National survey for noncommunicable disease risk factors and mental health using WHO STEPS approach in Bhutan – 2014

World Health Organization
Regional Office for South-East Asia

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Contributors: Tandin Dorji, Wangchuk Dukpa, Karma Doma, Dorji Pelzom, Mongal Sing Gurung, Lubna Bhatti, Dhirendra N Sinha, Renu Garg and Naveen Agarwal.

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Acronyms

BMI	body mass index
BP	blood pressure
CI	confidence interval
COPD	chronic obstructive pulmonary disease
CVD	cardiovascular disease
DALYs	disability-adjusted life years
DBP	diastolic blood pressure
dl	decilitre
EA	enumeration areas
GYTS	Global Youth Tobacco Survey
HDL	High-density lipoproteins
Hg	mercury
HLM	high-level meeting
JDWNRH	Jigme Dorji Wangchuk National Referral Hospital
MET	metabolic equivalents of task
mmol/L	millimoles per litre
NCD	noncommunicable disease
NGO	nongovernmental organization
PDA	personal digital assistant
PEN	WHO Package of Essential NCD
PHC	primary health care
PI	principal investigator
PPS	probability proportionate to size
PSU	primary sampling unit
SBP	systolic blood pressure
SEARO	(WHO) South-East Asia Regional Office
SSU	secondary sampling unit
WHA	World Health Assembly
WHO	World Health Organization
WHO FCTC	WHO Framework Convention on Tobacco Control

Message

Noncommunicable diseases (NCDs) are the most common cause of morbidity and mortality worldwide and in the South-East Asia Region. Planning for NCD control needs persuasive evidence generated through a strong monitoring system and surveillance of NCD risk factors. The standard protocol of the STEPs Noncommunicable Disease Risk factors survey is an opportunity to strengthen strategies to control NCDs and compare them nationally or internationally at different time intervals.

WHO welcomes the initiative of Bhutan's Ministry of Health to undertake the Stepwise NCD risk factors survey, including physical measurement and biochemical investigations at the national level. This report, based on survey results, is historical, as it presents key findings from the nationally representative survey in Bhutan and provides new insights into the health status of Bhutan's population.

It is also praiseworthy that the Ministry of Health is promoting collaboration and multisectoral approaches through integrated surveillance to address major NCD risk factors.

We commend Bhutan's efforts to control NCDs. This survey is an example of Bhutan's commitment. The WHO Regional Office for South-East Asia is committed to supporting and facilitating the STEPs survey and NCD-related surveillance activities in all Member States. We hope that Bhutan will use the rich data contained in this document to further strengthen its NCD control programme and improve the well-being of its population.

Dr Poonam Khetrapal Singh
Regional Director
WHO South-East Asia Region

དཔལ་ལྡན་འབྲུག་གཞུང་།
གསོ་བ་སྨན་ཁག།
ཐིམ་ཕུ།

ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH
THIMPHU: BHUTAM
P.B. BOX: 726

Foreword

The increasing trend of Non-Communicable Diseases worldwide is leading to huge stresses on health service resources. Bhutan, like its South Asian neighbours, is also seeing an increasing trend in NCDs. While infectious diseases continue to be a cause of concern this double burden of diseases due to increasing NCDs further taxes the scarce health resources and questions the sustainability of free healthcare that the Bhutanese enjoy.

Although a STEPs survey was carried out in 2007, it was restricted to Thimphu urban area and did not provide nationally representative data. Therefore, this nationwide STEPs survey has been conducted at a most opportune time. The data generated will not only form the baseline for achieving the targets set in the Global NCD Action Plan but also guide the NCD Prevention and Control Programme in adopting the best strategies.

It gives me great pleasure in releasing the report of the Bhutan STEPs survey 2014. The findings of the survey highlight the issues at hand. Salt consumption is very high, almost double the WHO recommended limit. Alcohol intake is very high, with 42.4% current drinkers and 22.4% binge drinkers. Although smoking is low (7.4%) use of smokeless tobacco is very high at 19.7%. Consumption of fruits and vegetables is low and almost half of the adult Bhutanese population (aged 18 to 69 years) do not engage in vigorous physical activity. A third of the adult population (aged 18 to 69 years) has high blood pressure but do not take medication.

The information generated by the Survey will be of immense help to us in planning and designing appropriate strategies for prevention and control of NCDs so that they do not become a public health concern.

TASHI DELEK!

TANDIN WANGCHUK
MINISTER

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(4) The working group:

- Tandin Dorji, Chief, Non-Communicable Diseases Division, Dept. of Public Health
- Wangchuk Dukpa, Sr. Program Officer, Lifestyle Related Diseases Division
- Karma Doma, Deputy Chief Program Officer, Lifestyle Related Diseases Division
- Dorji Pelzom, Sr. Statistician, Health Research and Epidemiology Unit
- Mongal Sing Gurung, Research Officer, Health Research and Epidemiology Unit

Executive summary

The emerging pandemic of noncommunicable diseases (NCDs) is creating major health challenges globally. The burden of NCDs is also increasingly affecting developing countries such as Bhutan. As is the case with other low- and middle-income countries, Bhutan faces a triple burden of disease: communicable diseases, re-emerging diseases and escalated prevalence of noncommunicable diseases. Cardiovascular diseases, cancer, chronic obstructive pulmonary diseases and diabetes have been identified by the World Health Organization (WHO) as the four major NCDs occurring worldwide. These diseases are driven by various forces, including ageing, rapid unplanned urbanization, and the globalization of unhealthy lifestyles. Most NCDs are the result of four particular behaviours (tobacco use, physical inactivity, unhealthy diet and harmful use of alcohol) that lead to four key metabolic/physiological changes (raised blood pressure, overweight/obesity, raised blood glucose and raised cholesterol levels). To reduce NCDs it is important to focus on decreasing the risk factors associated with these diseases, and mapping the epidemic of NCDs and their risk factors.

In Bhutan, the first NCD risk factor survey was conducted in 2007–2008 in urban Thimphu to determine the prevalence of modifiable behavioural risk factors at the subnational level; however, this survey did not cover biological risk factors. Against this backdrop, the current study was conducted in 2014 to collect national baseline data on biological risk factors – the first ever of its kind – and determine the distribution of modifiable behavioural risk factors (NCD risk factors) among the population.

