by the number of eligible persons in each household. (The interview_tracking_form.xls and Kish_Method_Data.xls files contained the participant ID along with the number of eligible individuals in each participant's household)

$$\text{ProbParticipant} = \frac{\text{Number of selected eligible person in the household (1)}}{\text{Totaleligible persons in the household}}$$

The final sample weight (W1) for each participant was obtained by taking the inverse of the product of the probabilities calculated in step1, step2 and step3:

$$\text{Sample Weight (W1)} = \frac{1}{\text{ProbPSU} \times \text{ProbSSU} \times \text{ProbHH} \times \text{ProbParticipant}}$$

II-Non-response weight (W2)

The non-response weight is the inverse of the response rate for each 10 year age-sex group. It was calculated using data in the interview_tracking_form.xls file.

1. First, response rate for each step was calculated:

$$\text{Response rate for Step 1} = \frac{\text{Step 1 Response "Yes"}}{(\text{Step 1 Response "Yes"} + \text{Step 1 Response "No"})}$$

$$\text{Response rate for Step 2} = \frac{\text{Step 2 Response "Yes"}}{(\text{Step 2 Response "Yes"} + \text{Step 2 Response "No"})}$$

$$\text{Response rate for Step 3} = \frac{\text{Step 3 Response "Yes"}}{(\text{Step 3 Response "Yes"} + \text{Step 3 Response "No"})}$$

2. Then, the inverse response rate above to obtain W_{2s1} , W_{2s2} , and W_{2s3} was taken in order to obtain the non-response weight for Step 1, 2, and 3, respectively.

III- Population weight (W3)

The population weight was used to correct for differences between the age-sex structure of our sample and the age-sex structure of our target population. It was calculated as follows:

1- The proportion of the sample (SamProportion) comprised of each 10-year age-sex group was calculated by dividing the total number of individuals in each 10-year age-sex group by the total number of individuals in the sample;

2- The proportion of the target population (PopProportion) comprised of each 10-year age-sex group was obtained by dividing the total number of individuals in each 10-year age-sex group by the total number of individuals in target population; and

3- The final Population Weight (W3) was calculated by dividing the population and sample proportion:

$$\text{Population Weight}(W3) = \frac{\text{PopProportion}}{\text{SamProportion}}$$

IV- Overall weights

The overall weight for each Step of the survey (W_{Step1} , W_{Step2} and W_{Step3}) was obtained by multiplying together the sample, non-response, and population weights:

$$W_{Step1} = W_1 \times W_{2s1} \times W_3$$

$$W_{Step2} = W_1 \times W_{2s2} \times W_3$$

$$W_{Step3} = W_1 \times W_{2s2} \times W_3$$

Appendix 10: Team members

Technical Advisor

OUM Sophal, MD DrPH

Site Coordinator

PRAK Piseth Raingsey, MD MPH

Technical Team

KHUON Eng Mony, MD MPH

THACH Vareun, MD

CHUN Loun, MD

SOK Kong, MD MPH

MEY Vannareth, MD

AIM Sothea, MD

BOUNCHAN Yuttirong, MD

HOK Syrany, MD MPH

Data Collection Supervisors

THACH Vareun, MD

CHUN Loun, MD

SOK Kong, MD MPH

HOK Syrany, MD MPH

CIN Sovannara, BBA

MEY Vannareth, MD

BOUNCHAN Yuttirong, MD

AIM Sothea, MD

LOUN Sathia, BITS, MBA

PEN Linda

Step 1: Interviewers (nurses and midwives)

CHEA Chamrong

CHON Sokra

KHAN Titya

KHIN Sok San

KIM Setha

LONG Vongkot Borey

MAO Thyda

NGETH Raksmeay

REN Chetra

SENG Chenda

PENH Setha

TEP Neary Neath

THAO Oudom

THOL Sovannary

UON Pholla

VONG SreyRoth

Step 2 and 3:

Laboratory Technicians

EAN Rattanak

HEM Chan Vatanak

KRY Makara

LORN Meng Eang

Midwives

TY Kim Houy

SOK Chenda

MAK Dila

SAM Sovuthy

Data Management

MEY Vannareth, MD

AIM Sothea, MD

CIN Sovnnara, BBA

BOUNCHAN Yuttirong, MD

LOUN Sathia, BITS MBA

PEN Linda

Administrative staff

KHIEV Moly, MD

MAN Manith, BMIS MsIT

Appendix 11: Data Book for Cambodia (whole country)

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Sampling and Response Proportions

Response proportions

Description: Summary results for overall response proportions.

Response proportions									
Age Group (years)	Men			Women			Both Sexes		
	Eligible	Responded		Eligible	Responded		Eligible	Responded	
	n	n	%	n	n	%	n	n	%
25-34	591	544	92.0	941	910	96.7	1532	1454	94.9
35-44	566	535	94.5	983	966	98.3	1549	1501	96.9
45-54	529	496	93.8	976	958	98.2	1505	1454	96.6
55-64	378	362	95.8	679	662	97.5	1057	1024	96.9
25-64	2064	1937	93.8	3579	3496	97.7	5643	5433	96.3

Step 3 response proportions

Description: Summary results for the response proportions for Step 3 for countries that have done Step 3 with a subset of the sample.

Response proportions for Step 3									
Age Group (years)	Men			Women			Both Sexes		
	Eligible	Responded		Eligible	Responded		Eligible	Responded	
	n	n	%	n	n	%	n	n	%
25-34	591	510	86.3	941	860	91.4	1532	1370	89.4
35-44	566	509	89.9	983	947	96.3	1549	1456	94.0
45-54	529	478	90.4	976	934	95.7	1505	1412	93.8
55-64	378	354	93.7	679	641	94.4	1057	995	94.1
25-64	2064	1851	89.7	3579	3382	94.5	5643	5,233	92.7

Demographic Information Results

Age group by sex

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

Instrument question: What is your date of birth?

Age group and sex of respondents							
Age Group (years)	Men		Women		Both Sexes		
	n	%	n	%	n	%	
25-34	544	28.1	910	26.0	1454	26.8	
35-44	535	27.6	966	27.6	1501	27.6	
45-54	496	25.6	958	27.4	1454	26.8	
55-64	362	18.7	662	18.9	1024	18.8	
25-64	1937	100.0	3496	100.0	5433	100.0	

Education

Description: Mean number of years of education among respondents.

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

Mean number of years of education							
Age Group (years)	Men		Women		Both Sexes		
	n	Mean	n	Mean	n	Mean	
25-34	544	5.9	910	4.3	1454	4.9	
35-44	534	5.8	966	3.9	1500	4.5	
45-54	496	4.2	958	2.4	1454	3.0	
55-64	362	4.8	660	2.4	1022	3.3	
25-64	1936	5.2	3494	3.3	5430	4.0	

Highest level of education

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

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

Highest level of education								
Age Group (years)	Men							
	n	% No formal schooling	% Less than primary school	% Primary school completed	% Secondary school completed	% High school completed	% College/University completed	% Post graduate degree completed
25-34	544	15.1	34.6	24.8	14.5	8.5	2.2	0.4
35-44	534	14.4	32.8	27.2	16.1	6.7	2.4	0.4
45-54	496	20.4	45.6	20.4	10.5	2.0	0.6	0.6
55-64	362	17.1	42.0	24.3	10.8	5.0	0.8	0.0
25-64	1936	16.6	38.3	24.2	13.2	5.7	1.6	0.4

Highest level of education								
Age Group (years)	Women							
	n	% No formal schooling	% Less than primary school	% Primary school completed	% Secondary school completed	% High school completed	% College/University completed	% Post graduate degree completed
25-34	910	24.7	43.7	19.6	7.0	4.4	0.5	0.0
35-44	966	24.0	47.8	17.4	9.1	1.2	0.4	0.0
45-54	958	42.2	45.6	7.9	3.5	0.6	0.1	0.0
55-64	662	45.6	40.5	8.8	3.6	1.5	0.0	0.0
25-64	3496	33.3	44.8	13.7	6.0	1.9	0.3	0.0

Highest level of education								
Age Group (years)	Both Sexes							
	n	% No formal schooling	% Less than primary school	% Primary school completed	% Secondary school completed	% High school completed	% College/University completed	% Post graduate degree completed
25-34	1454	21.1	40.3	21.5	9.8	5.9	1.2	0.1
35-44	1500	20.6	42.5	20.9	11.6	3.2	1.1	0.1
45-54	1454	34.7	45.6	12.2	5.9	1.1	0.3	0.2
55-64	1024	35.5	41.0	14.3	6.2	2.7	0.3	0.0
25-64	5432	27.3	42.5	17.5	8.6	3.3	0.8	0.1

Ethnicity

Description: Summary results for the ethnicity of the respondents.

Instrument question: What is your ethnic group?

Ethnic group of respondents						
Age Group (years)	Both Sexes					
	n	% Khmer	% Vietnamese	% Chinese	% Charm	% Other
25-34	1454	98.0	0.3	0.0	0.1	1.7
35-44	1501	99.1	0.1	0.0	0.1	0.8
45-54	1454	99.2	0.3	0.1	0.0	0.3
55-64	1024	98.8	0.3	0.3	0.3	0.3
25-64	5433	98.8	0.2	0.1	0.1	0.8

Marital status

Description: Marital status of survey respondents.

Instrument question: What is your marital status?

Marital status						
Age Group (years)	Men					
	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed
25-34	544	12.1	83.3	3.5	0.6	0.6
35-44	535	0.9	95.3	1.1	0.4	2.2
45-54	496	1.0	92.1	3.2	0.6	3.0
55-64	362	0.0	91.2	1.9	0.3	6.6
25-64	1937	3.9	90.3	2.5	0.5	2.8

Marital status						
Age Group (years)	Women					
	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed
25-34	910	9.5	75.4	8.7	2.5	4.0
35-44	966	5.4	70.1	10.2	3.1	11.2
45-54	958	3.8	65.7	5.9	3.5	21.0
55-64	662	3.5	49.8	3.5	2.4	40.8
25-64	3495	5.6	66.4	7.4	2.9	17.6

Marital status						
Age Group (years)	Both Sexes					
	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed
25-34	1454	10.5	78.3	6.7	1.8	2.7
35-44	1501	3.8	79.1	7.0	2.1	8.0
45-54	1454	2.8	74.7	5.0	2.5	14.9
55-64	1024	2.2	64.5	2.9	1.7	28.7
25-64	5432	5.0	75.0	5.6	2.1	12.3

Employment status

Description: Proportion of respondents in paid employment and those who are unpaid.

Instrument question: Which of the following best describes your main work status over the past 12 months?

Employment status					
Men					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
25-34	544	5.1	5.1	87.5	2.2
35-44	535	11.2	3.2	84.7	0.9
45-54	496	11.7	3.4	81.7	3.2
55-64	362	11.3	1.4	77.1	10.2
25-64	1937	9.7	3.5	83.3	3.6

Employment status					
Women					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
25-34	910	2.3	1.5	76.6	19.6
35-44	966	3.6	1.4	82.6	12.3
45-54	958	1.9	0.7	83.6	13.8
55-64	662	1.2	0.3	73.1	25.4
25-64	3496	2.3	1.1	79.5	17.1

Employment status					
Both Sexes					
Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
25-34	1454	3.4	2.9	80.7	13.1
35-44	1501	6.3	2.1	83.3	8.3
45-54	1454	5.2	1.7	82.9	10.2
55-64	1024	4.8	0.7	74.5	20.0
25-64	5433	5.0	1.9	80.9	12.3

Unpaid work and unemployed

Description: Proportion of respondents in unpaid work.

Instrument question: Which of the following best describes your main work status over the past 12 months?

Unpaid work and unemployed							
Men							
Age Group (years)	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
25-34	12	0.0	50.0	0.0	0.0	41.7	8.3
35-44	5	20.0	0.0	0.0	0.0	60.0	20.0
45-54	16	12.5	0.0	6.3	6.3	43.8	31.3
55-64	37	2.7	0.0	0.0	64.9	13.5	18.9
25-64	70	5.7	8.6	1.4	35.7	28.6	20.0

Unpaid work and unemployed							
Age Group (years)	Women						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
25-34	178	1.1	1.1	94.4	0.0	2.8	0.6
35-44	119	1.7	0.0	94.1	0.0	4.2	0.0
45-54	132	2.3	0.0	89.4	0.0	3.8	4.5
55-64	168	6.5	0.0	60.7	6.5	6.5	19.6
25-64	597	3.0	0.3	83.8	1.8	4.4	6.7

Unpaid work and unemployed							
Age Group (years)	Both Sexes						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
25-34	190	1.1	4.2	88.4	0.0	5.3	1.1
35-44	124	2.4	0.0	90.3	0.0	6.5	0.8
45-54	148	3.4	0.0	80.4	0.7	8.1	7.4
55-64	205	5.9	0.0	49.8	17.1	7.8	19.5
25-64	667	3.3	1.2	75.1	5.4	6.9	8.1

Per capita annual income

Description: Mean reported per capita annual income of respondents in US Dollar

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

Mean annual per capita income	
n	Mean
4940	481.3

Estimated household earnings

Description: summary of participant household earnings by quintile.

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

Estimated household earnings					
n	% Quintile 1: Under \$250	% Quintile 2: \$251-\$1500	% Quintile 3: \$1501-\$ 3500	% Quintile 4: \$3501-\$5500	% Quintile 5: Over \$5500
5201	19.7	59.8	14.7	3.1	2.6

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?

Percentage of current smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Current smoker	95% CI	n	% Current smoker	95% CI	n	% Current smoker	95% CI
25-34	544	45.1	40.3-49.9	910	4.1	2.2-5.9	1454	24.3	21.1-27.4
35-44	535	59.7	54.9-64.5	966	6.3	4.0-8.6	1501	33.7	30.5-37.0
45-54	496	56.8	52.0-61.5	958	7.3	5.0-9.6	1454	29.3	26.4-32.2
55-64	362	63.0	57.6-68.5	662	7.7	5.0-10.4	1024	34.2	30.8-37.6
25-64	1937	54.1	51.3-56.9	3496	5.9	4.3-7.5	5433	29.4	27.4-31.3

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							
Age Group (years)	Men						
	n	Current smoker			% Does not smoke	95% CI	
% Daily		95% CI	% Non-daily	95% CI			
25-34	544	40.2	35.6-44.9	4.9	2.8-7.0	54.9	50.1-59.7
35-44	535	55.5	50.6-60.3	4.2	2.4-6.1	40.3	35.5-45.1
45-54	496	52.3	47.1-57.5	4.5	2.5-6.4	43.2	38.5-48.0
55-64	362	56.8	51.0-62.6	6.3	3.7-8.8	37.0	31.5-42.4
25-64	1937	49.3	46.5-52.1	4.8	3.6-6.0	45.9	43.1-48.7

Smoking status							
Age Group (years)	Women						
	n	Current smoker			% Does not smoke	95% CI	
% Daily		95% CI	% Non-daily	95% CI			
25-34	910	3.2	1.4-5.0	0.9	0.3-1.4	96.0	94.1-97.8
35-44	966	5.1	2.9-7.3	1.2	0.5-1.9	93.7	91.4-96.0
45-54	958	6.2	4.0-8.4	1.2	0.4-1.9	92.7	90.4-95.0
55-64	662	6.0	3.5-8.4	1.7	0.4-3.1	92.3	89.6-95.0
25-64	3496	4.8	3.3-6.2	1.1	0.7-1.6	94.1	92.5-95.7

Smoking status							
Both Sexes							
Age Group (years)	n	Current smoker				% Does not smoke	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	1454	21.4	18.4-24.4	2.8	1.8-3.9	75.7	72.6-78.9
35-44	1501	31.0	27.8-34.2	2.8	1.7-3.8	66.3	63.0-69.5
45-54	1454	26.7	23.7-29.6	2.6	1.7-3.6	70.7	67.8-73.6
55-64	1024	30.3	26.9-33.6	3.9	2.5-5.3	65.8	62.4-69.2
25-64	5433	26.4	24.5-28.3	2.9	2.3-3.5	70.6	68.7-72.6

Frequency of smoking

Description: Percentage of current daily smokers among smokers.

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

Current daily smokers among smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI
25-34	246	89.2	84.7-93.6	38	78.9	64.2-93.5	284	88.3	84.2-92.4
35-44	319	92.9	89.8-96.0	60	81.0	69.2-92.7	379	91.8	88.8-94.8
45-54	282	92.1	88.6-95.6	72	84.3	74.3-94.3	354	91.0	87.8-94.3
55-64	228	90.1	86.0-94.1	51	77.3	61.6-93.0	279	88.6	84.6-92.6
25-64	1075	91.2	89.0-93.4	221	80.8	73.1-88.5	1296	90.1	88.0-92.2

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? Do you remember how long ago it was?

Mean age started smoking									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean age	95% CI	n	Mean age	95% CI	n	Mean age	95% CI
25-34	220	19.0	18.4-19.7	30	18.4	16.1-20.7	250	19.0	18.3-19.6
35-44	295	19.7	19.0-20.3	49	21.6	18.5-24.7	344	19.8	19.2-20.5
45-54	261	21.5	20.6-22.4	59	27.6	25.1-30.2	320	22.3	21.4-23.2
55-64	202	21.3	20.3-22.3	40	25.4	22.1-28.6	242	21.7	20.7-22.7
25-64	978	20.1	19.7-20.5	178	23.3	21.2-25.3	1156	20.4	20.0-20.8

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
25-34	220	10.3	9.6-11.1	30	11.6	8.8-14.5	250	10.4	9.7-11.2
35-44	295	20.0	19.4-20.7	49	17.0	13.8-20.2	344	19.8	19.1-20.4
45-54	261	27.8	26.9-28.7	59	21.8	19.3-24.4	320	27.1	26.1-28.0
55-64	202	37.8	36.7-38.8	40	33.7	30.3-37.0	242	37.3	36.3-38.4
25-64	978	21.3	20.5-22.0	178	19.8	18.1-21.6	1156	21.1	20.4-21.9

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
25-34	220	93.0	89.0-97.0	30	88.0	75.9-100.0	250	92.6	88.5-96.8
35-44	296	89.6	85.1-94.1	49	77.6	58.6-96.5	345	88.6	84.0-93.2
45-54	261	84.4	79.2-89.6	59	77.0	63.0-91.0	320	83.4	78.3-88.5
55-64	202	79.5	73.2-85.9	40	62.5	44.1-80.8	242	77.8	71.8-83.8
25-64	979	88.1	85.2-90.9	178	77.5	66.4-88.6	1157	87.1	84.0-90.2

Hand-rolled cigarette smokers among daily smokers									
Age Group (years)	Men			Women			Both Sexes		
	n	% Hand-rolled cigarette smoker	95% CI	n	% Hand-rolled cigarette smoker	95% CI	n	% Hand-rolled cigarette smoker	95% CI
25-34	220	9.6	4.7-14.5	30	22.5	0.0-48.0	250	10.6	5.3-15.8
35-44	296	15.0	9.9-20.1	49	23.8	3.7-43.9	345	15.7	10.5-20.9
45-54	261	20.6	14.9-26.3	59	24.9	10.8-38.9	320	21.2	15.7-26.7
55-64	202	25.5	18.7-32.2	40	37.5	19.2-55.9	242	26.7	20.4-33.0
25-64	979	16.0	12.5-19.6	178	26.0	12.4-39.6	1157	17.0	13.2-20.7

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 manufactured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI	n	Mean # of Other	95% CI
25-34	220	12.0	10.7-13.3	220	0.6	0.3-1.0	220	0.0	----	220	0.0	----
35-44	296	14.2	12.9-15.6	296	1.1	0.7-1.6	296	0.0	----	296	0.0	----
45-54	261	14.3	12.4-16.2	261	1.6	1.1-2.1	261	0.0	----	261	0.0	----
55-64	202	12.7	11.0-14.5	201	1.9	1.3-2.5	202	0.0	----	202	0.0	----
25-64	979	13.4	12.5-14.2	978	1.2	0.9-1.4	979	0.0	----	979	0.0	----

Mean amount of tobacco used by daily smokers by type												
Women												
Age Group (years)	n	Mean # of manu- factured cig.	95% CI	n	Mean #of hand- rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI	n	Mean # of Other	95% CI
25-34	30	5.8	3.6-7.9	30	1.5	0.0-3.5	30	0.0	----	30	0.0	----
35-44	49	7.5	4.6- 10.5	49	1.0	0.1-1.9	49	0.0	----	49	0.0	----
45-54	59	7.3	4.9-9.7	59	1.4	0.3-2.5	59	0.0	----	59	0.0	----
55-64	40	6.8	4.4-9.2	40	2.5	1.0-4.1	40	0.0	----	40	0.0	----
25-64	178	6.9	5.6-8.2	178	1.5	0.7-2.3	178	0.0	----	178	0.0	----

Mean amount of tobacco used by daily smokers by type												
Both Sexes												
Age Group (years)	n	Mean # of manu- factured cig.	95% CI	n	Mean #of hand- rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI	n	Mean # of Other	95% CI
25-34	250	11.5	10.3-12.7	250	0.7	0.3-1.1	250	0.0	----	250	0.0	----
35-44	345	13.7	12.4-15.0	345	1.1	0.7-1.5	345	0.0	----	345	0.0	----
45-54	320	13.4	11.7-15.2	320	1.6	1.1-2.0	320	0.0	----	320	0.0	----
55-64	242	12.1	10.5-13.7	241	2.0	1.4-2.5	242	0.0	----	242	0.0	----
25-64	1157	12.8	11.9-13.6	1156	1.2	1.0-1.5	1157	0.0	----	1157	0.0	----

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
25-34	544	8.5	5.7-11.2	910	0.8	0.2-1.4	1454	4.6	3.2-6.0
35-44	535	16.1	13.1-19.2	966	1.9	0.9-2.9	1501	9.2	7.6-10.8
45-54	496	23.7	19.8-27.5	958	3.1	2.0-4.3	1454	12.3	10.4-14.2
55-64	362	30.2	24.9-35.5	662	4.9	3.2-6.6	1024	17.0	14.2-19.9
25-64	1937	16.5	14.7-18.4	3496	2.2	1.6-2.7	5433	9.2	8.2-10.2

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
25-34	14	9.9	8.4-11.3	2	10.3	8.2-12.4	16	9.9	8.6-11.2
35-44	45	14.5	12.4-16.5	7	15.6	12.3-18.8	52	14.5	12.7-16.4
45-54	59	15.2	12.7-17.7	17	17.2	12.9-21.4	76	15.6	13.4-17.7
55-64	56	15.5	13.1-17.9	23	18.4	13.7-23.1	79	16.0	13.9-18.2
25-64	174	14.4	13.2-15.6	49	16.8	14.4-19.3	223	14.7	13.7-15.8

Current Users of smokeless tobacco

Description: Percentage of current users of smokeless tobacco among all respondents.

Instrument question: Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]?

Current users of smokeless tobacco									
Age Group (years)	Men			Women			Both Sexes		
	n	% Current users	95% CI	n	% Current users	95% CI	n	% Current users	95% CI
25-34	544	0.6	0.1-1.1	910	3.7	2.2-5.2	1454	2.2	1.4-2.9
35-44	535	1.9	0.6-3.2	966	13.8	10.5-17.0	1501	7.7	5.7-9.6
45-54	496	4.2	1.9-6.6	958	21.3	17.7-24.9	1454	13.7	11.3-16.1
55-64	362	4.7	2.3-7.1	662	37.6	32.8-42.4	1024	21.9	19.0-24.7
25-64	1937	2.2	1.4-3.0	3496	14.9	13.0-16.9	5433	8.8	7.6-9.9

Smokeless tobacco use

Description: Status of using smokeless tobacco among all respondents.

Instrument questions: Do you currently use any smokeless tobacco such as [snuff, chewing tobacco, betel]? Do you currently use smokeless tobacco products daily?

Smokeless tobacco use							
Age Group (years)	Men						
	n	Current user				% Does not use smokeless tobacco	95% CI
		% Daily	95% CI	% Non- daily	95% CI		
25-34	544	0.0	0.0-0.0	0.6	0.1-1.1	99.4	98.9-99.9
35-44	535	0.6	0.0-1.2	1.4	0.3-2.4	98.1	96.8-99.4
45-54	496	3.5	1.3-5.6	0.8	0.0-1.6	95.8	93.4-98.1
55-64	362	3.5	1.5-5.4	1.2	0.0-2.4	95.3	92.9-97.7
25-64	1937	1.3	0.7-1.9	0.9	0.4-1.4	97.8	97.0-98.6

Smokeless tobacco use							
Age Group (years)	Women						
	n	Current user				% Does not use smokeless tobacco	95% CI
		% Daily	95% CI	% Non- daily	95% CI		
25-34	910	3.3	1.9-4.8	0.4	0.0-0.7	96.3	94.8-97.8
35-44	966	12.3	9.3-15.4	1.4	0.7-2.2	86.2	83.0-89.5
45-54	958	19.2	15.7-22.8	2.1	1.0-3.2	78.7	75.1-82.3
55-64	662	35.6	30.9-40.3	2.1	0.9-3.2	62.4	57.6-67.2
25-64	3496	13.7	11.8-15.5	1.3	0.9-1.7	85.1	83.1-87.0

Smokeless tobacco use							
Both Sexes							
Age Group (years)	n	Current user				% Does not use smokeless tobacco	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
25-34	1454	1.7	1.0-2.4	0.5	0.2-0.8	97.8	97.1-98.6
35-44	1501	6.3	4.6-7.9	1.4	0.7-2.1	92.3	90.4-94.3
45-54	1454	12.2	9.9-14.5	1.5	0.7-2.3	86.3	83.9-88.7
55-64	1024	20.2	17.5-23.0	1.6	0.8-2.4	78.1	75.3-81.0
25-64	5433	7.6	6.6-8.7	1.1	0.8-1.5	91.2	90.1-92.4

Percentage of ex daily users of smokeless tobacco in the population

Description: Percentage of ex-daily users of smokeless tobacco among all respondents.

Instrument question: In the past, did you ever use smokeless tobacco such as [snuff, chewing tobacco, betel] daily?

Ex-daily smokeless tobacco users									
Age Group (years)	Men			Women			Both Sexes		
	n	% Ex daily users	95% CI	n	% Ex daily users	95% CI	n	% Ex daily users	95% CI
25-34	544	0.6	0.0-1.2	910	0.2	0.0-0.6	1454	0.4	0.0-0.8
35-44	535	1.2	0.2-2.2	966	1.3	0.4-2.1	1501	1.2	0.6-1.9
45-54	496	0.6	0.0-1.3	958	1.6	0.5-2.7	1454	1.2	0.5-1.9
55-64	362	1.7	0.2-3.3	662	2.5	1.2-3.8	1024	2.1	1.1-3.1
25-64	1937	0.9	0.4-1.4	3496	1.1	0.7-1.6	5433	1.0	0.7-1.3

Frequency of smokeless tobacco use among users by type

Description: Mean times per day smokeless tobacco used by smokeless tobacco users per day, by type.

Instrument question: On average, how many times a day do you use...?

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type												
Age Group (years)	Men											
	n	Snuff by mouth	95% CI	n	Snuff by nose	95% CI	n	Chewing tobacco	95% CI	n	Betel, quid	95% CI
25-34	0	0.0	----	0	0.0	----	0	0.0	----	0	0.0	----
35-44	3	0.0	----	3	0.0	----	3	0.0	----	3	5.1	0.3-10.0
45-54	16	1.2	0.0-3.2	16	0.0	----	16	0.1	0.0-0.3	16	1.8	1.2-2.4
55-64	12	0.0	----	12	0.7	0.0-2.1	12	0.2	0.0-0.5	12	2.0	1.2-2.9
25-64	31	0.6	0.0-1.8	31	0.2	0.0-0.7	31	0.1	0.0-0.3	31	2.3	1.4-3.2

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type												
Age Group (years)	Women											
	n	Snuff by mouth	95% CI	n	Snuff by nose	95% CI	n	Chewing tobacco	95% CI	n	Betel, quid	95% CI
25-34	32	0.1	0.0-0.4	32	0.0	----	32	1.0	0.5-1.5	32	2.5	1.7-3.4
35-44	117	0.2	0.0-0.4	117	0.0	----	118	0.4	0.1-0.6	117	3.1	2.7-3.5
45-54	199	0.1	0.0-0.1	199	0.0	0.0-0.0	199	0.5	0.3-0.7	198	4.1	3.5-4.8
55-64	244	0.1	0.0-0.2	244	0.0	0.0-0.0	244	1.0	0.7-1.3	246	3.4	3.1-3.8
25-64	592	0.1	0.0-0.2	592	0.0	0.0-0.0	593	0.7	0.5-0.9	593	3.5	3.2-3.8

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type												
Age Group (years)	Both Sexes											
	n	Snuff by mouth	95% CI	n	Snuff by nose	95% CI	n	Chewing tobacco	95% CI	n	Betel, quid	95% CI
25-34	32	0.1	0.0-0.4	32	0.0	----	32	1.0	0.5-1.5	32	2.5	1.7-3.4
35-44	120	0.1	0.0-0.3	120	0.0	----	121	0.4	0.1-0.6	120	3.2	2.7-3.7
45-54	215	0.2	0.0-0.5	215	0.0	0.0-0.0	215	0.5	0.3-0.7	214	3.8	3.3-4.4
55-64	256	0.1	0.0-0.2	256	0.1	0.0-0.2	256	0.9	0.6-1.2	258	3.3	2.9-3.6
25-64	623	0.2	0.0-0.3	623	0.0	0.0-0.1	624	0.6	0.5-0.8	624	3.4	3.1-3.7

Current tobacco users

Description: Percentage of daily and current (daily plus non-daily) tobacco users, includes smoking and smokeless, among all respondents.

Instrument questions: Do you currently smoke tobacco products daily? Do you currently use smokeless tobacco products daily?

Daily tobacco users									
Age Group (years)	Men			Women			Both Sexes		
	n	% Daily users	95% CI	n	% Daily users	95% CI	n	% Daily users	95% CI
25-34	544	40.2	35.6-44.9	910	6.3	4.0-8.6	1454	23.0	19.9-26.1
35-44	535	55.8	50.9-60.7	966	17.1	13.6-20.6	1501	37.0	33.4-40.6
45-54	496	54.8	49.5-60.1	958	24.8	20.8-28.8	1454	38.2	34.6-41.7
55-64	362	58.6	53.1-64.2	662	40.6	35.9-45.3	1024	49.2	45.3-53.2
25-64	1937	50.2	47.4-53.0	3496	18.0	15.7-20.3	5433	33.7	31.5-35.8

Current tobacco users									
Age Group (years)	Men			Women			Both Sexes		
	n	% Current users	95% CI	n	% Current users	95% CI	n	% Current users	95% CI
25-34	544	45.4	40.6-50.3	910	7.3	5.0-9.6	1454	26.1	22.8-29.3
35-44	535	60.3	55.5-65.1	966	19.3	15.6-23.0	1501	40.4	36.9-43.9
45-54	496	59.1	54.3-63.9	958	27.1	23.1-31.2	1454	41.3	37.9-44.8
55-64	362	64.9	59.7-70.1	662	42.7	38.0-47.5	1024	53.3	49.4-57.2
25-64	1937	55.1	52.3-57.9	3496	19.8	17.4-22.1	5433	37.0	34.8-39.1

Exposure to ETS in home in past 7 days

Description: Percentage of respondents exposed to environmental tobacco smoke in the home on one or more days in the past 7 days.

Instrument question: In the past 7 days, how many days did someone in the house smoke when you were present?

Exposed to ETS in home on 1 or more of the past 7 days									
Age Group (years)	Men			Women			Both Sexes		
	n	% Exposed	95% CI	n	% Exposed	95% CI	n	% Exposed	95% CI
25-34	544	35.0	29.7-40.3	910	47.8	43.8-51.7	1454	41.5	38.2-44.8
35-44	535	30.0	24.5-35.4	966	51.8	48.7-54.9	1501	40.6	37.3-43.9
45-54	496	33.5	28.6-38.4	958	49.1	45.2-53.0	1454	42.1	39.1-45.2
55-64	362	36.0	29.5-42.4	662	42.8	38.1-47.4	1024	39.5	35.7-43.4
25-64	1937	33.3	29.8-36.8	3496	48.5	46.2-50.9	5433	41.1	39.0-43.3

Exposure to ETS in the workplace in past 7 days

Description: Percentage of respondents exposed to environmental tobacco smoke in the workplace on one or more days in the past 7 days.

Instrument question: In the past 7 days, how many days did someone smoke in closed areas in your workplace (in the building, in a work area or a specific office) when you were present?