Method

This national NCD risk factor survey was conducted as a cross-sectional study from March to June 2014. Prior to data collection, ethical approval was sought from the independent Research Ethics Board of Health. The main objective of the survey was to estimate the prevalence of major NCD risk factors among the different population strata in Bhutan. A sample size of 2912 was used to represent the target population (18–69 year-old adults) in Bhutan. Multistage cluster sampling using a mix of probability proportionate to size (PPS) and systematic random sampling was applied, using the sampling framework from Bhutan's Census 2005, to select the participants. The primary sampling unit (PSU) of this survey was the "Geogs", or blocks, in rural areas and towns in urban. Sixty three PSUs in rural areas and 53 in urban were selected. Twenty households were selected from each cluster using systematic sampling. One participant out of the eligible candidates (18–69 years) in each selected household was chosen to take part in the survey using the Kish method.

The survey was conducted using the WHO Stepwise Noncommunicable Disease Risk Factor Survey(STEPS) methodology, which consists of three steps for measuring NCD risk factors including physical and biochemical measurements. Sociodemographic and behavioural information were collected in STEP I. Behavioural information included tobacco use, harmful alcohol consumption, low fruit and vegetable intake, history of raised blood pressure and blood glucose levels, and the degree of dietary salt consumption. Physical measurements such as height, weight and blood pressure were collected in STEP II. Biochemical measurements were collected in STEP III using the dry chemistry to assess fasting blood glucose and total cholesterol levels. Data were collected

electronically using personal digital assistants (PDAs). Data cleaning was done using SPSS 16.0 and analysis undertaken using Epi Info 3.5.1 using prior developed analysis commands. Descriptive weighted analysis was also undertaken along with complex sample analysis.

Response rate

Of the 2912 targeted respondents, 2822 (96.9%) participated in STEP I and 2816 (96.7%) in STEP II. In STEP III the response rate was lower: 93.5% for blood measurements and 89.9% for urine collection for population salt intake estimation.

Background characteristics

Among the 2822 respondents who participated in the survey, 1074 (38.1%) were men and 1748 (61.9%) women. The median number of years of completed schooling was 3.8 years for men and 2.8 years for women. With regard to marital status, 80.7% of respondents were married at the time of the survey. With regard to employment status, 27.7% of respondents were involved in unpaid work, 55.2% were self-employed, 5.3% were non-government employees and 11.7% were government employees.

Tobacco use

The prevalence of tobacco use, both smoked and smokeless combined, was 24.8%. Nearly one third of men (33.6%) use either form of tobacco; however, among women this proportion was 13.6%. The prevalence of tobacco smoking among respondents was 7.4% (10.8% for men and 3.1% for women). This proportion increased with age among both sexes. Likewise, the prevalence of current daily smoking was 4.3% overall (men 6.0%, women 2.1%). On average, respondents started to smoke at the age of 18.9 years. About 84.1% of current daily smokers smoked manufactured cigarettes.

The prevalence of smokeless tobacco use was 19.7% (men 26.5%, women 11.0%). Around 95.5% of current users consumed chewing tobacco and snuff by mouth followed by 6.1% chewing betel quid. Nearly one in five respondents (20.7%) at home and a quarter (24.6%) of respondents at the workplace had been exposed to second-hand smoke during the 30 days preceding the survey.

Alcohol consumption

Nearly half of all men (50.0%) and one third of women (32.8%) surveyed drank alcohol in the preceding 30 days. Among those who drank in the preceding 12 months, 16.9% (men 20.4%, women 10.7%) drank daily. More three in ten men (29.0%), and nearly one in seven women (14.1%) were binge (heavy) drinkers (≥60 g of pure alcohol for men or ≥40 g for women on a single occasion). About 58% of alcohol consumed was home-brewed or from other unrecorded sources. Consumption of "unrecorded alcohol" was higher in rural areas than urban areas (64.2% versus 42.4%).

Fruit and vegetable consumption

The surveyed population ate fruit on an average of 1.7 days in a typical week. Vegetable consumption was relatively greater than fruit with these being eaten on an average of 5.6 days in a typical week. The quantity of intake was measured by servings: one serving of fruit was defined to be equal to a medium-sized banana or apple or equivalent and one serving of vegetables to one cup of green leafy vegetables or half a cup of cooked vegetables). WHO recommends that an adult should consume five or more servings of fruit or vegetables a day. However, only 33.1% of respondents had had the recommended 5 servings of fruits and/or vegetables in a day.

Physical activity

Only 6.4% of adults did not meet WHO recommendations on physical activity for health (i.e. <150 minutes of moderate-intensity physical activity per week or its equivalent).

Dietary salt and oil

Bhutanese adults consume 9 grams of salt per day, almost double the WHO recommended level of 5g/day. Around 7.8% of respondents always or often added salt before eating or while eating. Consumption of processed foods high in salt was significantly higher in urban areas than rural areas (18.8% v. 7.5%). Nearly one in 10 (11.1%) of respondents always or often consumed processed food containing high amounts of salt. The majority of respondents (92.1%) agreed that high salt consumption has adverse health effects.

In the majority (97.1%) of households, vegetable oil was the most often used medium of oil or fat for the preparation of meals.

Cervical cancer screening

One in six (64.1%) women aged 30–49 years have ever had a screening test for cervical cancer.

Overweight and obesity

Mean body mass index (BMI) was 24.0. One third of respondents were found to have normal weight; 17.7% were overweight and 6.2% were found to be obese. Mean waist circumference was 81.9 cm for men and 79.5 cm for women.

Raised blood pressure (hypertension)

Around 31.3% of the study population had never had their blood pressure measured. The prevalence of raised blood pressure or hypertension (SBP ≥140 and/or DBP ≥90), excluding those on medication, was 32.9% (men 33.6%, women 32.0 %). This figure rose to 35.7% (men 35.5%, women 35.9%) when those currently using medication were included.

Raised blood glucose (diabetes mellitus)

Around 84.6% of respondents had never had their blood glucose measured. The prevalence of diabetes within the preceding 12 months was 1.3% (men 1.1%, women 1.5%). Among those with diabetes, 35% were receiving insulin and 4.8% were taking oral drugs for diabetes. The prevalence of impaired fasting glycaemia (IFG) [defined as a plasma venous value of blood glucose ≥110 mg/dl to <126mg/dl] was 10.7% (men 11.4%, women 10.0%). The prevalence of diabetes mellitus, based on plasma venous value of blood glucose ≥126 mg/dl and including those on medication, was 6.4% (men 6.5%, women 6.3%).

Abnormal lipids

The prevalence of raised total cholesterol (plasma venous value ≥190 mg/dl) including those currently on medication was 12.5% (men 11.9%, women 13.3%).

Combined risk factors

The prevalence of combined risk factors was calculated using five risk factors:

- current daily smoking,
- intake of less than five servings of fruit and/or vegetables per day,
- a low level of physical activity,
- overweight (BMI ≥25 kg/m2), and
- raised blood pressure (BP) (SBP ≥140 and/or DBP ≥90 mmHg or currently on medication for raised BP).

Only 12.7% of respondents did not have any of these risk factors, and 13.5% have three to five risk factors. The proportion of respondents in the age group 40–69 years with a 10-year CVD risk of ≥30% was found to be 1.8% (men 1.5%, women 2.2%).

Conclusion

It can be inferred from these results that NCD risk factors such as use of tobacco and alcohol, unhealthy diet including high dietary salt consumption, and high blood pressure are highly prevalent among Bhutanese adults. Unless urgent and targeted interventions are made to prevent, treat and control noncommunicable diseases and their risk factors, the burden of NCDs could become unbearable in Bhutan. There is an urgent need for multisectoral interventions to prevent and control these risk factors. There are several good policies in place to control NCDs in Bhutan. There is an urgent need for effective implementation of these policies.

1. Introduction

Noncommunicable diseases (NCDs) are currently the leading cause of mortality causing 68% of all deaths globally. NCDs are largely due to four major diseases: cardiovascular diseases (CVDs), cancers, diabetes and chronic respiratory diseases. The four main NCDs share common modifiable behavioural risk factors, namely tobacco use, unhealthy diet, lack of physical activity and the harmful use of alcohol. These lead to biological risk factors such as raised blood sugar, overweight and obesity, raised blood pressure, and raised cholesterol. NCDs not only pose a tremendous health burden but also have serious social and economic consequences. Low- and middle-income countries bear the brunt of NCDs due to their fragile health systems, weak regulatory mechanisms, and limited human and financial resources.

Bhutan, like many other low- and middle-income countries, is facing a transition from the disease burden due to communicable diseases to that of noncommunicable diseases. According to WHO estimates, NCDs accounted for 55% of all deaths in Bhutan in 2011. Data reported from health facilities in Bhutan indicate that mortality from NCDs increased from 25 835 cases to 35 875 between 2003 and 2007 alone. The rise in NCDs in Bhutan reflects underlying demographic and socioeconomic changes and the increase in exposure to a set of key behavioural and biological risk factors.

Recognizing the emerging threat of NCDs, Bhutan adopted a National Policy and Strategy Framework on the Prevention and Control of NCDs in 2009. More recently, a multisectoral national action plan has been drafted taking into account the global and regional action plan for the prevention and control of NCDs. The existing policy and national action plan take a holistic approach to primary prevention of NCDs and provision of early detection and treatment services. Legislation related to risk factors of NCDs is advanced, but mainly focused on tobacco-related aspects. Such legislation includes a ban on import, sale and all forms of advertising of tobacco products. A policy on the harmful use of alcohol is in the draft stages. There are also public awareness campaigns on healthy nutrition and the benefits of physical activity. A pilot programme aimed at NCD prevention and control (called WHO PEN) has been implemented in two districts of Bhutan and there are plans to scale it up to the national level.

The need for a comprehensive national surveillance and monitoring framework to measure progress towards the national goals and targets for prevention and control of NCDs is well recognised and artiuclated in national policy documents. Currently, however, there is no nationally representative data, or established systems for ongoing collection of data, to guide NCD-related policy and programme decision-making. The magnitude of morbidity, mortality and economic loss resulting from NCDs in Bhutan calls for a concerted effort to strengthen NCD surveillance. WHO recommends the STEP-wise approach to strengthen NCD surveillance in low- and middle-income countries. Developed by WHO in 2004, STEPS has been used worldwide in many resource-limited countries and has produced reliable and robust data on key NCD risk factors to guide the national response. WHO has identified eight major risk factors (four behavioural and four metabolic) that play a major role for developing noncommunicable diseases which have been included in the STEPS risk factor surveillance. The basis of selection of these risk factors is:

- these have the greatest impact on NCD mortality and morbidity;
- modification is possible through effective prevention;
- measurement of these risk factors have been proven to be valid; and
- measurements can be obtained using appropriate ethical standards.

Rationale and objectives

Available studies on NCD risk factors in Bhutan include a subnational 2007 STEPS survey (Thimphu city) and the Global Youth Tobacco Survey (GYTS) for students aged 13–15 years, latest in 2013. The 2007 STEPS survey was limited to urban Thimphu and did not collect information on the biological risk factors, namely raised blood glucose and raised blood cholesterol. Accordingly, more current and reliable nationwide data are needed on prevalence of NCD risk factors for planning and expanding NCD interventions, setting national targets, and monitoring changes over time. In addition to the use of data for the national NCD programme, Bhutan is obligated to report to these data to WHO's World Health Assembly and Regional Committee sessions in 2015, 2020, 2025 as a follow-up to the related resolutions adopted by the Health Assembly and the regional committees.

In view of the critical need for data for planning and monitoring, the Ministry of Health of the Royal Government of Bhutan undertook a nationwide survey in 2014 using the WHO STEP-wise approach. The survey was to determine the prevalence of key behavioural and biological risk factors for NCDs in adult men and women aged 18–69 years.

The specific objectives of the survey were to:

- describe the current levels of risk factors for NCDs in adults aged 18 to 69 years in Bhutan,
- help track the direction and magnitude of trends in NCD risk factors,
- track the key indicators related to suicide in the country,
- collect data for projecting likely future demands for health services related to NCD prevention and management, and
- to support the planning and evaluation of NCD policy and programme interventions.

This report outlines the methodology and results of the survey and recommends future actions for the prevention and control of noncommunicable diseases in Bhutan. The report is intended to be used by national stakeholders including the Ministry of Health and other sectors, developmental partners, research institutions, nongovernmental organizations, the media and the public.

2. Methods

Overview of scope

Using the WHO STEPS survey methodology, a national cross-sectional survey was carried out to obtain nationally representative data of the adult population, aged 18 to 69 years, in Bhutan. The WHO STEPS survey protocol was used:

STEP 1 included a face-to-face interview of participants to assess behavioural risk factors and health history related to NCDs;

STEP 2 involved physical measurements to assess blood pressure, height, weight, waist and hip circumference; and

STEP 3 enabled the assessment of fasting blood glucose, total cholesterol and urinary sodium using chemistry analysis and rapid diagnostic tests.