Exposed to ETS in the workplace on 1 or more of the past 7 days									
Age Group (years)	Men			Women			Both Sexes		
	n	% Exposed	95% CI	n	% Exposed	95% CI	n	% Exposed	95% CI
25-34	544	44.0	38.1-50.0	910	27.5	23.8-31.2	1454	35.7	31.7-39.6
35-44	535	47.9	42.1-53.8	965	31.9	27.9-35.9	1500	40.1	35.7-44.6
45-54	496	45.0	39.1-50.8	958	28.2	24.2-32.2	1454	35.7	31.6-39.7
55-64	362	40.0	33.6-46.4	662	23.3	19.5-27.1	1024	31.3	27.1-35.4
25-64	1937	44.9	40.6-49.3	3495	28.3	25.5-31.2	5432	36.4	33.1-39.7

Exposed to ETS in the workplace/home on 1 or more of the past 7 days									
Age Group (years)	Men			Women			Both Sexes		
	n	% Exposed	95% CI	n	% Exposed	95% CI	n	% Exposed	95% CI
25-34	544	56.9	51.6-62.1	910	56.3	52.6-60.0	1454	56.6	53.3-59.8
35-44	535	53.6	47.8-59.4	965	58.8	55.8-61.8	1500	56.1	52.5-59.8
45-54	496	53.4	48.0-58.7	958	55.7	52.0-59.5	1454	54.7	51.5-57.9
55-64	362	50.9	44.3-57.5	662	49.4	45.2-53.5	1024	50.1	46.4-53.8
25-64	1937	54.4	50.6-58.3	3495	56.0	53.8-58.1	5432	55.2	52.9-57.6

Alcohol Consumption

Alcohol consumption status

Description: Alcohol consumption status of all respondents.

Instrument questions: Have you consumed an alcoholic drink in the past 12 months? in the past 30 days?

Alcohol consumption status									
Men									
Age Group (years)	n	% Current drinker (past 30 days)	95% CI	% Drank in past 12 months, not current	95% CI	% Past 12 months abstainer	95% CI	% Lifetime abstainer	95% CI
25-34	544	84.9	81.4-88.4	6.9	4.8-9.1	2.6	1.0-4.2	5.6	3.4-7.8
35-44	535	78.2	74.2-82.2	8.4	6.0-10.8	5.4	3.2-7.5	8.0	5.9-10.1
45-54	496	72.5	68.3-76.6	9.7	6.9-12.5	7.0	4.6-9.3	10.9	8.0-13.8
55-64	362	52.1	46.0-58.2	7.0	4.5-9.6	21.8	16.5-27.1	19.1	14.6-23.5
25-64	1937	76.3	73.9-78.7	7.9	6.7-9.2	6.7	5.4-8.0	9.1	7.5-10.6

Alcohol consumption status									
Women									
Age Group (years)	n	% Current drinker (past 30 days)	95% CI	% Drank in past 12 months, not current	95% CI	% Past 12 months abstainer	95% CI	% Lifetime abstainer	95% CI
25-34	910	32.0	28.1-35.9	14.6	12.1-17.1	11.1	8.7-13.4	42.3	38.3-46.2
35-44	966	35.6	32.0-39.2	12.4	9.9-14.8	12.0	9.8-14.1	40.0	36.6-43.5
45-54	958	34.0	30.1-37.9	11.1	9.0-13.2	15.1	12.5-17.7	39.8	36.2-43.3
55-64	662	19.6	15.9-23.3	5.3	3.2-7.3	18.3	14.8-21.7	56.9	52.1-61.7
25-64	3496	31.9	29.6-34.2	12.0	10.6-13.4	13.2	11.8-14.6	43.0	40.5-45.4

Alcohol consumption status									
Both Sexes									
Age Group (years)	n	% Current drinker (past 30 days)	95% CI	% Drank in past 12 months, not current	95% CI	% Past 12 months abstainer	95% CI	% Lifetime abstainer	95% CI
25-34	1454	58.0	54.7-61.4	10.8	9.2-12.5	6.9	5.5-8.3	24.2	21.4-27.0
35-44	1501	57.5	54.7-60.3	10.3	8.7-12.0	8.6	7.0-10.1	23.6	21.5-25.7
45-54	1454	51.1	47.9-54.4	10.5	8.8-12.1	11.5	9.7-13.2	26.9	24.3-29.6
55-64	1024	35.2	31.6-38.8	6.1	4.4-7.8	19.9	16.6-23.3	38.8	35.0-42.6
25-64	5433	53.5	51.4-55.6	10.0	9.1-10.9	10.0	9.0-11.1	26.5	24.8-28.2

Frequency of alcohol consumption

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

Instrument question: During the past 12 months, how frequently have you had at least one alcoholic drink?

Frequency of alcohol consumption in the past 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
25-34	500	11.6	8.4-14.7	4.5	2.5-6.6	25.1	21.1-29.1	37.3	32.7-41.8	21.5	17.0-26.0
35-44	464	16.8	12.8-20.8	8.3	5.7-11.0	24.7	20.4-28.9	29.5	24.5-34.5	20.7	16.9-24.5
45-54	401	18.3	14.4-22.2	7.4	4.9-10.0	23.2	18.1-28.4	27.9	22.9-32.9	23.1	18.4-27.9
55-64	218	23.1	16.9-29.3	3.0	0.6-5.4	21.2	15.7-26.7	23.2	17.5-28.9	29.5	23.2-35.8
25-64	1583	15.5	13.3-17.7	6.2	4.7-7.6	24.3	21.9-26.7	31.8	29.0-34.6	22.3	19.6-25.0

Frequency of alcohol consumption in the past 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
25-34	424	4.8	2.7-7.0	0.5	0.0-1.3	8.3	5.5-11.1	30.8	25.2-36.3	55.5	49.6-61.5
35-44	461	9.6	6.5-12.8	0.3	0.0-0.8	9.4	6.6-12.1	32.2	27.0-37.4	48.5	43.0-54.0
45-54	423	14.3	10.1-18.4	1.8	0.5-3.0	9.4	5.9-12.8	27.4	22.4-32.4	47.2	41.8-52.6
55-64	160	19.1	12.1-26.2	1.6	0.0-3.8	14.5	8.2-20.8	23.9	16.5-31.3	40.8	32.5-49.2
25-64	1468	9.6	7.7-11.6	0.8	0.4-1.3	9.3	7.6-11.1	29.9	26.4-33.3	50.3	46.8-53.8

Frequency of alcohol consumption in the past 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
25-34	924	9.3	7.0-11.5	3.2	1.7-4.6	19.4	16.4-22.3	35.0	31.3-38.8	33.2	29.3-37.0
35-44	925	14.3	11.3-17.4	5.6	3.8-7.3	19.4	16.4-22.4	30.4	26.6-34.2	30.3	27.0-33.5
45-54	824	16.7	13.8-19.5	5.1	3.6-6.7	17.6	14.1-21.1	27.7	23.8-31.6	32.9	29.0-36.7
55-64	378	21.8	16.7-27.0	2.6	0.7-4.4	19.1	14.8-23.4	23.4	18.6-28.2	33.1	27.6-38.6
25-64	3051	13.4	11.8-15.1	4.3	3.3-5.2	19.0	17.2-20.8	31.1	28.7-33.5	32.2	29.8-34.6

Drinking occasions in the past 30 days

Description: Mean number of occasions with at least one drink in the past 30 days among current (past 30 days) drinkers.

Instrument question: During the past 30 days, on how many occasions did you have at least one alcoholic drink?

Mean number of drinking occasions in the past 30 days among current (past 30 days) drinkers									
Age Group (years)	Men			Women			Both Sexes		
	<i>n</i>	Mean	95% CI	<i>n</i>	Mean	95% CI	<i>n</i>	<i>Mean</i>	<i>95% CI</i>
25-34	457	8.4	7.5-9.4	290	5.4	4.3-6.4	747	7.6	6.8-8.3
35-44	417	11.2	10.0-12.3	338	6.7	5.6-7.7	755	9.8	8.9-10.8
45-54	351	10.9	9.8-12.0	319	9.0	7.5-10.4	670	10.2	9.3-11.1
55-64	189	11.4	9.5-13.2	124	10.6	8.3-12.9	313	11.1	9.6-12.7
25-64	1414	10.0	9.4-10.6	1071	7.1	6.3-7.8	2485	9.1	8.6-9.6

Standard drinks per drinking day

Description: Mean number of standard drinks consumed on a drinking occasion among current (past 30 days) drinker.

Instrument question: During the past 30 days, when you drank alcohol, on average, how many standard alcoholic drinks did you have during one occasion?

Mean number of standard drinks per drinking occasion among current (past 30 days) drinkers									
Age Group (years)	Men			Women			Both Sexes		
	<i>n</i>	Mean	95% CI	<i>n</i>	Mean	95% CI	<i>n</i>	<i>Mean</i>	<i>95% CI</i>
25-34	456	5.8	5.1-6.4	289	2.0	1.7-2.3	745	4.7	4.2-5.2
35-44	418	6.1	5.4-6.8	338	2.0	1.6-2.4	756	4.9	4.4-5.4
45-54	351	5.1	4.5-5.8	320	1.9	1.5-2.3	671	3.9	3.5-4.4
55-64	190	4.1	3.3-4.8	123	1.5	1.3-1.7	313	3.3	2.8-3.9
25-64	1415	5.6	5.2-6.0	1070	1.9	1.7-2.1	2485	4.5	4.2-4.8

Average volume drinking categories among all respondents

Description: Percentage of respondents engaging in category II and category III drinking.

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

Category II is defined as drinking 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 questions: During the past 30 days, on how many occasions did you have at least one alcoholic drink?

During the past 30 days, when you drank alcohol, on average, how many standard alcoholic drinks did you have during one occasion?

Category III drinking among all respondents									
Age Group (years)	Men			Women			Both Sexes		
	n	% Category III	95% CI	n	% Category III	95% CI	n	% Category III	95% CI
25-34	540	6.0	3.8-8.1	909	0.3	0.0-0.6	1449	3.1	2.0-4.2
35-44	533	9.5	6.7-12.3	964	0.2	0.0-0.5	1497	5.0	3.5-6.4
45-54	494	5.0	2.8-7.2	956	1.0	0.3-1.6	1450	2.8	1.7-3.8
55-64	361	3.7	1.3-6.1	661	0.2	0.0-0.5	1022	1.8	0.7-3.0
25-64	1928	6.6	5.3-7.8	3490	0.4	0.2-0.6	5418	3.4	2.8-4.0

Category II drinking among all respondents									
Age Group (years)	Men			Women			Both Sexes		
	n	% Category II	95% CI	n	% Category II	95% CI	n	% Category II	95% CI
25-34	540	4.7	2.7-6.6	909	0.9	0.3-1.6	1449	2.8	1.7-3.8
35-44	533	5.8	3.6-8.0	964	2.0	1.0-3.1	1497	4.0	2.6-5.3
45-54	494	6.5	4.3-8.8	956	2.8	1.7-3.9	1450	4.5	3.3-5.6
55-64	361	2.0	0.3-3.8	661	1.8	0.6-2.9	1022	1.9	0.7-3.1
25-64	1928	5.0	3.9-6.2	3490	1.8	1.3-2.3	5418	3.4	2.7-4.0

Category I drinking among all respondents									
Age Group (years)	Men			Women			Both Sexes		
	n	% Category I	95% CI	n	% Category I	95% CI	n	% Category I	95% CI
25-34	540	74.1	69.8-78.4	909	30.7	26.8-34.6	1449	52.0	48.5-55.4
35-44	533	62.9	58.2-67.5	964	33.2	29.7-36.7	1497	48.4	45.5-51.4
45-54	494	60.8	56.5-65.2	956	30.1	26.4-33.9	1450	43.8	40.7-46.9
55-64	361	46.2	40.3-52.2	661	17.6	14.0-21.1	1022	31.3	27.8-34.7
25-64	1928	64.6	61.9-67.2	3490	29.6	27.3-31.8	5418	46.6	44.5-48.6

Average volume drinking categories among current (past 30 days) drinkers

Description: Percentage of current (last 30 days) drinker engaging in category I, category II and category III drinking.

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

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

Category I is defined as drinking < 40 g of pure alcohol on average per day for men and < 20 for women.

A standard drink contains approximately 10g of pure alcohol.

Instrument questions: During the past 30 days, on how many occasions did you have at least one alcoholic drink?

During the past 30 days, when you drank alcohol, on average, how many standard alcoholic drinks did you have during one occasion?

Category I, II and III drinking among current (past 30 days) drinkers							
Men							
Age Group (years)	%		95% CI	%		95% CI	95% CI
	n	Category III		Category II	Category I		
25-34	456	7.0	4.5-9.6	5.5	3.2-7.8	87.5	84.3-90.7
35-44	417	12.2	8.7-15.6	7.4	4.6-10.2	80.4	75.9-85.0
45-54	350	6.9	3.9-9.9	9.0	6.0-12.0	84.1	80.1-88.0
55-64	189	7.1	2.6-11.6	3.9	0.7-7.2	89.0	83.6-94.3
25-64	1412	8.6	7.0-10.2	6.6	5.1-8.1	84.8	82.5-87.0

Category I, II and III drinking among current (past 30 days) drinkers							
Women							
Age Group (years)	%		95% CI	%		95% CI	95% CI
	n	Category III		Category II	Category I		
25-34	289	1.0	0.1-2.0	2.9	0.9-5.0	96.0	93.8-98.3
35-44	338	0.6	0.0-1.3	5.7	2.8-8.7	93.7	90.7-96.7
45-54	319	2.9	0.9-4.8	8.3	5.1-11.5	88.9	85.1-92.6
55-64	123	0.8	0.0-2.4	9.1	3.4-14.8	90.1	84.2-96.0
25-64	1069	1.3	0.6-2.0	5.6	4.0-7.3	93.1	91.3-94.9

Category I, II and III drinking among current (past 30 days) drinkers							
Both Sexes							
Age Group (years)	%		95% CI	%		95% CI	95% CI
	n	Category III		Category II	Category I		
25-34	745	5.3	3.5-7.2	4.8	3.0-6.6	89.9	87.5-92.3
35-44	755	8.7	6.2-11.2	6.9	4.6-9.2	84.4	81.1-87.8
45-54	669	5.4	3.4-7.4	8.7	6.6-10.9	85.9	83.0-88.7
55-64	312	5.3	2.0-8.6	5.4	2.2-8.7	89.3	84.6-94.0
25-64	2481	6.4	5.2-7.5	6.3	5.1-7.5	87.3	85.6-89.0

Largest number of drinks in the past 30 days

Description: Largest number of drinks consumed during a single occasion in the past 30 days among current (past 30 days) drinker).

Instrument question: During the past 30 days what was the largest number of standard alcoholic drinks you had on a single occasion, counting all types of alcoholic drinks together?

Mean maximum number of drinks consumed on one occasion in the past 30 days									
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
25-34	456	8.1	7.1-9.2	289	2.4	2.0-2.8	745	6.5	5.7-7.3
35-44	417	7.8	6.8-8.7	336	2.6	2.1-3.1	753	6.2	5.5-6.9
45-54	351	7.0	6.1-7.9	320	2.1	1.8-2.3	671	5.2	4.6-5.8
55-64	190	6.1	4.9-7.4	123	2.0	1.6-2.4	313	4.9	4.0-5.8
25-64	1414	7.6	7.0-8.2	1068	2.3	2.1-2.6	2482	6.0	5.5-6.5

Five/four or more drinks on a single occasion

Description: Percentage of men who had five or more/women who had four or more drinks on any day in the past 30 days during a single occasion among the total population.

Instrument question: During the past 30 days, how many times did you have
 for men: **five or more**
 for women: **four or more**
 standard alcoholic drinks in a single drinking occasion?

Five/four or more drinks on a single occasion at least once during the past 30 days among total population						
Age Group (years)	Men			Women		
	n	% ≥ 5 drinks	95% CI	n	% ≥ 4drinks	95% CI
25-34	544	53.1	47.6-58.6	910	5.0	3.2-6.8
35-44	535	48.6	43.5-53.6	966	5.6	4.0-7.2
45-54	496	38.7	34.2-43.3	958	3.5	2.3-4.8
55-64	362	22.7	18.0-27.3	662	2.8	1.2-4.4
25-64	1937	45.1	41.9-48.3	3496	4.6	3.5-5.6

Five/four or more drinks on a single occasion

Description: Mean number of times in the past 30 days on which current (past 30 days) drinker drank five (for men)/four (for women) or more drinks during a single occasion among current (past 30 days) drinkers.

Instrument question: During the past 30 days, how many times did you have
 for men: **five or more**
 for women: **four or more**
 standard alcoholic drinks in a single drinking occasion?