Sample design and sample size

The Sample size to estimate the number of households to be surveyed with 95% confidence was calculated using the following formula and assumptions.

$$n = \frac{Z^2{}_{1-\alpha} P(1-P)}{d^2}$$

Where:

Z = level of confidence measure; it represents the number of standard errors away from the mean. This describes the uncertainty in the sample mean or prevalence as an estimate of the population mean (normal deviate if alpha equals 0.05, then Z = 1.96 for 95% confidence level)

P = baseline level of indicators. It is the estimated proportion of one of the indicators related to the risk factors currently being measured. The prevalence of overweight and obesity was 52.8% from the last STEPS survey carried out in Thimphu which was the closest value to 50%.

d = margin of error. The expected half width of the confidence interval is taken 0.05 for this study

$$n = \frac{1.96 * 1.96 \{0.528(1-0.528)\}}{0.05 * 0.05}$$

$$n = 382.9552$$

Four domains were chosen based on male and female and two age groups – younger (18–39 years) and older (40–69 years) – which would provide four age/sex estimates. Taking into account the number of domains and ensuring enough representation by either age-sex groups or urban-rural in males and females, and with a design effect of 1.5 to address the issue of cluster sampling, the expected sample size was as below:

$$n = 382.9552 * 1.5 * 4 = 2297.7316$$

Assuming an expected 80% response rate, the final required sample size was 2912.

$$n = 2297.7316/0.8 = 2872.1646 \sim \text{(rounded to 2912 for logistical ease)}$$

Sampling procedure

To achieve a nationally representative sample, a multistage sampling method was used to select enumeration areas, households and eligible participants at each of the selected households in three stages.

The 2005 National Census was chosen as the basis for the sampling frame, with "Geogs" (blocks) in rural areas and towns in urban areas forming the primary sampling units (PSUs). Since the population distribution for urbanicity is 70:30 (rural:urban), 63 PSUs in rural and 14 PSUs in urban areas were chosen. PSUs were selected through the probability proportionate to size (PPS) sampling using the number of households in each PSU.

Two secondary sampling units (SSUs) for every rural PSU and 4 SSUs for every urban PSU were selected. This led to the selection of 126 SSUs from rural and 56 SSUs from urban areas. This was also carried out by PPS sampling, using the number of households in each SSU.

A total of 16 households from each SSU (both rural and urban) were selected using systematic random sampling. The sampling frame for this was the list of households with a unique identification number (ID) developed by the enumerators for the survey.

At the household level, the Kish sampling method was used to randomly select one eligible member (aged 18–69 years) of the household for the survey. The Kish method ranks eligible household members in order of decreasing age, starting with males and then females, and randomly selects a respondent using the automated program for Kish selection in the handheld personal digital assistant (PDA).

Time frame

The Bhutan STEPS Survey was conceptualized and planned from February 2014. By March 2014 protocols had been developed; ethical clearance sought from the Research Ethics Board for Health(REBH); logistics and implementation plans developed and all government approvals acquired. Training of enumerators was carried out from 1–5 April 2014 and field data collection started from 8 April 2014. The field work was completed by June 2014. Data management and analysis was carried out between July and September 2014, and the factsheet launched in November 2014.

Ethical clearance

Ethical clearance for the survey was obtained from the Research Ethics Board for Health, Bhutan. Participation in the survey was voluntary.

The survey administrator obtained two copies of written informed consent forms from the participant. One consent form was used for STEPS 1 and 2, and a separate consent form for STEP 3. After obtaining the informed consent, the interview and physical measurements (STEP 1 and STEP 2) were administered at the household level. Interviews were conducted in a manner that ensured confidentiality and the privacy of the survey respondents.

Field work

Eight survey teams were formed. Each team comprised 1 superviser (for planning and checking the completeness of questionnaires and undertaking some interviews/measurement), 3 survey administrators (for all 3 STEPS) and one driver. All survey team members were health workers, so that teams could easily undertake the anthropometric measurements and collect blood for biochemical measurements.

Adaptation of survey tools and training materials

The generic WHO STEPS survey protocol and tools were adapted to local conditions in Bhutan.

Training of survey administrators and supervisers

A five-day training of the survey teams was conducted from 1–5 April 2014. The training focused on teaching field workers the key aspects of recruitment of respondents, systematic sampling of households, use of the Kish method for random selection of participants from households, conducting interviews, adherence to research ethics, use of PDAs for interview and electronic data collection, conducting STEP 3 tests, accurately keeping records of interviews conducted, ensuring quality control of all field processes including questionnaires, other forms and specimens.

Team supervisers were further trained on supervision of household selection at the village level, checking and correcting interview data, reviewing completed questionnaires, monitoring interviews and problem-solving in the field.

Pilot-test of field procedures

A 1-day practical training in field work in Thimphu was conducted for the survey teams. This included the conduct of interviews, taking physical measurements and collection of blood samples for dry chemistry. The pilot-testing was conducted to assess the applicability of the questionnaires, gauge the reactions of the respondents to the survey procedures, assess the relevance of the field manual, estimate the time needed to administer each questionnaire, check the sequencing or flow of questions and ascertain the content validity of the questions after translation.

Field activities

Immediately after the training, survey teams were allocated to the *chiwog*/enumeration areas where they would go to conduct the survey. Each team administered the STEP 1 (Questionnaire) and STEP 2 (Physical measurements) on the first visit to a household. The participants were then asked to fast overnight i.e. not consume any food or drinks (except water) after 10 p.m. the previous night until the blood sample was collected in the morning.

A container was provided to collect urine samples prior to the beginning of the fast. Participants were asked to go to the testing centre set up by the survey team (located in the vicinity) the next morning. Here the blood samples were taken and the urine samples delivered to the survey team. Urine samples were sent by the survey team to the Jigme Dorji Wangchuk National Referral Hospital Laboratory (JDWNRH) in Thimphu for analysis of sodium and creatinine to determine mean population salt intake.

Publicity plan

A media campaign was launched to inform the public about the Bhutan STEPS survey. Daily and weekly broadcasts on radio and television, respectively, were carried out for information. At the community level, details of the survey were communicated through the dzongkhag health services, health centre staff and village health workers.

Data management

Data entry

Survey data were entered directly into HP iPAQ handheld devices (PDAs) by each member of the survey team to record the respondents' answers to the STEP 1 interview and the physical and biochemical results from STEP 2 and 3. The results from the urine analysis of sodium and creatinine were separately recorded by the JDWNRH laboratory. The WHO eSTEPS software was used on the PDAs to record the survey data. A storage device (SD card) was fitted into every PDA to ensure that a backup of the data remained in case of any device failures.

Data from PDAs were downloaded into a single master database following completion of the fieldwork. Data cleaning and weighting were undertaken prior to data analysis, following the guidance provided by WHO in the eSTEPS manual. This included checking ranges and combinations of variables, detecting and handling missing data, and detecting and handling outliers. Data was weighted to make the sample representative of the target population (adults in Bhutan aged 18 to 69 years). Weights were calculated to adjust for the following aspects: probability of selection (sample weight), non-response (non-response weight), and differences between the sample population and target population (population weight). From these, an overall weight was calculated for each step of the survey and applied to the final dataset.

Data analysis

Data analysis was carried out in Epi Info 3.5.1, using STEPS tools and analysis commands developed by WHO and adapted for use by the Bhutan survey team.

WHO provided technical support for data analysis and report writing.

Reporting

Following completion of data analysis, a factsheet on NCD was generated with the support of WHO in November 2014.

The WHO guidelines on developing STEPS site reports were used as the basis for developing the survey report. This included a main survey report and set of data tables. The survey report generated simple descriptive statistics with means, proportions and frequency distributions. A 95% confidence interval (CI) was used as a measure of precision on the estimated population parameters.

Reporting and disseminating of results

A dissemination workshop will be planned to communicate the results of the survey at the national level. Copies of the report will be shared with all stakeholders involved in multisectoral actions to address NCDs in Bhutan.

3. Background characteristics

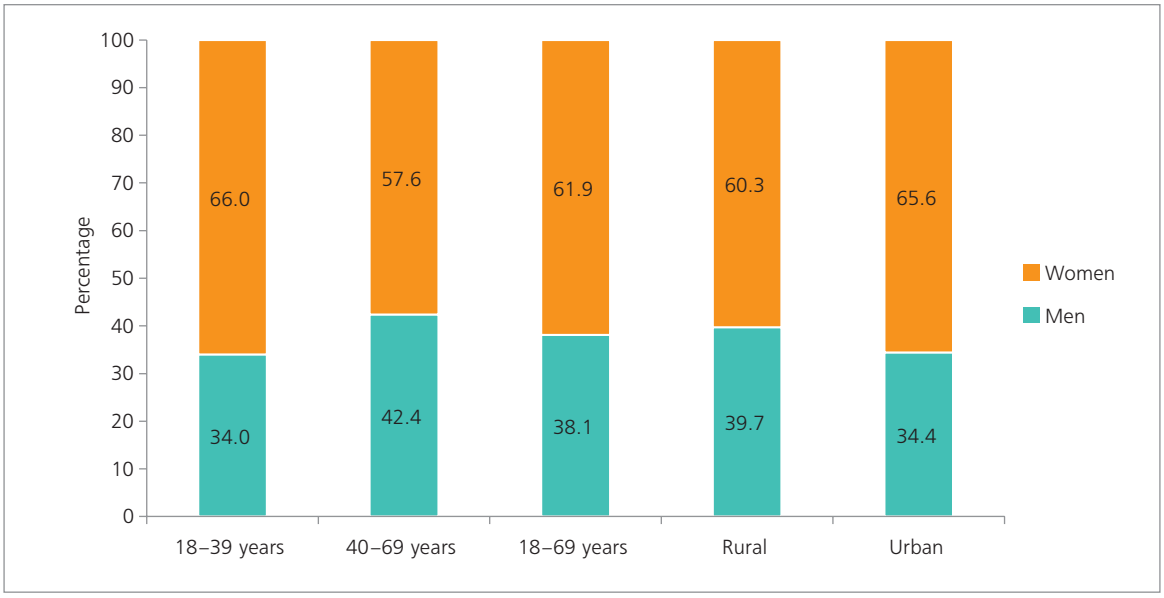
Response rates

Out of the targeted 2912 respondents, 2822 (96.9%) participated in STEP I (behavioural measurement); and 2816 (96.7%) participated in STEP 2 (physical measurements). For STEPS 3 (biochemical measurement), the response rate for fasting blood glucose test excluding non-fasting respondents was 93.5% (2724 respondents), that for total cholesterol levels was 94.8% (2761 respondents), and for urine collection for salt estimation was 89.9% (2618 respondents).

Demographic information results

Data from 2822 respondents aged between 18–69 years was included in the analysis. Of them, 38.1% were men and 61.9% women; 69.2% were from rural areas and 30.8% from urban, and 52.1% were aged 18–39 years while 47.9% were aged 40–69 years (Figure 3.1 and Annex 1, Table 3.1).

Figure 3.1: Respondents by age, sex and residence



The mean number of years of completed education among all respondents was 3.2 years (n=2715), and the same was 3.8 years for men and 2.8 years for women (Annex 1, Table 3.2).

Out of 2819 respondents, 62.6% had no formal schooling, 13.5% had less than primary school, 8.9% had completed primary school, 6.5% had completed secondary school, 5.4% had completed high school, 2.1% had completed college/university, and 1.0% had completed postgraduate degree studies (Annex 1, Table 3.3).

Among the respondents (n=2820), 80.7% were currently married, 1.3% were separated, 4.2% were divorced, 5.7% were widowed, 0.1% were in cohabitation, and 8.0% had never been married (Annex 1, Table 3.4).

With regard to employment status, 11.7% of respondents were government employees, 5.3% were nongovernment employees, 55.2% were self-employed, and 27.7% did not have paid employment. More women (36.8%) did not have paid employment than men (13.0%). The percentage of government employees was higher for men (23.0%) than women (4.8%) (Annex 1, Table 3.5).

Out of the 782 respondents who did not have paid employment, 1.9% were non-paid, 7.5% were students, 71.5% were homemakers, 2.2% were retired, 15.3% were able-to-work unemployed, and 1.5% were not-able-to-work unemployed (Annex 1, Table 3.6).

The reported mean per capita annual income of respondents was Nu. 67 622.70 (Annex 1, Table 3.7).