Mean number of times with five/four or more drinks during a single occasion in the past 30 days among current drinkers						
Age Group (years)	Men			Women		
	n	Mean number of times	95% CI	n	Mean number of times	95% CI
25-34	453	3.3	2.8-3.9	289	0.5	0.2-0.7
35-44	413	4.0	3.2-4.7	336	0.4	0.2-0.5
45-54	347	3.3	2.6-3.9	320	0.4	0.2-0.7
55-64	188	2.4	1.6-3.3	122	0.3	0.0-0.5
25-64	1401	3.4	3.0-3.8	1067	0.4	0.3-0.6

Drinking with meals

Description: Percentage of current (past 30 days) drinkers who usually, sometimes, rarely or never drink with meals.

Instrument questions: During the past 30 days, when you consumed an alcoholic drink, how often was it with meals? (Please do not count snacks)

Drinking with meals among current drinker									
Age Group (years)	Men								
	n	% Usually with meals	95% CI	% Sometimes with meals	95% CI	% Rarely with meals	95% CI	% Never with meals	95% CI
25-34	460	42.1	35.8-48.5	24.8	19.1-30.4	11.1	7.5-14.7	22.0	17.2-26.8
35-44	419	42.3	36.1-48.6	27.3	21.8-32.8	10.8	7.6-14.0	19.5	14.8-24.3
45-54	352	47.4	40.6-54.2	29.6	24.1-35.1	6.0	3.2-8.7	17.1	12.5-21.6
55-64	190	52.2	43.5-60.9	23.4	15.9-30.8	8.8	4.5-13.1	15.7	9.9-21.5
25-64	1421	44.0	39.5-48.5	26.4	22.9-29.8	9.8	7.6-12.0	19.8	16.3-23.3

Drinking with meals among current drinker									
Age Group (years)	Women								
	n	% Usually with meals	95% CI	% Sometimes with meals	95% CI	% Rarely with meals	95% CI	% Never with meals	95% CI
25-34	290	47.2	39.5-55.0	17.2	12.4-22.1	8.6	5.4-11.9	26.9	20.1-33.8
35-44	340	48.0	40.4-55.6	19.4	14.7-24.2	8.5	4.9-12.2	24.0	18.4-29.6
45-54	321	47.2	39.5-55.0	18.4	13.9-22.9	10.1	6.1-14.2	24.2	18.0-30.3
55-64	124	55.1	43.3-66.9	18.2	10.4-25.9	9.3	3.1-15.5	17.4	9.3-25.6
25-64	1075	48.1	42.7-53.5	18.3	15.2-21.3	9.0	6.5-11.5	24.6	20.3-28.9

Drinking with meals among current drinker									
Age Group (years)	Both Sexes								
	n	% Usually with meals	95% CI	% Sometimes with meals	95% CI	% Rarely with meals	95% CI	% Never with meals	95% CI
25-34	750	43.6	38.2-49.0	22.7	18.3-27.0	10.4	7.6-13.2	23.4	19.2-27.6
35-44	759	44.0	38.4-49.7	25.0	20.7-29.2	10.1	7.5-12.7	20.9	16.7-25.1
45-54	673	47.3	41.3-53.3	25.5	21.3-29.6	7.5	5.3-9.7	19.7	15.6-23.7
55-64	314	53.0	45.3-60.8	21.9	16.2-27.6	8.9	5.4-12.4	16.2	11.2-21.2
25-64	2496	45.3	41.0-49.6	23.9	21.1-26.7	9.6	7.8-11.4	21.2	17.9-24.5

Past 7 days drinking

Description: Frequency and quantity of drinks consumed in the past 7 days by current (past 30 days) drinkers, 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 past 7 days							
Age Group (years)	Men						
	n	% Drank on 4+ days	95% CI	% 5+ drinks on any day	95% CI	% 20+ drinks in 7 days	95% CI
25-34	439	24.6	20.4-28.8	35.8	30.1-41.5	16.7	13.0-20.5
35-44	398	34.6	29.5-39.7	36.8	31.0-42.6	21.7	17.4-26.1
45-54	339	32.9	27.5-38.2	32.9	27.8-38.0	19.7	14.8-24.5
55-64	179	32.9	25.4-40.5	21.1	14.7-27.5	15.8	9.9-21.7
25-64	1355	30.0	27.3-32.7	34.3	30.6-38.1	18.8	16.2-21.4

Frequency and quantity of drinks consumed in the past 7 days							
Age Group (years)	Women						
	n	% Drank on 4+ days	95% CI	% 4+ drinks on any day	95% CI	% 15+ drinks in 7 days	95% CI
25-34	282	10.5	6.2-14.8	4.5	1.9-7.2	1.5	0.2-2.8
35-44	325	20.3	15.1-25.5	6.5	3.7-9.2	2.4	0.8-4.0
45-54	315	24.4	18.6-30.2	4.5	2.3-6.8	4.6	2.3-6.9
55-64	121	34.7	24.9-44.6	2.6	0.0-5.6	2.9	0.2-5.6
25-64	1043	18.9	15.7-22.2	5.0	3.4-6.5	2.7	1.7-3.6

Frequency and quantity of drinks consumed in the past 7 days			
Age Group (years)	Both Sexes		
	n	% Drank on 4+ days	95% CI
25-34	721	20.6	17.3-23.9
35-44	723	30.3	26.3-34.3
45-54	654	29.7	25.8-33.6
55-64	300	33.5	26.9-40.0
25-64	2398	26.6	24.4-28.8

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? how many days do you eat vegetables?

Mean number of days fruit consumed in a typical week									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	537	2.6	2.3-2.9	905	2.9	2.7-3.1	1442	2.7	2.5-3.0
35-44	527	2.2	2.0-2.4	954	2.8	2.5-3.0	1481	2.5	2.3-2.7
45-54	489	2.3	2.0-2.5	947	2.6	2.4-2.8	1436	2.5	2.3-2.6
55-64	356	2.7	2.4-3.0	654	2.8	2.5-3.0	1010	2.7	2.5-3.0
25-64	1909	2.4	2.2-2.6	3460	2.8	2.6-2.9	5369	2.6	2.4-2.8

Mean number of days vegetables consumed in a typical week									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	544	5.4	5.2-5.6	910	5.2	5.1-5.4	1454	5.3	5.2-5.4
35-44	535	5.4	5.2-5.6	966	5.3	5.1-5.5	1501	5.4	5.2-5.5
45-54	496	5.6	5.4-5.7	957	5.4	5.2-5.5	1453	5.5	5.3-5.6
55-64	362	5.4	5.2-5.7	662	5.1	5.0-5.3	1024	5.3	5.1-5.4
25-64	1937	5.4	5.3-5.5	3495	5.3	5.2-5.4	5432	5.3	5.2-5.5

Mean number of days vegetables/fruit consumed in a typical week									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
25-34	537	5.6	5.4-5.7	905	5.6	5.4-5.7	1442	5.6	5.4-5.7
35-44	527	5.6	5.4-5.7	954	5.6	5.5-5.8	1481	5.6	5.5-5.7
45-54	489	5.8	5.6-5.9	947	5.6	5.5-5.8	1436	5.7	5.6-5.8
55-64	356	5.7	5.5-5.9	654	5.5	5.4-5.7	1010	5.6	5.5-5.7
25-64	1909	5.6	5.5-5.7	3460	5.6	5.5-5.7	5369	5.6	5.5-5.7

Mean number of servings of fruit and vegetable consumption

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

Instrument questions:

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

Mean number of servings of fruit on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	536	1.1	0.9-1.3	905	1.1	1.0-1.2	1441	1.1	1.0-1.2
35-44	527	0.9	0.8-1.1	954	1.1	0.9-1.2	1481	1.0	0.9-1.1
45-54	489	0.9	0.8-1.1	947	0.9	0.8-1.0	1436	0.9	0.8-1.0
55-64	356	1.1	0.9-1.3	654	1.1	0.9-1.2	1010	1.1	0.9-1.2
25-64	1908	1.0	0.9-1.1	3460	1.1	1.0-1.1	5368	1.0	0.9-1.1

Mean number of servings of vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	544	2.1	1.9-2.2	910	1.9	1.7-2.0	1454	2.0	1.8-2.1
35-44	535	2.0	1.9-2.2	966	1.9	1.7-2.0	1501	2.0	1.8-2.1
45-54	496	2.1	1.9-2.3	957	1.9	1.8-2.0	1453	2.0	1.9-2.1
55-64	362	2.0	1.8-2.2	662	1.8	1.6-2.0	1024	1.9	1.8-2.1
25-64	1937	2.1	1.9-2.2	3495	1.9	1.8-2.0	5432	2.0	1.8-2.1

Mean number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI	n	Mean number of servings	95% CI
25-34	544	3.1	2.9-3.4	910	3.0	2.8-3.2	1454	3.1	2.9-3.3
35-44	535	2.9	2.7-3.2	966	2.9	2.7-3.1	1501	2.9	2.8-3.1
45-54	496	3.0	2.8-3.3	957	2.8	2.6-3.0	1453	2.9	2.7-3.1
55-64	362	3.1	2.8-3.4	662	2.8	2.6-3.1	1024	3.0	2.8-3.2
25-64	1937	3.1	2.9-3.2	3495	2.9	2.8-3.1	5432	3.0	2.8-3.1

Fruit and vegetable consumption per day

Description: Frequency of fruit and/or vegetable consumption.

Instrument questions:

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

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Men								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	544	11.1	8.2-14.1	44.6	39.8-49.4	25.9	21.6-30.3	18.3	14.3-22.3
35-44	535	12.2	9.1-15.2	46.9	42.0-51.7	27.6	23.6-31.7	13.4	9.8-16.9
45-54	496	9.8	7.0-12.6	48.9	43.9-53.9	24.1	19.9-28.2	17.3	13.1-21.4
55-64	362	9.0	5.7-12.4	47.4	41.0-53.8	24.6	19.5-29.6	19.0	13.8-24.2
25-64	1937	10.9	9.1-12.7	46.5	43.3-49.7	25.9	23.4-28.5	16.7	13.8-19.5

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Women								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	910	11.9	9.0-14.8	48.0	44.1-51.8	24.5	21.4-27.5	15.7	12.5-18.9
35-44	966	11.0	8.5-13.6	49.9	46.2-53.6	25.1	21.8-28.3	14.0	11.3-16.8
45-54	957	11.5	9.2-13.7	50.5	46.5-54.6	24.4	21.1-27.6	13.6	10.5-16.8
55-64	662	13.2	9.8-16.5	49.9	45.3-54.5	21.6	17.8-25.3	15.3	11.9-18.7
25-64	3495	11.7	9.9-13.5	49.3	46.8-51.9	24.2	22.4-26.1	14.7	12.5-16.9

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	Both Sexes								
	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
25-34	1454	11.5	9.2-13.7	46.3	43.1-49.5	25.2	22.5-27.9	17.0	14.0-19.9
35-44	1501	11.6	9.6-13.6	48.3	45.2-51.5	26.4	23.6-29.2	13.7	11.1-16.3
45-54	1453	10.7	8.8-12.7	49.8	46.4-53.2	24.2	21.4-27.0	15.2	12.4-18.1
55-64	1024	11.2	8.7-13.7	48.7	44.6-52.9	23.0	19.8-26.2	17.1	13.5-20.6
25-64	5432	11.3	9.8-12.8	48.0	45.6-50.3	25.1	23.2-26.9	15.7	13.4-17.9

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
25-34	544	81.7	77.7-85.7	910	84.3	81.1-87.5	1454	83.0	80.1-86.0
35-44	535	86.6	83.1-90.2	966	86.0	83.2-88.7	1501	86.3	83.7-88.9
45-54	496	82.7	78.6-86.9	957	86.4	83.2-89.5	1453	84.8	81.9-87.6
55-64	362	81.0	75.8-86.2	662	84.7	81.3-88.1	1024	82.9	79.4-86.5
25-64	1937	83.3	80.5-86.2	3495	85.3	83.1-87.5	5432	84.3	82.1-86.6

Type of oil used most frequently

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

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

Type of oil or fat most often used for meal preparation in household														
n (households)	% Vegetable oil	95% CI	% Lard	95% CI	% Butter	95% CI	% Margarine	95% CI	% none in particular	95% CI	% None used	95% CI	% Other	95% CI
5432	71.9	68.9-75.0	14.0	11.6-16.4	0.0	---	0.0	----	13.4	11.7-15.1	0.7	0.3-1.0	0.0	----

Eating outside home

Description: Mean number of meals per week eaten outside a home.

Instrument question: On average, how many meals per week do you eat that were not prepared at a home? By meal, I mean breakfast, lunch and dinner

Mean number of meals eaten outside a home									
Age Group (years)	Men			Women			Both Sexes		
	n	mean	95% CI	n	mean	95% CI	n	mean	95% CI
25-34	544	1.8	1.5-2.1	908	1.5	1.3-1.7	1452	1.6	1.5-1.8
35-44	534	2.1	1.8-2.4	964	1.3	1.1-1.5	1498	1.7	1.5-1.9
45-54	493	1.5	1.3-1.8	958	1.3	1.1-1.5	1451	1.4	1.2-1.6
55-64	362	1.4	1.1-1.7	661	1.1	0.9-1.3	1023	1.2	1.0-1.4
25-64	1933	1.8	1.6-2.0	3491	1.3	1.2-1.5	5424	1.6	1.4-1.7

Physical Activity

Levels of total physical activity

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

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

Level of total physical activity							
Age Group (years)	Men						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	544	9.5	6.3-12.8	8.8	6.1-11.5	81.7	77.6-85.8
35-44	535	10.0	7.4-12.6	10.3	7.5-13.2	79.7	75.8-83.6
45-54	495	13.5	10.2-16.9	12.5	9.2-15.9	73.9	69.0-78.9
55-64	362	12.8	9.1-16.5	16.1	11.9-20.2	71.2	65.3-77.0
25-64	1936	10.9	9.1-12.7	10.9	9.1-12.7	78.2	75.5-80.9

Level of total physical activity							
Age Group (years)	Women						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	910	10.7	8.4-13.0	15.4	12.7-18.1	73.9	70.6-77.2
35-44	964	8.7	6.7-10.7	15.3	12.6-18.1	76.0	72.5-79.4
45-54	958	9.2	7.0-11.3	14.3	11.5-17.1	76.5	73.2-79.9
55-64	662	14.4	11.4-17.4	19.1	15.3-23.0	66.5	61.5-71.4
25-64	3494	10.3	8.8-11.7	15.6	13.8-17.5	74.1	71.8-76.5

Level of total physical activity							
Age Group (years)	Both Sexes						
	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
25-34	1454	10.1	8.2-12.1	12.2	10.2-14.1	77.7	74.9-80.5
35-44	1499	9.4	7.5-11.2	12.8	10.6-14.9	77.9	74.9-80.8
45-54	1453	11.1	9.1-13.1	13.5	11.2-15.8	75.4	72.2-78.5
55-64	1024	13.6	11.1-16.2	17.7	14.6-20.7	68.7	64.5-72.9
25-64	5430	10.6	9.3-11.8	13.3	11.8-14.8	76.1	74.0-78.3

Total physical activity- mean

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

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

Mean minutes of total physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	544	328.3	305.9-350.7	910	246.4	232.2-260.5	1454	286.7	272.1-301.3
35-44	535	318.8	295.5-342.1	964	259.2	243.5-274.9	1499	289.9	273.4-306.4
45-54	495	278.6	259.0-298.2	958	245.4	231.0-259.7	1453	260.1	247.1-273.1
55-64	362	237.3	213.5-261.2	662	208.0	190.1-225.9	1024	222.0	206.0-238.0
25-64	1936	304.2	289.8-318.6	3494	244.7	234.4-255.0	5430	273.7	262.7-284.6

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	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	544	325.7	150.0-480.0	910	240.0	98.6-360.0	1454	270.0	120.0-430.0
35-44	535	317.1	120.0-480.0	964	240.0	120.0-390.0	1499	270.0	120.0-428.6
45-54	495	261.4	90.0-435.0	958	210.0	110.0-360.0	1453	240.0	102.9-405.0
55-64	362	210.0	72.9-372.9	662	180.0	60.0-310.0	1024	180.0	60.0-332.9
25-64	1936	300.0	120.0-480.0	3494	214.3	90.0-360.0	5430	244.3	111.4-420.0