STEP 1: Behavioural measurements

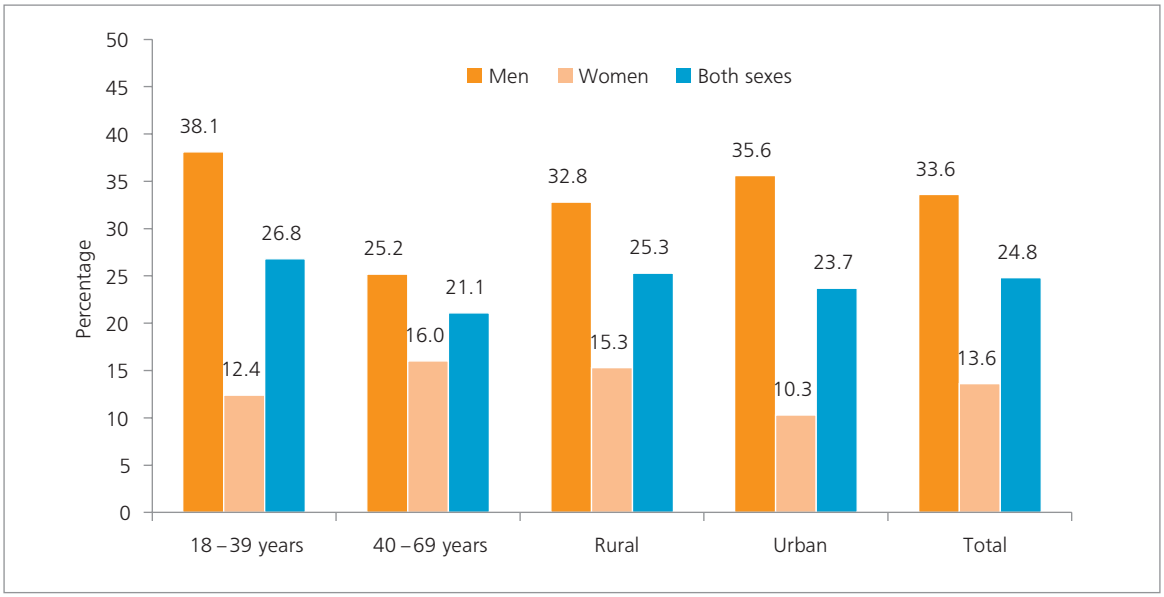
4. Tobacco use

The frequency and patterns of tobacco use were analysed by age, sex, forms of tobacco (smoked and smokeless), and place of residence.

Current tobacco use

Of all 2820 respondents, 24.8% were current tobacco users (includes smoked and smokeless). More men use tobacco (33.6%) than women (13.6%). More men aged 18–39 years (38.1%) were tobacco users than men aged 40–69 years (25.2%). There was no significant difference in tobacco use by residence (Figure 4.1).

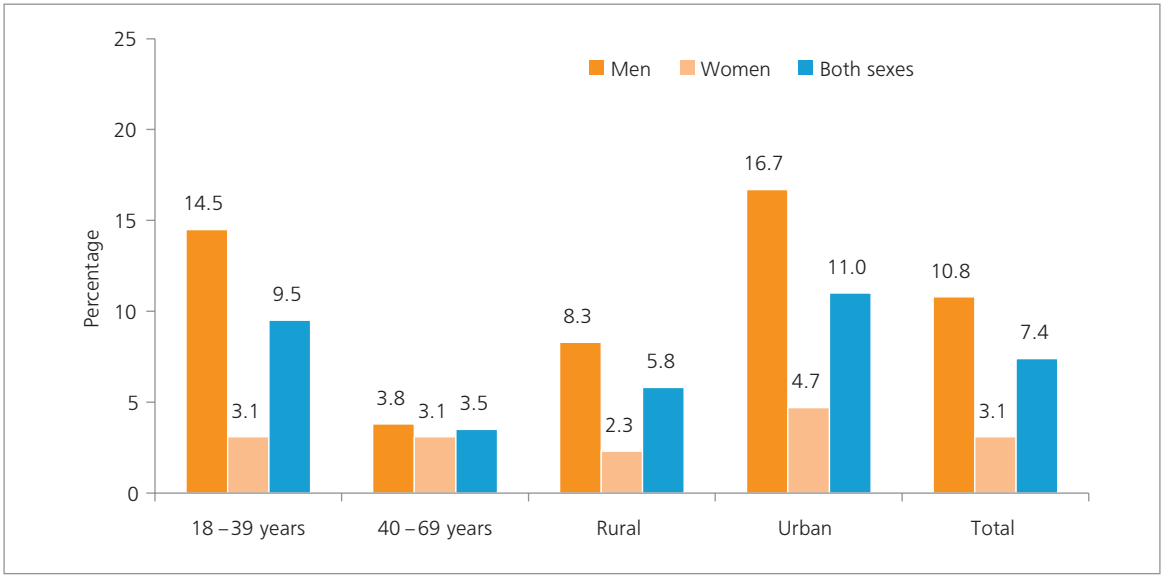
Figure 4.1: Percentage of current tobacco users by age groups, residence and sex



Current tobacco smoking

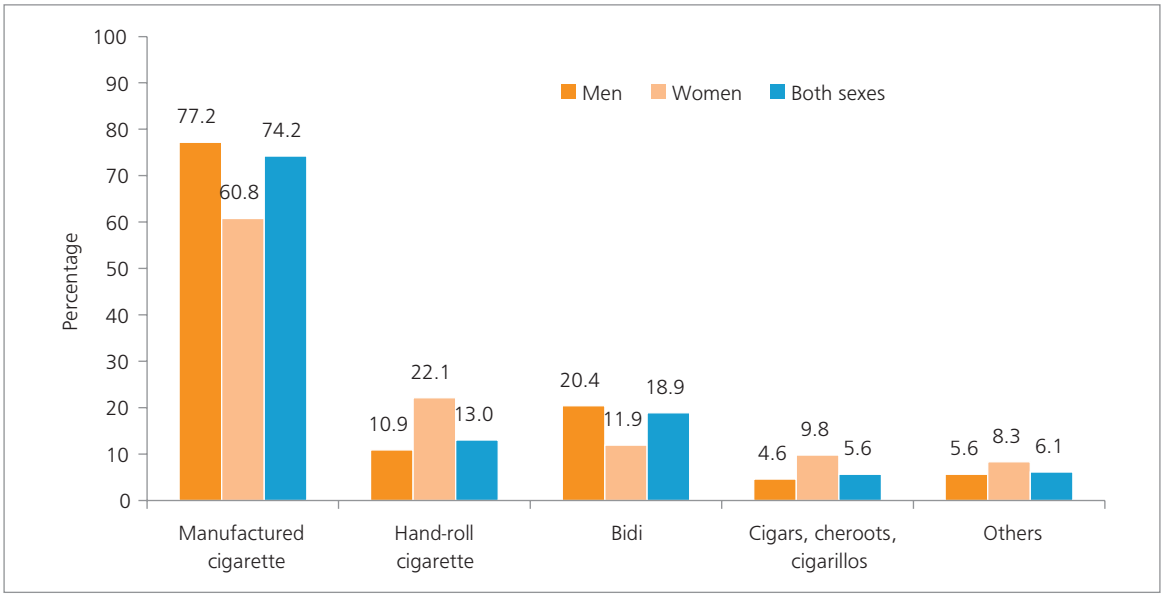
Overall, 7.4% of the respondents reported current use (past 30 days) of smoked tobacco products such as cigarettes, cigars or pipes. The percentage of current smoking was higher among men (10.8%) compared with women (3.1%). The percentage of current smoking was higher among younger men aged 18–39 years (14.5%) compared with older men aged 40–69 years (3.8%). The percentage of current smoking was higher among urban residents compared with rural residents (11.0% versus 5.8%) (Figure 4.2).