Domain-specific physical activity- mean

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

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

Mean minutes of work-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	544	287.2	265.8-308.7	910	223.8	209.5-238.0	1454	255.0	240.8-269.2
35-44	535	287.4	264.9-309.9	964	231.3	216.7-246.0	1499	260.2	244.3-276.0
45-54	495	251.2	232.6-269.7	958	219.7	205.4-233.9	1453	233.7	221.1-246.3
55-64	362	214.2	191.0-237.5	662	183.4	167.0-199.7	1024	198.1	182.8-213.4
25-64	1936	271.0	256.9-285.2	3494	219.7	209.5-229.9	5430	244.7	233.9-255.5

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
25-34	544	24.9	20.6-29.2	910	20.5	17.5-23.4	1454	22.7	19.8-25.5
35-44	535	24.2	20.3-28.1	964	26.0	22.6-29.3	1499	25.0	22.4-27.7
45-54	495	22.7	18.6-26.7	958	21.5	18.5-24.6	1453	22.0	19.4-24.7
55-64	362	17.9	14.4-21.5	662	19.0	15.5-22.6	1024	18.5	15.9-21.1
25-64	1936	23.4	20.8-25.9	3494	22.0	20.1-24.0	5430	22.7	20.8-24.6

Mean minutes of recreation-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
25-34	544	16.2	11.6-20.7	910	2.1	0.9-3.3	1454	9.0	6.7-11.3
35-44	535	7.3	4.9-9.6	964	1.9	1.1-2.7	1499	4.7	3.4-5.9
45-54	495	4.8	2.9-6.6	958	4.2	2.7-5.6	1453	4.4	3.3-5.6
55-64	362	5.1	3.3-7.0	662	5.6	3.9-7.4	1024	5.4	4.0-6.8
25-64	1936	9.8	7.9-11.7	3494	3.0	2.2-3.8	5430	6.3	5.3-7.3

Domain-specific physical activity – median

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

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

Median minutes of work-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	544	300.0	120.0-471.4	910	180.0	60.0-360.0	1454	240.0	90.0-420.0
35-44	535	300.0	102.9-450.0	964	180.0	90.0-360.0	1499	240.0	90.0-420.0
45-54	495	240.0	68.6-420.0	958	180	64.3-360.0	1453	210.0	68.6-360.0
55-64	362	180.0	51.4-360	662	124.3	42.9-300.0	1024	162.9	45.0-300.0
25-64	1936	257.1	90.0-420.0	3494	180.0	60.0-360.0	5430	240.0	72.9-390.0

Median minutes of transport-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	544	0.0	0.0-30.0	910	0.0	0.0-23.6	1454	0.0	0.0-30.0
35-44	535	0.0	0.0-30.0	964	4.3	0.0-30.0	1499	0.0	0.0-30.0
45-54	495	0.0	0.0-30.0	958	0.0	0.0-30.0	1453	0.0	0.0-30.0
55-64	362	0.0	0.0-25.7	662	0.0	0.0-20.0	1024	0.0	0.0-21.4
25-64	1936	0.0	0.0-30.0	3494	0.0	0.0-30.0	5430	0.0	0.0-30.0

Median minutes of recreation-related physical activity on average per day									
Age Group (years)	Men			Women			Both Sexes		
	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)	n	Median minutes	Inter-quartile range (P25-P75)
25-34	544	0.0	0.0-2.1	910	0.0	0.0-0.0	1454	0.0	0.0-0.0
35-44	535	0.0	0.0-0.0	964	0.0	0.0-0.0	1499	0.0	0.0-0.0
45-54	495	0.0	0.0-0.0	958	0.0	0.0-0.0	1453	0.0	0.0-0.0
55-64	362	0.0	0.0-0.0	662	0.0	0.0-0.0	1024	0.0	0.0-0.0
25-64	1936	0.0	0.0-0.0	3494	0.0	0.0-0.0	5430	0.0	0.0-0.0

No physical activity by domain

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

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

No work-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at work	95% CI	n	% no activity at work	95% CI	n	% no activity at work	95% CI
25-34	544	8.5	5.3-11.7	910	10.6	8.3-12.9	1454	9.6	7.5-11.6
35-44	535	8.0	5.6-10.5	964	7.8	5.9-9.7	1499	7.9	6.3-9.5
45-54	495	10.1	7.1-13.1	958	10.1	7.9-12.3	1453	10.1	8.3-11.9
55-64	362	11.7	7.9-15.4	662	13.6	10.9-16.3	1024	12.6	10.3-15.0
25-64	1936	9.1	7.4-10.8	3494	10.1	8.7-11.5	5430	9.6	8.4-10.8

No transport-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI	n	% no activity for transport	95% CI
25-34	544	54.2	49.0-59.4	910	55.0	50.9-59.0	1454	54.6	50.9-58.3
35-44	535	56.5	51.4-61.5	964	48.3	44.4-52.3	1499	52.5	49.1-55.9
45-54	495	57.4	52.3-62.5	958	52.0	47.9-56.1	1453	54.4	50.9-57.9
55-64	362	59.1	53.7-64.5	662	57.4	52.5-62.2	1024	58.2	54.6-61.8
25-64	1936	56.1	52.8-59.5	3494	52.8	50.1-55.5	5430	54.4	51.9-56.9

No recreation-related physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI	n	% no activity at recreation	95% CI
25-34	544	75.0	70.4-79.6	910	93.8	91.7-95.9	1454	84.5	81.9-87.1
35-44	535	84.8	81.6-88.0	964	92.9	91.2-94.7	1499	88.7	86.8-90.6
45-54	495	84.7	80.8-88.6	958	87.0	84.0-90.0	1453	86.0	83.2-88.7
55-64	362	85.1	80.6-89.7	662	84.3	80.6-87.9	1024	84.7	81.4-88.0
25-64	1936	81.2	78.6-83.7	3494	90.7	89.1-92.3	5430	86.1	84.3-87.9

Composition of total physical activity

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

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

Composition of total physical activity							
Men							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
25-34	524	82.0	79.2-84.8	10.3	8.4-12.2	7.7	5.4-10.0
35-44	507	86.7	84.3-89.0	9.7	7.9-11.6	3.6	2.3-4.9
45-54	464	85.5	82.8-88.2	10.4	8.4-12.4	4.1	2.4-5.9
55-64	342	83.0	79.7-86.3	12.4	9.8-15.0	4.6	2.6-6.6
25-64	1837	84.2	82.5-86.0	10.4	9.0-11.8	5.4	4.2-6.5

Composition of total physical activity							
Women							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
25-34	849	86.8	84.8-88.9	11.9	10.0-13.7	1.3	0.5-2.1
35-44	917	85.6	83.9-87.3	12.8	11.2-14.5	1.6	0.8-2.3
45-54	905	84.7	82.6-86.7	11.8	10.1-13.5	3.5	2.3-4.7
55-64	605	82.6	80.3-84.9	12.2	10.2-14.2	5.2	3.6-6.8
25-64	3276	85.4	84.1-86.7	12.2	11.0-13.4	2.4	1.7-3.0

Composition of total physical activity							
Both Sexes							
Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
25-34	1373	84.4	82.5-86.3	11.1	9.6-12.5	4.5	3.2-5.8
35-44	1424	86.2	84.6-87.7	11.2	9.9-12.6	2.6	1.8-3.4
45-54	1369	85.0	83.2-86.9	11.2	9.8-12.6	3.8	2.7-4.9
55-64	947	82.8	80.7-84.9	12.3	10.7-13.9	4.9	3.5-6.4
25-64	5113	84.9	83.6-86.2	11.3	10.2-12.4	3.8	3.1-4.6

No vigorous physical activity

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

Instrument questions: activity at work, recreational activities

No vigorous physical activity									
Age Group (years)	Men			Women			Both Sexes		
	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI
25-34	544	37.1	32.3-41.8	910	83.4	80.4-86.5	1454	60.6	57.0-64.2
35-44	535	44.0	39.4-48.7	964	76.9	73.6-80.3	1499	60.0	57.0-63.1
45-54	495	52.5	47.6-57.4	958	76.7	73.3-80.0	1453	65.9	62.8-69.1
55-64	362	61.1	55.2-67.1	662	80.8	77.0-84.6	1024	71.4	67.7-75.1
25-64	1936	45.3	42.3-48.2	3494	79.7	77.6-81.9	5430	63.0	60.7-65.2

Sedentary

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

Instrument question: sedentary behavior

Minutes spent in sedentary activities on average per day					
Age Group (years)	Men				
	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
25-34	544	226.6	214.5-238.7	210.0	150.0-300.0
35-44	535	232.6	221.4-243.7	240.0	180.0-300.0
45-54	496	225.5	213.9-237.1	210.0	150.0-300.0
55-64	362	258.5	241.6-275.3	240.0	180.0-300.0
25-64	1937	232.2	223.9-240.4	240.0	180.0-300.0

Minutes spent in sedentary activities on average per day					
Age Group (years)	Women				
	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
25-34	910	259.2	247.8-270.6	240.0	180.0-360.0
35-44	966	252.8	241.7-263.9	240.0	180.0-300.0
45-54	958	248.1	236.1-260.1	240.0	150.0-300.0
55-64	662	278.1	265.1-291.2	240.0	180.0-360.0
25-64	3496	257.3	248.6-266.0	240.0	180.0-330.0

Minutes spent in sedentary activities on average per day					
Age Group (years)	Both Sexes				
	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
25-34	1454	243.2	233.6-252.8	240.0	150.0-300.0
35-44	1501	242.4	233.2-251.6	240.0	180.0-300.0
45-54	1454	238.0	228.3-247.8	240.0	150.0-300.0
55-64	1024	268.7	256.5-280.9	240.0	180.0-360.0
25-64	5433	245.1	237.3-252.8	240.0	180.0-300.0

Blood Pressure and Diabetes History

Blood pressure measurement and diagnosis

Description: Blood pressure measurement and diagnosis among all respondents.

Instrument questions:

- Have you ever had your blood pressure measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?
- Have you been told in the past 12 months?

Blood pressure measurement and diagnosis									
Men									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
25-34	544	69.2	64.2-74.2	29.2	24.3-34.2	0.8	0.0-1.6	0.8	0.0-1.8
35-44	535	62.7	58.0-67.3	34.0	29.6-38.3	1.3	0.3-2.2	2.1	0.9-3.3
45-54	496	56.3	51.0-61.7	34.0	28.9-39.0	4.2	2.5-6.0	5.5	3.1-7.8
55-64	362	48.9	43.5-54.3	35.5	30.3-40.6	5.2	2.8-7.6	10.5	6.4-14.6
25-64	1937	62.1	58.9-65.3	32.4	29.3-35.4	2.2	1.5-2.8	3.4	2.5-4.2

Blood pressure measurement and diagnosis									
Women									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
25-34	910	41.2	37.3-45.0	54.3	50.4-58.2	2.3	1.3-3.3	2.2	1.2-3.3
35-44	966	42.5	38.5-46.6	49.2	45.3-53.1	3.2	2.1-4.4	5.0	3.5-6.5
45-54	958	38.2	34.5-41.9	45.5	41.5-49.4	5.5	3.8-7.3	10.8	8.6-13.0
55-64	662	37.7	32.9-42.5	38.3	34.0-42.7	7.6	5.2-9.9	16.4	12.7-20.1
25-64	3496	40.4	37.8-43.0	48.8	46.3-51.2	4.0	3.2-4.7	6.8	5.9-7.8

Blood pressure measurement and diagnosis									
Both sexes									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
25-34	1454	54.9	51.4-58.5	42.0	38.4-45.5	1.6	0.9-2.2	1.6	0.8-2.3
35-44	1501	52.9	49.5-56.3	41.4	38.1-44.6	2.2	1.4-3.0	3.5	2.6-4.5
45-54	1454	46.3	42.8-49.7	40.3	36.8-43.9	5.0	3.7-6.2	8.4	6.8-10.1
55-64	1024	43.1	39.3-46.9	36.9	33.5-40.4	6.4	4.9-8.0	13.6	10.5-16.6
25-64	5433	51.0	48.5-53.5	40.8	38.4-43.2	3.1	2.6-3.6	5.1	4.4-5.8

Blood pressure treatment among those diagnosed

Description: raised blood pressure treatment results among those previously diagnosed with raised blood pressure.

Instrument questions:

- Have you ever been told by a doctor or other health worker that you have raised 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?

Currently taking blood pressure drugs prescribed by doctor or health worker among those diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
25-34	9	36.1	0.0-74.2	44	16.6	5.2-28.0	53	21.6	7.2-36.0
35-44	20	36.7	14.8-58.7	84	31.2	20.6-41.7	104	32.9	23.2-42.5
45-54	48	40.1	25.0-55.3	165	47.0	37.7-56.3	213	44.8	36.8-52.8
55-64	58	38.1	24.5-51.7	168	49.2	39.7-58.7	226	45.0	36.4-53.7
25-64	135	38.4	28.5-48.2	461	39.7	33.8-45.6	596	39.3	33.8-44.7

Blood pressure lifestyle advice

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

Instrument questions:

- When was your blood pressure last measured by a health professional?
- Have you ever been told by a doctor or other health worker that you have raised 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?

Advised by doctor or health worker to reduce salt intake among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	9	16.6	0.0-40.0	44	54.0	38.3-69.7	53	44.4	31.0-57.7
35-44	20	62.0	39.1-85.0	84	62.1	51.1-73.1	104	62.1	51.7-72.4
45-54	48	61.0	47.4-74.5	165	71.9	64.7-79.2	213	68.4	61.8-75.0
55-64	58	62.9	48.3-77.5	168	68.0	59.4-76.6	226	66.1	58.1-74.1
25-64	135	57.0	46.6-67.4	461	66.0	60.9-71.2	596	63.1	57.9-68.3

Advised by doctor or health worker to lose weight among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	9	16.6	0.0-40.0	44	29.7	15.3-44.0	53	26.3	14.5-38.1
35-44	20	39.8	17.2-62.4	84	40.8	30.1-51.4	104	40.5	30.1-50.9
45-54	48	55.2	40.6-69.7	165	48.4	40.4-56.5	213	50.6	43.2-58.0
55-64	58	46.7	29.6-63.7	168	52.8	43.7-61.9	226	50.5	41.1-60.0
25-64	135	45.1	34.6-55.5	461	45.2	39.4-51.0	596	45.2	39.4-50.9

Advised by doctor or health worker to stop smoking among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	9	27.1	0.0-56.0	44	27.3	12.8-41.7	53	27.2	15.2-39.2
35-44	20	61.5	39.0-84.1	84	40.4	29.3-51.5	104	46.8	36.4-57.1
45-54	48	63.3	48.4-78.2	165	46.4	38.3-54.5	213	51.8	44.0-59.7
55-64	58	63.5	49.0-78.1	168	50.2	41.5-59.0	226	55.2	47.0-63.4
25-64	135	59.1	48.5-69.7	461	43.3	37.7-49.0	596	48.5	42.9-54.0

Advised by doctor or health worker to start or do more exercise among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	9	16.6	0.0-40.0	44	31.5	16.8-46.1	53	27.6	15.0-40.3
35-44	20	51.6	28.2-75.0	84	53.7	42.0-65.5	104	53.1	42.6-63.5
45-54	48	69.9	56.7-83.2	165	58.5	50.4-66.6	213	62.2	55.0-69.4
55-64	58	63.2	49.0-77.4	168	64.9	56.5-73.2	226	64.2	56.2-72.3
25-64	135	58.3	48.0-68.5	461	55.2	49.4-61.0	596	56.2	50.6-61.8

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 among those previously diagnosed with raised blood pressure.

Instrument questions:

- When was your blood pressure last measured by a health professional?
- Have you ever been told by a doctor or other health worker that you have raised blood pressure or
- Have you ever 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 among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	9	0.0	0.0-0.0	44	18.9	6.2-31.7	53	14.1	4.1-24.0
35-44	20	8.7	0.0-21.4	84	16.0	8.0-24.0	104	13.8	6.9-20.7
45-54	48	18.1	5.1-31.2	165	14.4	8.6-20.1	213	15.6	9.9-21.2
55-64	58	15.1	6.0-24.1	168	17.3	11.0-23.6	226	16.5	11.1-21.9
25-64	135	13.3	7.1-19.5	461	16.3	12.6-19.9	596	15.3	12.2-18.4

Currently taking herbal or traditional remedy for high blood pressure among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	9	0.0	0.0-0.0	44	11.8	1.1-22.4	53	8.7	0.5-17.0
35-44	20	13.4	0.0-28.7	84	12.7	5.4-19.9	104	12.9	6.0-19.9
45-54	48	7.5	0.0-15.1	165	16.0	9.2-22.7	213	13.2	8.0-18.5
55-64	58	11.5	2.5-20.5	168	15.8	9.6-22.0	226	14.2	9.1-19.2
25-64	135	9.2	4.1-14.3	461	14.6	10.8-18.4	596	12.8	9.9-15.8

Diabetes measurement and diagnosis

Description: Diabetes measurement and diagnosis among all respondents.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- Have you been told in the past 12 months?