Figure 4.2: Percentage of current tobacco smokers by age groups, residence and sex



Among current smokers, the most common smoked tobacco product was manufactured cigarette smokers (74.2%), followed by *bidi* (18.9%) (Figure 4.3).

Figure 4.3: Percentage of current smokers smoking by product and sex

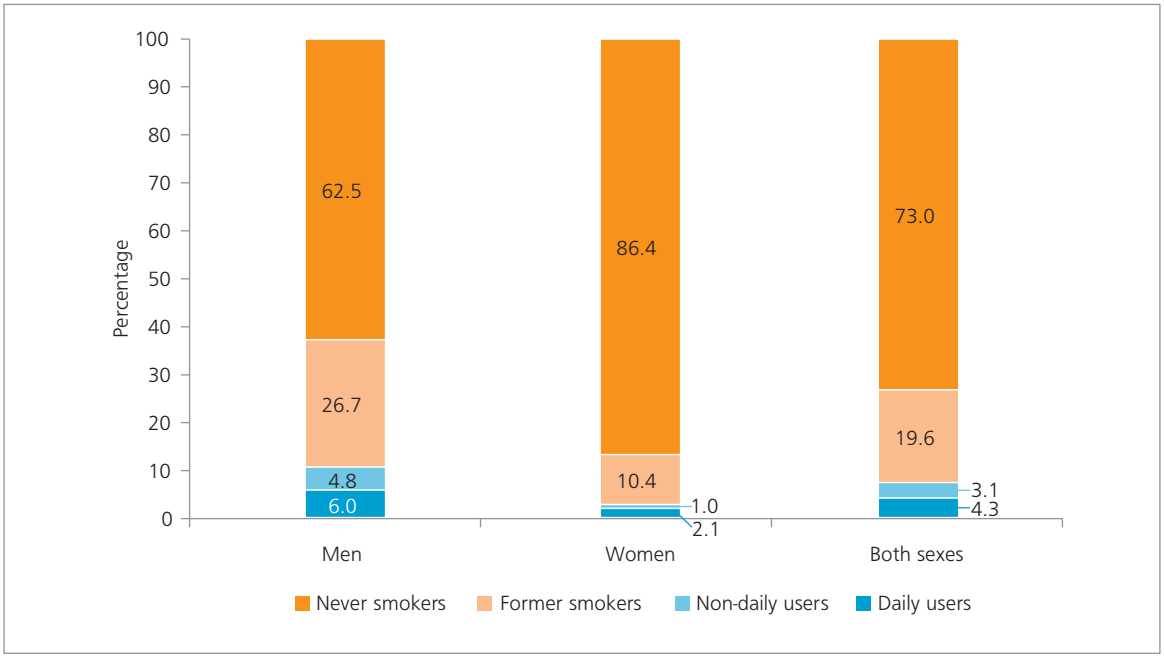


Of all respondents, 4.3% were current daily smokers while 3.1% were current non-daily smokers. 19.6% of the non-smokers were former smokers (Figure 4.4).

The mean age of starting to smoke was 18.9 years and the mean duration of smoking was 13.0 years (Annex 1, Table 4.4).

Among current smokers, 69.0% have tried to stop smoking in last 12 months. More women (82.1%) have tried to stop smoking than men (66.0%) (Annex 1, Table 4.13).

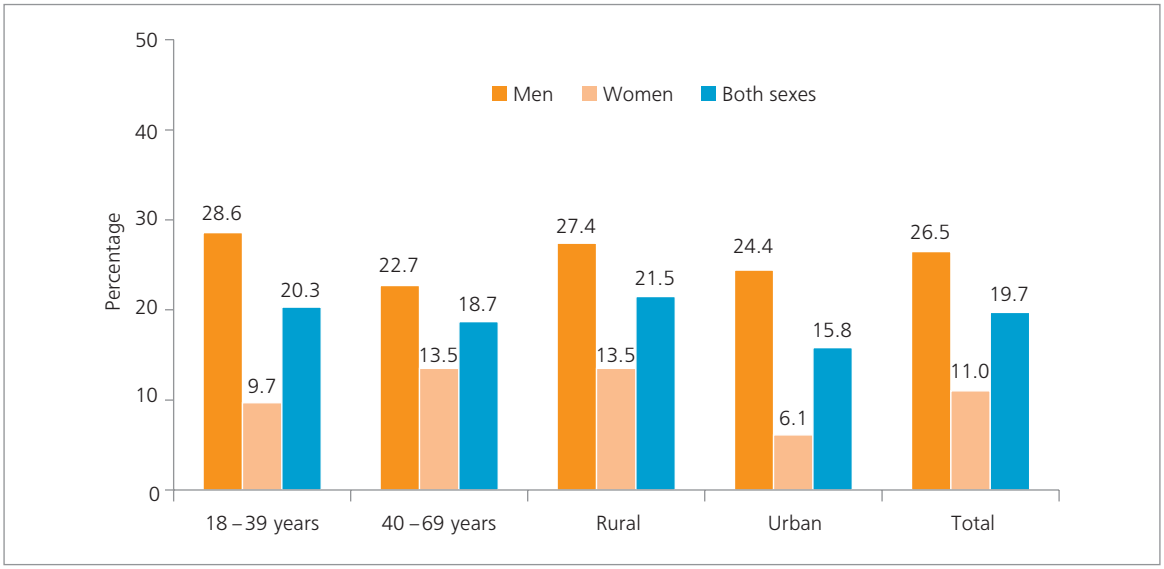
Figure 4.4: Proportion of never smokers, former smokers, non-daily and daily users of smoked tobacco products by sex



Current smokeless tobacco use

As shown in Figure 4.5, 19.7% of respondents were current users of smokeless tobacco products such as snuff, chewing tobacco or betel quid with tobacco. One fourth of men (26.5%) reported currently using any smokeless tobacco products compared with 11.0% of women. Among women, smokeless tobacco use was twice as much in rural areas than urban.