Blood sugar measurement and diagnosis									
Men									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
25-34	544	89.1	85.9-92.4	10.6	7.4-13.8	0.1	0.0-0.3	0.2	0.0-0.5
35-44	535	86.9	83.5-90.3	13.0	9.6-16.3	0.0	0.0-0.0	0.2	0.0-0.4
45-54	496	84.5	80.8-88.2	12.3	8.9-15.8	0.6	0.0-1.4	2.5	0.9-4.1
55-64	362	82.7	78.3-87.1	14.7	10.4-19.0	1.0	0.1-1.8	1.6	0.3-2.9
25-64	1937	86.7	84.7-88.7	12.2	10.3-14.0	0.3	0.1-0.5	0.8	0.4-1.2

Blood sugar measurement and diagnosis									
Women									
Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
25-34	910	85.7	82.6-88.8	13.8	10.7-16.8	0.4	0.0-0.9	0.2	0.0-0.4
35-44	966	85.0	81.9-88.1	13.7	10.7-16.7	0.2	0.0-0.4	1.1	0.4-1.8
45-54	958	79.9	76.4-83.3	15.9	12.9-19.0	0.9	0.2-1.6	3.3	1.8-4.7
55-64	662	78.7	74.7-82.7	15.5	12.0-19.0	0.2	0.0-0.4	5.7	3.4-7.9
25-64	3496	83.2	81.1-85.3	14.5	12.5-16.4	0.4	0.2-0.7	1.9	1.3-2.4

Blood sugar measurement and diagnosis									
Age Group (years)	Both sexes								
	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
25-34	1454	87.4	85.1-89.6	12.2	10.0-14.4	0.3	0.0-0.5	0.2	0.0-0.3
35-44	1501	86.0	83.6-88.4	13.3	10.9-15.7	0.1	0.0-0.2	0.6	0.2-1.0
45-54	1454	81.9	79.2-84.7	14.3	11.9-16.8	0.8	0.3-1.3	2.9	1.8-4.1
55-64	1024	80.6	77.4-83.8	15.1	12.4-17.8	0.5	0.1-1.0	3.7	2.3-5.2
25-64	5433	84.9	83.2-86.6	13.4	11.8-14.9	0.4	0.2-0.5	1.3	1.0-1.7

Diabetes treatment among those diagnosed

Description: Diabetes treatment results among those previously diagnosed with raised blood sugar or diabetes.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- Are you currently receiving any of the following treatments/advice for diabetes prescribed by a doctor or other health worker?

Currently taking insulin prescribed for diabetes among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking insulin	95% CI	n	% taking insulin	95% CI	n	% taking insulin	95% CI
25-34	2	59.4	0.0-100.0	5	0.0	0.0-0.0	7	18.3	0.0-50.9
35-44	1	0.0	0.0-0.0	12	4.8	0.0-14.4	13	4.2	0.0-12.8
45-54	17	0.0	0.0-0.0	38	23.9	7.0-40.8	55	14.9	3.7-26.1
55-64	12	19.4	0.0-42.5	35	15.3	2.1-28.4	47	16.5	4.9-28.1
25-64	32	11.1	0.0-23.4	90	16.0	7.5-24.5	122	14.5	7.6-21.3

Currently taking oral drugs prescribed for diabetes among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
25-34	2	59.4	0.0-100.0	5	63.5	20.0-100.0	7	62.2	25.0-99.4
35-44	1	100.0	100.0-100.0	12	27.3	0.0-54.8	13	35.4	6.7-64.0
45-54	17	65.9	40.8-91.1	38	58.2	44.1-72.3	55	61.1	48.1-74.1
55-64	12	70.5	42.3-98.8	35	57.4	39.4-75.4	47	61.2	47.5-74.9
25-64	32	68.2	51.1-85.2	90	53.7	43.4-64.0	122	58.2	50.3-66.1

Diabetes lifestyle advice

Description: Percentage of respondents who received diabetes lifestyle advice from a doctor or health worker among those previously diagnosed with diabetes.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- Are you currently receiving any of the following treatments/advice for diabetes prescribed by a doctor or other health worker?

Advised by doctor or health worker to have special prescribed diet among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	2	59.4	0.0-100.0	5	100.0	100.0-100.0	7	87.5	63.8-100.0
35-44	1	100.0	100.0-100.0	12	51.9	21.3-82.4	13	57.2	27.9-86.5
45-54	17	91.6	79.3-100.0	38	78.3	65.9-90.6	55	83.3	73.7-92.8
55-64	12	84.5	62.6-100.0	35	81.7	69.3-94.1	47	82.5	71.8-93.2
25-64	32	87.0	75.5-98.5	90	77.3	69.1-85.5	122	80.3	73.5-87.1

Advised by doctor or health worker to lose weight among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	2	59.4	0.0-100.0	5	100.0	100.0-100.0	7	87.5	63.8-100.0
35-44	1	100.0	100.0-100.0	12	51.9	21.3-82.4	13	57.2	27.9-86.5
45-54	17	71.8	51.5-92.0	38	65.3	51.8-78.8	55	67.7	56.9-78.5
55-64	12	81.4	56.8-100.0	35	77.2	62.1-92.4	47	78.5	67.6-89.3
25-64	32	74.7	60.2-89.2	90	70.3	61.0-79.6	122	71.7	63.0-80.3

Advised by doctor or health worker to stop smoking among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	2	59.4	0.0-100.0	5	42.2	0.0-89.2	7	47.5	7.9-87.1
35-44	1	100.0	100.0-100.0	12	31.8	5.3-58.3	13	39.3	11.2-67.5
45-54	17	91.6	79.3-100.0	38	60.6	45.3-75.9	55	72.2	60.6-83.8
55-64	12	81.4	56.8-100.0	35	76.3	60.9-91.7	47	77.8	65.5-90.1
25-64	32	86.1	74.1-98.0	90	59.7	48.2-71.2	122	67.9	58.4-77.3

Advised by doctor or health worker to start or do more exercise among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	2	59.4	0.0-100.0	5	100.0	100.0-100.0	7	87.5	63.8-100.0
35-44	1	100.0	100.0-100.0	12	51.9	21.3-82.4	13	57.2	27.9-86.5
45-54	17	80.8	60.9-100.0	38	80.1	67.8-92.4	55	80.3	70.1-90.6
55-64	12	82.4	58.1-100.0	35	88.4	77.0-99.8	47	86.7	77.1-96.3
25-64	32	80.2	65.3-95.0	90	80.3	71.9-88.7	122	80.3	72.0-88.5

Diabetes advice by traditional healer

Description: Percentage of respondents who have sought advice or treatment from traditional healers for diabetes among those previously diagnosed.

Instrument questions:

- Have you ever had your blood sugar measured by a doctor or other health worker?
- Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?
- Have you ever seen a traditional healer for diabetes or raised blood sugar?
- Are you currently taking any herbal or traditional remedy for your diabetes?

Seen a traditional healer for diabetes among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	2	59.4	0.0-100.0	5	0.0	0.0-0.0	13	18.3	0.0-50.9
35-44	1	0.0	0.0-0.0	12	18.0	0.0-41.6	55	16.0	0.0-37.3
45-54	17	24.8	0.9-48.7	38	37.0	22.3-51.7	47	32.4	17.8-47.0
55-64	12	23.8	0.0-50.7	35	25.0	5.1-44.9	122	24.7	9.2-40.2
25-64	32	26.5	8.0-45.1	90	26.8	16.9-36.7		26.7	18.0-35.5

Currently taking herbal or traditional treatment for diabetes among those previously diagnosed									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	2	0.0	0.0-0.0	5	21.0	0.0-58.8	7	14.6	0.0-41.6
35-44	1	0.0	0.0-0.0	12	36.7	6.2-67.3	13	32.7	4.4-61.0
45-54	17	0.0	0.0-0.0	38	26.6	13.4-39.8	55	16.6	6.2-27.0
55-64	12	32.2	0.6-63.8	35	32.2	12.6-51.8	47	32.2	15.2-49.2
25-64	32	9.6	0.0-21.2	90	29.5	18.8-40.2	122	23.3	14.5-32.1

Physical Measurements

Height, weight and BMI

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

Instrument questions: Height, Weight

Mean height (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	526	162.4	161.8-163.0	883	152.1	151.7-152.6
35-44	518	162.1	161.6-162.7	955	152.4	151.9-152.8
45-54	482	160.9	160.4-161.4	941	151.6	151.2-152.0
55-64	355	160.2	159.6-160.9	651	150.7	150.2-151.2
25-64	1881	161.7	161.4-162.1	3430	151.9	151.6-152.2

Mean weight (kg)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	526	56.7	56.1-57.4	827	49.4	48.7-50.0
35-44	519	57.4	56.5-58.3	925	52.3	51.5-53.1
45-54	482	56.8	55.9-57.7	941	51.8	51.1-52.5
55-64	356	55.2	54.2-56.3	650	49.4	48.5-50.4
25-64	1883	56.8	56.3-57.2	3343	50.8	50.3-51.2

Mean BMI (kg/m ²)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	526	21.5	21.3-21.7	827	21.3	21.1-21.5	1353	21.4	21.2-21.6
35-44	518	21.8	21.5-22.1	925	22.5	22.2-22.8	1443	22.1	21.9-22.4
45-54	482	21.9	21.6-22.2	938	22.6	22.3-22.9	1420	22.3	22.1-22.5
55-64	352	21.6	21.2-21.9	644	21.8	21.4-22.2	996	21.7	21.4-22.0
25-64	1878	21.7	21.5-21.8	3334	22.0	21.8-22.2	5212	21.8	21.7-22.0

BMI categories:

Description: Percentage of respondents (excluding pregnant women) in each BMI category.
Instrument questions: Height, Weight

BMI classifications									
Age Group (years)	Men								
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
25-34	526	7.3	4.7-9.9	85.1	81.4-88.7	7.1	4.7-9.5	0.6	0.0-1.1
35-44	518	9.5	6.9-12.1	78.0	74.1-81.9	11.0	8.0-13.9	1.6	0.5-2.7
45-54	482	10.7	7.2-14.3	74.6	70.0-79.2	14.0	10.3-17.8	0.7	0.0-1.4
55-64	352	15.6	11.4-19.7	68.2	63.5-73.0	14.2	10.6-17.7	2.0	0.5-3.5
25-64	1878	9.7	8.1-11.2	78.7	76.6-80.8	10.5	9.0-12.1	1.1	0.6-1.5

BMI classifications									
Age Group (years)	Women								
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
25-34	827	16.5	13.1-19.9	71.6	67.6-75.5	10.8	8.2-13.3	1.2	0.4-1.9
35-44	925	11.1	9.0-13.3	65.9	62.4-69.4	19.7	16.9-22.6	3.3	1.9-4.6
45-54	938	13.4	11.0-15.8	62.6	59.2-66.0	20.3	17.3-23.3	3.8	2.4-5.2
55-64	644	20.9	17.8-24.0	58.7	54.7-62.6	17.1	13.7-20.6	3.3	1.5-5.1
25-64	3334	14.9	13.3-16.4	66.1	64.1-68.2	16.3	14.7-18.0	2.7	2.0-3.3

BMI classifications									
Age Group (years)	Both Sexes								
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
25-34	1353	11.8	9.6-14.1	78.4	75.4-81.4	8.9	7.0-10.8	0.9	0.4-1.3
35-44	1443	10.3	8.5-12.0	72.2	69.4-75.0	15.2	13.0-17.3	2.4	1.5-3.3
45-54	1420	12.2	10.2-14.2	67.9	65.0-70.8	17.5	15.0-20.0	2.4	1.5-3.3
55-64	996	18.3	15.6-21.0	63.3	60.0-66.5	15.7	13.2-18.2	2.7	1.6-3.8
25-64	5212	12.3	11.1-13.5	72.4	70.8-74.0	13.5	12.2-14.7	1.9	1.4-2.3

BMI>25

Description: Percentage of respondents being classified as overweight (BMI≥25)

Instrument questions: Height, Weight

BMI≥25									
Age Group (years)	Men			Women			Both Sexes		
	n	% BMI≥25	95% CI	n	% BMI≥25	95% CI	n	% BMI≥25	95% CI
25-34	526	7.6	5.1-10.2	827	11.9	9.3-14.5	1353	9.8	7.8-11.7
35-44	518	12.6	9.4-15.7	925	23.0	19.8-26.1	1443	17.5	15.0-20.0
45-54	482	14.7	10.9-18.6	938	24.1	20.8-27.3	1420	19.9	17.3-22.5
55-64	352	16.2	12.6-19.8	644	20.4	16.5-24.4	996	18.4	15.5-21.4
25-64	1878	11.6	9.9-13.3	3334	19.0	17.1-20.9	5212	15.4	13.9-16.8

Waist circumference

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

Instrument question: Waist circumference measurement

Waist circumference (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	526	74.1	73.4-74.7	827	72.6	71.9-73.3
35-44	518	76.5	75.6-77.4	925	76.5	75.7-77.3
45-54	483	77.8	76.9-78.7	941	77.8	76.9-78.6
55-64	356	77.5	76.5-78.5	650	77.4	76.2-78.5
25-64	1883	76.0	75.5-76.5	3343	75.5	75.0-76.1

Hip circumference

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

Instrument question: Hip circumference measurement

Hip circumference (cm)						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	526	88.2	87.7-88.7	827	88.5	87.9-89.0
35-44	518	89.1	88.4-89.7	925	90.3	89.6-91.0
45-54	483	88.5	87.9-89.2	941	90.2	89.6-90.8
55-64	355	88.0	87.2-88.8	650	88.8	87.9-89.6
25-64	1882	88.5	88.1-88.9	3343	89.4	89.0-89.8

Waist / hip ratio

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

Instrument question: Waist and hip circumference measurement

Mean waist / hip ratio						
Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
25-34	526	0.8	0.8-0.8	827	0.8	0.8-0.8
35-44	518	0.9	0.9-0.9	925	0.8	0.8-0.9
45-54	483	0.9	0.9-0.9	941	0.9	0.9-0.9
55-64	355	0.9	0.9-0.9	650	0.9	0.9-0.9
25-64	1882	0.9	0.9-0.9	3343	0.8	0.8-0.8

Blood pressure

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

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

Mean systolic blood pressure (mmHg)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	526	117.5	116.2-118.8	884	106.6	105.6-107.6	1410	112.0	111.0-112.9
35-44	519	119.0	117.7-120.3	956	112.1	111.0-113.2	1475	115.7	114.7-116.6
45-54	483	122.3	120.4-124.2	941	117.1	115.7-118.5	1424	119.4	118.2-120.6
55-64	356	126.0	123.5-128.5	651	120.4	118.5-122.2	1007	123.1	121.4-124.7
25-64	1884	120.0	119.1-120.9	3432	112.3	111.6-113.1	5316	116.1	115.4-116.7

Mean diastolic blood pressure (mmHg)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	526	71.1	69.8-72.5	884	67.6	66.7-68.4	1410	69.3	68.5-70.2
35-44	519	74.4	73.3-75.4	956	71.7	70.8-72.5	1475	73.1	72.3-73.8
45-54	483	76.8	75.4-78.3	941	73.0	72.1-73.9	1424	74.7	73.8-75.6
55-64	356	77.1	75.2-79.0	651	72.8	71.6-73.9	1007	74.8	73.7-76.0
25-64	1884	74.0	73.2-74.8	3432	70.6	70.0-71.2	5316	72.3	71.7-72.9

Raised blood pressure

Description: Percentage of respondents with 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 medication for raised blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	525	5.9	3.4-8.3	881	2.0	0.9-3.1	1406	3.9	2.5-5.3
35-44	517	11.7	9.0-14.4	943	6.9	5.1-8.8	1460	9.4	7.6-11.2
45-54	472	16.3	12.6-20.0	892	11.6	9.0-14.2	1364	13.8	11.5-16.1
55-64	334	22.4	17.2-27.7	594	15.1	11.8-18.3	928	18.7	15.4-22.0
25-64	1848	11.7	10.1-13.3	3310	7.2	6.2-8.2	5158	9.4	8.4-10.4

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
25-34	526	6.1	3.7-8.6	884	2.3	1.1-3.4	1410	4.2	2.8-5.6
35-44	519	11.9	9.2-14.7	956	8.2	6.3-10.1	1475	10.1	8.3-11.9
45-54	483	17.9	14.0-21.7	941	16.0	13.0-19.1	1424	16.9	14.4-19.4
55-64	356	26.6	21.2-32.1	651	22.0	18.4-25.5	1007	24.2	20.7-27.7
25-64	1884	12.8	11.1-14.5	3432	9.6	8.5-10.8	5316	11.2	10.1-12.3

SBP ≥160 and/or DBP ≥ 100 mmHg, excluding those on medication for raised blood pressure									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	525	1.7	0.1-3.3	881	0.4	0.0-0.9	1406	1.1	0.2-1.9
35-44	517	2.7	1.4-4.1	943	1.8	0.9-2.7	1460	2.3	1.5-3.1
45-54	472	5.3	2.9-7.7	892	3.0	1.8-4.3	1364	4.1	2.8-5.4
55-64	334	9.4	5.5-13.2	594	4.0	2.3-5.6	928	6.6	4.3-8.8
25-64	1848	3.7	2.6-4.7	3310	1.8	1.4-2.3	5158	2.7	2.1-3.3

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
25-34	526	2.0	0.3-3.7	884	0.7	0.1-1.3	1410	1.3	0.5-2.2
35-44	519	3.0	1.5-4.5	956	3.1	2.0-4.2	1475	3.1	2.1-4.0
45-54	483	7.1	4.5-9.6	941	7.9	5.9-9.9	1424	7.5	5.9-9.2
55-64	356	14.3	10.0-18.5	651	11.7	8.9-14.6	1007	12.9	10.2-15.7
25-64	1884	4.8	3.7-6.0	3432	4.5	3.7-5.3	5316	4.6	3.9-5.4

Treatment and control of raised blood pressure

Description: Percentage of respondents with treated and/or controlled of raised blood pressure among those with raised blood pressure (SBP \geq 140 and/or DBP \geq 90 mmHg) or currently on medication for raised blood pressure.

Instrument questions:

- 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

Respondents with treated and/or controlled raised blood pressure							
Men							
Age Group (years)	n	% On medication and SBP<140 and DBP<90	95% CI	% On medication and SBP \geq 140 and/orDBP \geq 90	95% CI	% Not on medication and SBP \geq 140 and/orDBP \geq 90	95% CI
25-34	27	4.6	0.0-13.5	0.0	0.0-0.0	95.4	86.5-100.0
35-44	65	1.5	0.0-4.4	0.8	0.0-2.4	97.7	94.5-100.0
45-54	84	6.0	1.4-10.7	4.4	0.0-9.5	89.6	82.4-96.8
55-64	97	12.7	5.4-20.1	7.6	1.9-13.2	79.7	70.6-88.8
25-64	273	6.2	3.2-9.2	3.4	1.4-5.5	90.4	86.8-94.0

Respondents with treated and/or controlled raised blood pressure							
Women							
Age Group (years)	n	% On medication and SBP<140 and DBP<90	95% CI	% On medication and SBP \geq 140 and/orDBP \geq 90	95% CI	% Not on medication and SBP \geq 140 and/orDBP \geq 90	95% CI
25-34	20	11.7	0.0-24.8	0.0	0.0-0.0	88.3	75.2-100.0
35-44	77	7.0	1.4-12.7	9.0	2.4-15.6	84.0	74.8-93.2
45-54	155	22.5	15.1-29.9	8.7	3.4-14.0	68.8	59.8-77.7
55-64	146	21.2	13.7-28.7	15.7	8.3-23.0	63.2	53.6-72.7
25-64	398	17.6	13.1-22.1	10.1	6.3-13.8	72.3	66.4-78.3

Respondents with treated and/or controlled raised blood pressure							
Both Sexes							
Age Group (years)	n	% On medication and SBP<140 and DBP<90	95% CI	% On medication and SBP \geq 140 and/orDBP \geq 90	95% CI	% Not on medication and SBP \geq 140 and/orDBP \geq 90	95% CI
25-34	47	6.5	0.0-13.7	0.0	0.0-0.0	93.5	86.3-100.0
35-44	142	3.7	0.5-6.8	4.0	1.3-6.8	92.3	88.0-96.6
45-54	239	14.8	10.2-19.4	6.7	3.0-10.4	78.5	72.4-84.6
55-64	243	16.7	11.2-22.2	11.4	6.9-15.9	71.9	64.3-79.5
25-64	671	11.3	8.5-14.1	6.4	4.2-8.5	82.4	78.4-86.3

Mean heart rate

Description: Mean heart rate (beats per minute).

Instrument question: Reading 1-3 heart rate

Mean heart rate (beats per minute)									
Age Group (years)	Men			Women			Both Sexes		
	n	mean	95% CI	n	mean	95% CI	n	mean	95% CI
25-34	526	76.2	75.0-77.4	884	84.9	83.9-86.0	1410	80.7	79.7-81.6
35-44	519	75.6	74.5-76.8	956	83.5	82.6-84.4	1475	79.5	78.6-80.3
45-54	483	76.8	75.6-78.1	941	80.0	79.1-80.8	1424	78.6	77.8-79.3
55-64	356	76.1	74.6-77.6	651	79.8	78.6-81.0	1007	78.0	77.0-79.1
25-64	1884	76.2	75.4-76.9	3432	82.7	82.1-83.4	5316	79.5	78.9-80.1

Biochemical Measurements

Mean fasting blood glucose

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

Instrument questions:

- During the last 12 hours have you had anything to eat or drink, other than water?
- Blood glucose measurement

Mean fasting blood glucose (mmol/L)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	490	3.9	3.9-4.0	842	3.7	3.6-3.8	1332	3.8	3.7-3.9
35-44	500	3.9	3.8-4.0	930	3.8	3.8-3.9	1430	3.9	3.8-4.0
45-54	463	4.2	4.1-4.4	922	4.2	4.1-4.3	1385	4.2	4.1-4.3
55-64	342	4.0	3.9-4.1	634	4.4	4.2-4.6	976	4.2	4.0-4.3
25-64	1795	4.0	3.9-4.1	3328	3.9	3.9-4.0	5123	4.0	3.9-4.0

Mean fasting blood glucose (mg/dl)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	490	71.1	69.4-72.8	842	66.5	65.0-67.9	1332	68.7	67.5-70.0
35-44	500	70.9	69.3-72.5	930	69.2	67.7-70.8	1430	70.1	68.8-71.4
45-54	463	76.0	73.1-79.0	922	75.6	73.2-78.1	1385	75.8	73.8-77.8
55-64	342	71.5	69.4-73.6	634	78.5	74.8-82.3	976	75.2	72.8-77.5
25-64	1795	72.1	70.8-73.3	3328	70.9	69.6-72.3	5123	71.5	70.4-72.6

Raised blood glucose

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:

- 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
- 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
25-34	490	2.4	0.9-3.9	842	0.7	0.0-1.4	1332	1.5	0.7-2.3
35-44	500	0.9	0.0-1.8	930	0.9	0.2-1.6	1430	0.9	0.3-1.5
45-54	463	1.7	0.6-2.7	922	1.4	0.5-2.2	1385	1.5	0.9-2.2
55-64	342	2.8	0.8-4.8	634	1.5	0.5-2.5	976	2.1	1.0-3.2
25-64	1795	1.8	1.2-2.5	3328	1.0	0.6-1.4	5123	1.4	1.0-1.8

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
25-34	490	1.3	0.1-2.5	842	0.9	0.1-1.7	1332	1.1	0.4-1.8
35-44	500	2.2	0.9-3.5	930	2.3	1.2-3.3	1430	2.2	1.4-3.0
45-54	463	4.0	2.1-5.8	922	5.5	3.5-7.5	1385	4.8	3.5-6.1
55-64	342	4.2	2.0-6.3	634	7.7	5.1-10.4	976	6.0	4.4-7.7
25-64	1795	2.5	1.7-3.3	3328	3.3	2.5-4.0	5123	2.9	2.3-3.4

Currently on medication for diabetes									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	490	0.6	0.0-1.6	842	0.4	0.0-0.9	1332	0.5	0.0-1.0
35-44	500	0.4	0.0-0.9	930	0.6	0.1-1.0	1430	0.5	0.1-0.8
45-54	463	1.8	0.3-3.4	922	2.8	1.5-4.1	1385	2.4	1.3-3.4
55-64	342	3.1	1.2-5.0	634	3.9	2.0-5.7	976	3.5	2.2-4.8
25-64	1795	1.1	0.5-1.7	3328	1.5	1.0-1.9	5123	1.3	0.9-1.7

* Impaired fasting glycaemia is defined as either

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

** Raised blood glucose is defined as either

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

Total cholesterol:

Description: Mean total cholesterol among all respondents including those currently on medication for raised cholesterol.

Instrument questions: Total cholesterol measurement

Mean total cholesterol (mmol/L)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	506	4.3	4.2-4.3	856	4.4	4.4-4.5	1362	4.4	4.3-4.4
35-44	508	4.4	4.4-4.5	941	4.4	4.4-4.5	1449	4.4	4.4-4.5
45-54	476	4.5	4.4-4.5	929	4.7	4.7-4.8	1405	4.6	4.6-4.7
55-64	354	4.5	4.4-4.6	640	4.8	4.8-4.9	994	4.7	4.6-4.7
25-64	1844	4.4	4.4-4.4	3366	4.6	4.5-4.6	5210	4.5	4.4-4.5

Mean total cholesterol (mg/dl)									
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
25-34	506	165.7	164.0-167.5	856	171.4	169.6-173.2	1362	168.6	167.3-170.0
35-44	508	171.1	168.7-173.6	941	172.1	170.1-174.0	1449	171.6	169.9-173.3
45-54	476	173.1	170.5-175.7	929	183.2	180.6-185.8	1405	178.7	176.7-180.7
55-64	354	173.8	170.8-176.8	640	187.4	184.2-190.6	994	180.9	178.4-183.4
25-64	1844	169.9	168.4-171.4	3366	176.4	175.0-177.9	5210	173.2	172.0-174.5

Raised total cholesterol

Description: Percentage of respondents with raised total cholesterol and percentage of respondents currently on medication for raised cholesterol.

Instrument questions:

- Total cholesterol measurement
- During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker?

Total cholesterol ≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	506	11.6	8.5-14.8	856	17.3	14.5-20.2	1362	14.5	12.4-16.7
35-44	508	19.8	15.8-23.7	941	18.6	15.6-21.5	1449	19.2	16.5-21.9
45-54	476	20.4	16.5-24.3	929	33.5	29.6-37.4	1405	27.7	24.7-30.6
55-64	354	20.8	16.3-25.2	640	39.0	34.8-43.3	994	30.2	26.9-33.6
25-64	1844	17.0	14.8-19.2	3366	24.2	22.2-26.3	5210	20.7	19.0-22.5

Total cholesterol \geq 6.2 mmol/L or \geq 240 mg/dl or currently on medication for raised cholesterol									
Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
25-34	506	0.9	0.1-1.7	856	1.2	0.4-1.9	1362	1.0	0.5-1.6
35-44	508	2.7	1.2-4.2	941	2.4	1.3-3.6	1449	2.6	1.6-3.6
45-54	476	3.9	2.1-5.7	929	6.6	4.8-8.3	1405	5.4	4.0-6.7
55-64	354	4.7	2.1-7.2	640	10.0	7.2-12.9	994	7.4	5.2-9.7
25-64	1844	2.5	1.6-3.4	3366	3.9	3.2-4.7	5210	3.2	2.6-3.9

Summary of Combined Risk Factors

Summary of Combined Risk Factors

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

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

Instrument questions: combined from Step 1 and Step 2

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	1040	6.1	4.4-7.9	83.6	80.9-86.3	10.2	8.3-12.2
45-64	824	5.4	3.6-7.1	72.4	69.3-75.5	22.2	19.5-25.0
25-64	1864	5.9	4.4-7.4	80.0	77.9-82.2	14.1	12.5-15.7

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	1725	10.2	8.2-12.2	85.5	83.3-87.8	4.2	3.2-5.3
45-64	1543	6.1	4.6-7.7	83.7	81.5-85.9	10.2	8.5-11.9
25-64	3268	8.7	7.1-10.3	84.8	83.0-86.7	6.5	5.6-7.3

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	2765	8.1	6.5-9.7	84.5	82.6-86.5	7.3	6.2-8.5
45-64	2367	5.8	4.5-7.1	78.5	76.6-80.3	15.7	14.2-17.3
25-64	5132	7.3	6.0-8.6	82.4	80.9-84.0	10.2	9.3-11.2

Appendix 12: Fact Sheet



CAMBODIA STEPS Survey 2010

1. BOTH URBAN AND RURAL AREAS

The STEPS survey of chronic disease risk factors in Cambodia was carried out from February 2010 to April 2010. Cambodia carried out Step 1, Step 2 and Step 3. Socio demographic and behavioral information were collected in Step 1. Physical measurements such as height, weight and blood pressure were collected in Step 2, biochemical measurements were collected to assess blood glucose and cholesterol levels in Step 3. The STEPS survey in Cambodia was a population-based survey of adults aged 25-64. A Multiple Stages Cluster sample design was used to produce representative data for that age range in Cambodia. A total of 5433 adults participated in the Cambodia STEPS survey. The overall response rate was 96.30%. A repeat survey is planned for 2015 if funds permit.

Results for adults aged 25-64 years (incl. 95% CI)	Both Sexes	Males	Females
Step 1 Tobacco Use			
Percentage who currently smoke tobacco	29.4% (27.4-31.3)	54.1% (51.3-56.9)	5.9% (4.3-7.5)
Percentage who currently smoke tobacco daily	26.4% (24.5-28.3)	49.3% (46.5-52.1)	4.8% (3.3-6.2)
<i>For those who smoke tobacco daily</i>			
Average age started smoking (years)	20.4 (20.0-20.8)	20.1 (19.7-20.5)	23.3 (21.2-25.3)
Percentage of daily smokers smoking manufactured cigarettes	87.1% (84.0-90.2)	88.1% (85.2-90.9)	77.5% (66.4-88.6)
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	12.8 (11.9-13.6)	13.4 (12.5-14.2)	6.9 (5.6-8.2)
Step 1 Alcohol Consumption			
Percentage who are lifetime abstainers	26.5% (24.8-28.2)	9.1% (7.5-10.6)	43.0% (40.5-45.4)
Percentage who are past 12 month abstainers	10.0% (9.0-11.1)	6.7% (5.4-8.0)	13.2% (11.8-14.6)
Percentage who currently drink (drank alcohol in the past 30 days)	53.5% (51.4-55.6)	76.3% (73.9-78.7)	31.9% (29.6-34.2)
Percentage who engage in heavy episodic drinking (men who had 5 or more / women who had 4 or more drinks on any day in the past 30 days)	NA	45.1% (41.9-48.3)	4.6% (3.5-5.6)
Step 1 Fruit and Vegetable Consumption (in a typical week)			
Mean number of days fruit consumed	2.6 (2.4-2.8)	2.4 (2.2-2.6)	2.8 (2.6-2.9)
Mean number of servings of fruit consumed on average per day	1.0 (0.9-1.1)	1.0 (0.9-1.1)	1.1 (1.0-1.1)
Mean number of days vegetables consumed	5.3 (5.2-5.5)	5.4 (5.3-5.5)	5.3 (5.2-5.4)
Mean number of servings of vegetables consumed on average per day	2.0 (1.8-2.1)	2.1 (1.9-2.2)	1.9 (1.8-2.0)
Percentage who ate less than 5 servings of fruit and/or vegetables on average per day	84.3% (82.1-86.6)	83.3% (80.5-86.2)	85.3% (83.1-87.5)

Step 1 Physical Activity			
Percentage with low levels of activity (defined as < 600 MET-minutes per week)*	10.6% (9.3-11.8)	10.9% (9.1-12.7)	10.3% (8.8-11.7)
Percentage with high levels of activity (defined as ≥ 3000 MET-minutes per week)*	76.1% (74.0-78.3)	78.2% (75.5-80.9)	74.1% (71.8-76.5)
Median time spent in physical activity on average per day (minutes) (presented with inter-quartile range)	244.3 (111.4-420.0)	300.0 (120.0-480.0)	214.3 (90.0-360.0)
Percentage not engaging in vigorous activity	63.0% (60.7-65.2)	45.3% (42.3-48.2)	79.7% (77.6-81.9)
Step 2 Physical Measurements			
Mean body mass index - BMI (kg/m ²)	21.8 (21.7-22.0)	21.7 (21.5-21.8)	22.0 (21.8-22.2)
Percentage who are overweight (BMI ≥ 25 kg/m ²)	15.4% (13.9-16.8)	11.6% (9.9-13.3)	19.0% (17.1-20.9)
Percentage who are obese (BMI ≥ 30 kg/m ²)	1.9% (1.4-2.3)	1.1% (0.6-1.5)	2.7% (2.0-3.3)
Average waist circumference (cm)	NA	76.0 (75.5-76.5)	75.5 (75.0-76.1)
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP	116.1 (115.4-116.7)	120.0 (119.1-120.9)	112.3 (111.6-113.1)
Mean diastolic blood pressure - DBP (mmHg) , including those currently on medication for raised BP	72.3 (71.7-72.9)	74.0 (73.2-74.8)	70.6 (70.0-71.2)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	11.2% (10.1-12.3)	12.8% (11.1-14.5)	9.6% (8.5-10.8)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) who are not currently on medication for raised BP	9.4% (8.4-10.4)	11.7% (10.1-13.3)	7.2% (6.2-8.2)
Step 3 Biochemical Measurement			
Mean fasting blood glucose, including those currently on medication for raised blood glucose [mg/dl]	71.5 (70.4-72.6)	72.1 (70.8-73.3)	70.9 (69.6-72.3)
Percentage with impaired fasting glycaemia as defined below <ul style="list-style-type: none"> • plasma venous value ≥6.1 mmol/L (110 mg/dl) and <7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥5.6 mmol/L (100 mg/dl) and <6.1 mmol/L (110 mg/dl) 	1.4% (1.0-1.8)	1.8% (1.2-2.5)	1.0% (0.6-1.4)
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose <ul style="list-style-type: none"> • plasma venous value ≥ 7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥ 6.1 mmol/L (110 mg/dl) 	2.9% (2.3-3.4)	2.5% (1.7-3.3)	3.3% (2.5-4.0)
Mean total blood cholesterol, including those currently on medication for raised cholesterol [mg/dl]	173.2 (172.0-174.5)	169.9 (168.4-171.4)	176.4 (175.0-177.9)
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)	20.7% (19.0-22.5)	17.0% (14.8-19.2)	24.2% (22.2-26.3)

Summary of combined risk factors			
-current daily smokers -less than 5 servings of fruit & vegetables per day -low level of activity -overweight (BMI \geq 25 kg/m ²) -raised BP (SBP \geq 140 and/or DBP \geq 90 mmHg or currently on medication for raised BP)			
Percentage with none of the above risk factors	7.3% (6.0-8.6)	5.9% (4.4-7.4)	8.7% (7.1-10.3)
Percentage with three or more of the above risk factors, aged 25 to 44 years	7.3% (6.2-8.5)	10.2% (8.3-12.2)	4.2% (3.2-5.3)
Percentage with three or more of the above risk factors, aged 45 to 64 years	15.7% (14.2-17.3)	22.2% (19.5-25.0)	10.2% (8.5-11.9)
Percentage with three or more of the above risk factors, aged 25 to 64 years	10.2% (9.3-11.2)	14.1% (12.5-15.7)	6.5% (5.6-7.3)



CAMBODIA STEPS Survey 2010

2. URBAN AREA ONLY

Results for adults aged 25-64 years (incl. 95% CI)	Both Sexes	Males	Females
Step 1 Tobacco Use			
Percentage who currently smoke tobacco	21.4% (17.3-25.5)	43.1% (36.4-49.8)	3.4% (1.4-5.4)
Percentage who currently smoke tobacco daily	18.1% (14.0-22.3)	37.0% (29.5-44.5)	2.5% (0.8-4.2)
<i>For those who smoke tobacco daily</i>			
Average age started smoking (years)	21.2 (19.9-22.5)	20.9 (19.6-22.1)	24.8 (19.3-30.2)
Percentage of daily smokers smoking manufactured cigarettes	92.6% (86.2-99.0)	93.9% (87.0-100.0)	77.4% (44.5-100.0)
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	14.0 (11.3-16.6)	14.7 (11.7-17.6)	5.5 (2.8-8.2)
Step 1 Alcohol Consumption			
Percentage who are lifetime abstainers	28.4% (24.2-32.6)	11.4% (6.2-16.6)	42.5% (37.3-47.8)
Percentage who are past 12 month abstainers	9.3% (7.2-11.4)	6.5% (3.3-9.6)	11.6% (8.2-15.1)
Percentage who currently drink (drank alcohol in the past 30 days)	49.0% (44.5-53.5)	69.5% (62.1-77.0)	32.0% (27.2-36.7)
Percentage who engage in heavy episodic drinking (men who had 5 or more / women who had 4 or more drinks on any day in the past 30 days)	NA	39.5% (30.7-48.4)	3.5% (1.3-5.7)
Step 1 Fruit and Vegetable Consumption (in a typical week)			
Mean number of days fruit consumed	3.1 (2.7-3.5)	2.9 (2.4-3.4)	3.3 (2.9-3.7)
Mean number of servings of fruit consumed on average per day	1.2 (1.0-1.4)	1.3 (0.9-1.6)	1.2 (1.0-1.3)
Mean number of days vegetables consumed	5.7 (5.5-5.9)	5.7 (5.4-6.0)	5.7 (5.5-5.9)
Mean number of servings of vegetables consumed on average per day	2.3 (2.0-2.6)	2.5 (2.0-2.9)	2.2 (1.9-2.5)
Percentage who ate less than 5 servings of fruit and/or vegetables on average per day	76.5% (69.8-83.2)	73.6% (63.7-83.5)	78.9% (73.4-84.4)
Step 1 Physical Activity			
Percentage with low levels of activity (defined as < 600 MET-minutes per week)*	14.8% (10.8-18.7)	17.0% (10.3-23.8)	12.9% (9.3-16.6)

Percentage with high levels of activity (defined as ≥ 3000 MET-minutes per week)*	69.8% (63.9-75.8)	67.9% (59.2-76.6)	71.4% (66.4-76.5)
Median time spent in physical activity on average per day (minutes) (presented with inter-quartile range)	205.7 (60.0-385.7)	249.2 (60.0-420.0)	180.0 (75.0-360.0)
Percentage not engaging in vigorous activity	70.2% (64.4-76.1)	56.7% (47.0-66.5)	81.4% (77.6-85.1)
Step 2 Physical Measurements			
Mean body mass index - BMI (kg/m^2)	23.0 (22.5-23.4)	22.6 (22.1-23.1)	23.3 (22.8-23.8)
Percentage who are overweight (BMI ≥ 25 kg/m^2)	26.7% (22.0-31.5)	25.0% (18.9-31.1)	28.1% (23.1-33.1)
Percentage who are obese (BMI ≥ 30 kg/m^2)	3.6% (2.2-5.0)	2.2% (0.3-4.1)	4.8% (3.0-6.6)
Average waist circumference (cm)	NA	79.4 (77.6-81.2)	79.4 (77.9-80.8)
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP	117.6 (115.5-119.6)	123.2 (120.2-126.1)	113.0 (110.8-115.2)
Mean diastolic blood pressure - DBP (mmHg) , including those currently on medication for raised BP	73.8 (72.1-75.5)	76.9 (74.4-79.4)	71.3 (69.7-72.9)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	16.9% (14.1-19.6)	20.3% (16.3-24.4)	14.0% (11.1-17.0)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) who are not currently on medication for raised BP	12.8% (9.9-15.6)	17.5% (13.4-21.6)	8.8% (5.7-12.0)
Step 3 Biochemical Measurement			
Mean fasting blood glucose, including those currently on medication for raised blood glucose [mg/dl]	76.8 (74.1-79.5)	76.8 (74.0-79.6)	76.8 (73.6-79.9)
Percentage with impaired fasting glycaemia as defined below <ul style="list-style-type: none"> • plasma venous value ≥ 6.1 mmol/L (110 mg/dl) and < 7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥ 5.6 mmol/L (100 mg/dl) and < 6.1 mmol/L (110 mg/dl) 	1.7% (0.6-2.8)	1.8% (0.1-3.4)	1.6% (0.6-2.6)
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose <ul style="list-style-type: none"> • plasma venous value ≥ 7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥ 6.1 mmol/L (110 mg/dl) 	5.6% (4.0-7.2)	4.8% (2.4-7.1)	6.2% (4.2-8.2)
Mean total blood cholesterol, including those currently on medication for raised cholesterol [mg/dl]	182.6 (178.4-186.8)	180.0 (174.6-185.4)	184.7 (180.7-188.8)
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)	32.5% (27.0-38.0)	29.1% (21.1-37.1)	35.3% (29.7-40.9)

Summary of combined risk factors			
-current daily smokers -less than 5 servings of fruit & vegetables per day -low level of activity -overweight (BMI \geq 25 kg/m ²) -raised BP (SBP \geq 140 and/or DBP \geq 90 mmHg or currently on medication for raised BP)			
Percentage with none of the above risk factors	10.3% (6.6-13.9)	9.7% (4.8-14.6)	10.8% (7.0-14.6)
Percentage with three or more of the above risk factors, aged 25 to 44 years	12.4% (9.1-15.7)	19.7% (13.4-25.9)	6.1% (3.2-9.0)
Percentage with three or more of the above risk factors, aged 45 to 64 years	21.0% (17.3-24.7)	28.7% (21.7-35.8)	14.9% (10.4-19.3)
Percentage with three or more of the above risk factors, aged 25 to 64 years	15.9% (13.7-18.2)	23.3% (19.0-27.6)	9.8% (7.4-12.1)



CAMBODIA STEPS Survey 2010

3. RURAL AREA ONLY

Results for adults aged 25-64 years (incl. 95% CI)	Both Sexes	Males	Females
Step 1 Tobacco Use			
Percentage who currently smoke tobacco	31.1% (28.9-33.3)	56.3 % (53.2-59.4)	6.5% (4.6-8.3)
Percentage who currently smoke tobacco daily	28.2 % (26.1-30.4)	51.8 % (48.8-54.7)	5.3 % (3.5-7.1)
<i>For those who smoke tobacco daily</i>			
Average age started smoking (years)	20.3 (19.8-20.7)	20.0 (19.6-20.4)	23.1 (20.9-25.3)
Percentage of daily smokers smoking manufactured cigarettes	86.3 % (82.9-89.8)	87.3 % (84.1-90.4)	77.5 % (65.6-89.5)
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	12.6 (11.7-13.5)	13.2 (12.3-14.1)	7.1 (5.6-8.5)
Step 1 Alcohol Consumption			
Percentage who are lifetime abstainers	26.1 % (24.2-27.9)	8.6 % (7.1-10.1)	43.1 % (40.2-45.9)
Percentage who are past 12 month abstainers	10.2 % (9.0-11.3)	6.7 % (5.3-8.2)	13.6 % (12.0-15.1)
Percentage who currently drink (drank alcohol in the past 30 days)	54.5 % (52.1-56.8)	77.6 % (75.1-80.1)	31.9 % (29.2-34.5)
Percentage who engage in heavy episodic drinking (men who had 5 or more / women who had 4 or more drinks on any day in the past 30 days)	NA	46.2 % (42.8-49.6)	4.8 % (3.6-6.0)
Step 1 Fruit and Vegetable Consumption (in a typical week)			
Mean number of days fruit consumed	2.5 (2.3-2.7)	2.3 (2.1-2.5)	2.7 (2.5-2.8)
Mean number of servings of fruit consumed on average per day	1.0 (0.9-1.1)	1.0 (0.9-1.1)	1.0 (0.9-1.1)
Mean number of days vegetables consumed	5.3 (5.2-5.4)	5.4 (5.2-5.5)	5.2 (5.0-5.3)
Mean number of servings of vegetables consumed on average per day	1.9 (1.8-2.0)	2.0 (1.8-2.1)	1.8 (1.7-1.9)
Percentage who ate less than 5 servings of fruit and/or vegetables on average per day	86.0 % (83.7-88.3)	85.2 (82.4-88.1)	86.8 % (84.3-89.2)
Step 1 Physical Activity			
Percentage with low levels of activity (defined as < 600 MET-minutes per week)*	9.7 % (8.3-11.0)	9.7 % (7.9-11.4)	9.7 % (8.1-11.3)

Percentage with high levels of activity (defined as ≥ 3000 MET-minutes per week)*	77.5 % (75.2-79.8)	80.2 % (77.5-83.0)	74.7 % (72.1-77.4)
Median time spent in physical activity on average per day (minutes) (presented with inter-quartile range)	257.1 (120.0-420.0)	300.0 (120.0-480.0)	222.9 (102.9-360.0)
Percentage not engaging in vigorous activity	61.4 % (59.0-63.9)	43.0 % (40.0-46.1)	79.4 % (76.8-81.9)
Step 2 Physical Measurements (Rural Area)			
Mean body mass index - BMI (kg/m ²)	21.6 (21.4-21.8)	21.5 (21.3-21.7)	21.7 (21.5-21.9)
Percentage who are overweight (BMI ≥ 25 kg/m ²)	13.0 % (11.5-14.6)	9.1 % (7.4-10.9)	16.9 % (14.9-19.0)
Percentage who are obese (BMI ≥ 30 kg/m ²)	1.5 % (1.1-2.0)	0.9 % (0.4-1.3)	2.2 % (1.4-2.9)
Average waist circumference (cm)	NA	75.3 (74.8-75.9)	74.7 (74.1-75.3)
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP	115.8 (115.1-116.4)	119.4 (118.5-120.3)	112.2 (111.4-113.0)
Mean diastolic blood pressure - DBP (mmHg) , including those currently on medication for raised BP	72.0 (71.3-72.6)	73.5 (72.6-74.4)	70.5 (69.8-71.1)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	10.0 % (8.9-11.2)	11.4 % (9.6-13.3)	8.7 % (7.4-9.9)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) who are not currently on medication for raised BP	8.7 % (7.6-9.8)	10.7 % (8.9-12.4)	6.8% (5.8-7.8)
Step 3 Biochemical Measurement			
Mean fasting blood glucose, including those currently on medication for raised blood glucose [mg/dl]	70.4 (69.2-71.6)	71.2 (69.8-72.6)	69.7 (68.2-71.2)
Percentage with impaired fasting glycaemia as defined below <ul style="list-style-type: none"> • plasma venous value ≥ 6.1 mmol/L (110 mg/dl) and <7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥ 5.6 mmol/L (100 mg/dl) and <6.1 mmol/L (110 mg/dl) 	1.4 % (0.9-1.8)	1.8 % (1.1-2.6)	0.9 % (0.4-1.3)
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose <ul style="list-style-type: none"> • plasma venous value ≥ 7.0 mmol/L (126 mg/dl) • capillary whole blood value ≥ 6.1 mmol/L (110 mg/dl) 	2.3 % (1.7-2.9)	2.0 % (1.2-2.9)	2.6% (1.8-3.4)
Mean total blood cholesterol, including those currently on medication for raised cholesterol [mg/dl]	171.3 (170.0-172.6)	168.0 (166.5-169.5)	174.6 (173.0-176.2)
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)	18.3 % (16.5-20.2)	14.8 % (12.6-17.0)	21.8 % (19.6-24.1)

Summary of combined risk factors			
-current daily smokers -less than 5 servings of fruit & vegetables per day -low level of activity -overweight (BMI \geq 25 kg/m ²) -raised BP (SBP \geq 140 and/or DBP \geq 90 mmHg or currently on medication for raised BP)			
Percentage with none of the above risk factors	6.7 % (5.3-8.1)	5.2 % (3.7-6.7)	8.2 % (6.4-10.0)
Percentage with three or more of the above risk factors, aged 25 to 44 years	6.4 % (5.2-7.7)	8.7 % (6.7-10.7)	3.9 % (2.8-4.9)
Percentage with three or more of the above risk factors, aged 45 to 64 years	14.4 % (12.6-16.2)	20.7 % (17.6-23.7)	8.9 % (7.1-10.8)
Percentage with three or more of the above risk factors, aged 25 to 64 years	9.1 % (8.0-10.1)	12.4 % (10.7-14.1)	5.7 % (4.7-6.7)

For additional information, please contact:

STEPS country focal point Dr PRAK Piseth Rainsey: pisethsey@yahoo.com



Morning exercise of a group of overweight men in Phnom Penh
(Photo taken with informed consent, S Oum, July 2010)