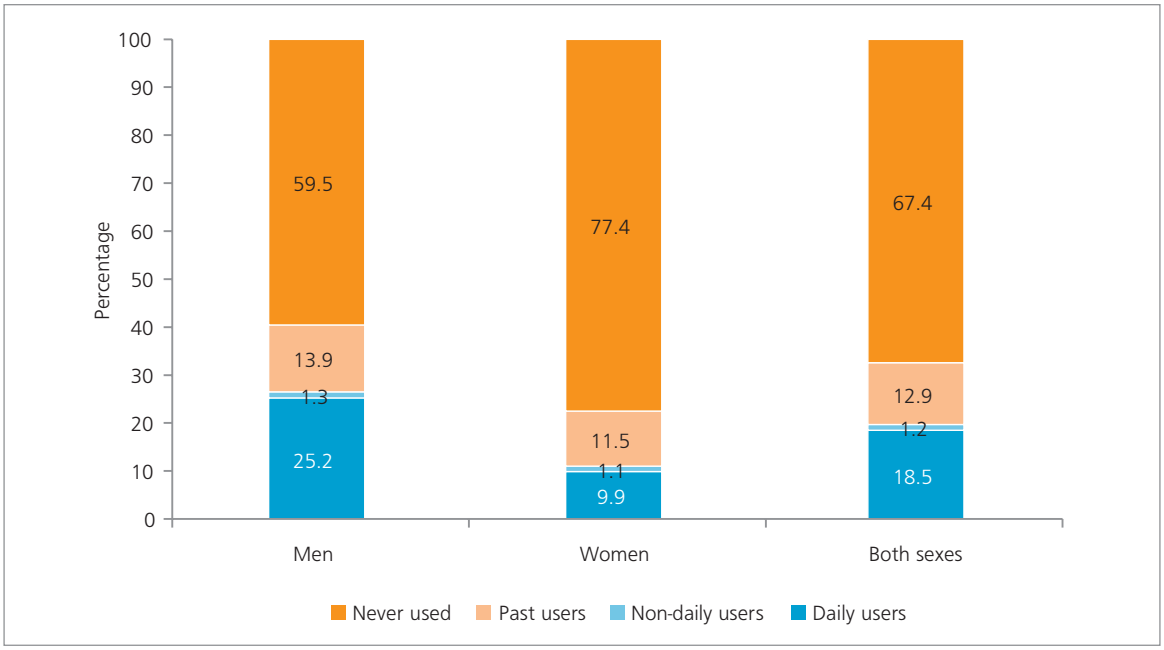
Figure 4.5: Percentage of current smokeless users by age groups, residence and sex



Of 2820 respondents, 18.5% were current daily users of smokeless tobacco. More men (25.2%) were current daily users of smokeless tobacco than women (9.9%). Of the total

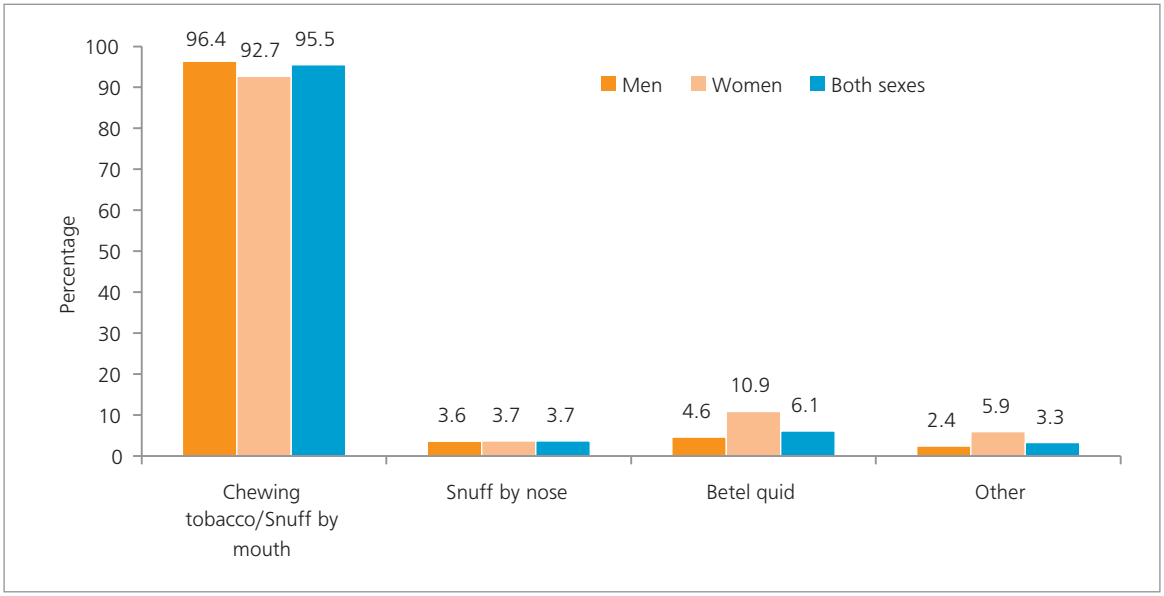
respondents, 12.9% used smokeless tobacco in the past but have stopped using it at the time of the survey (Figure 4.6).

Figure 4.6: Proportion of never users, past users, non-daily and daily users of smokeless tobacco products classified by sex



Most common type of smokeless tobacco consumed was chewing tobacco and snuff by mouth (95.5%), followed by betel quid with tobacco (6.1%) (Figure 4.7). Among smokeless tobacco users, on average, snuff by mouth/chewing tobacco was used 12.4 times per day, betel quid with tobacco was used 0.6 times per day, and snuff by nose was used 0.3 times per day (Annex 1, Table 4.9).

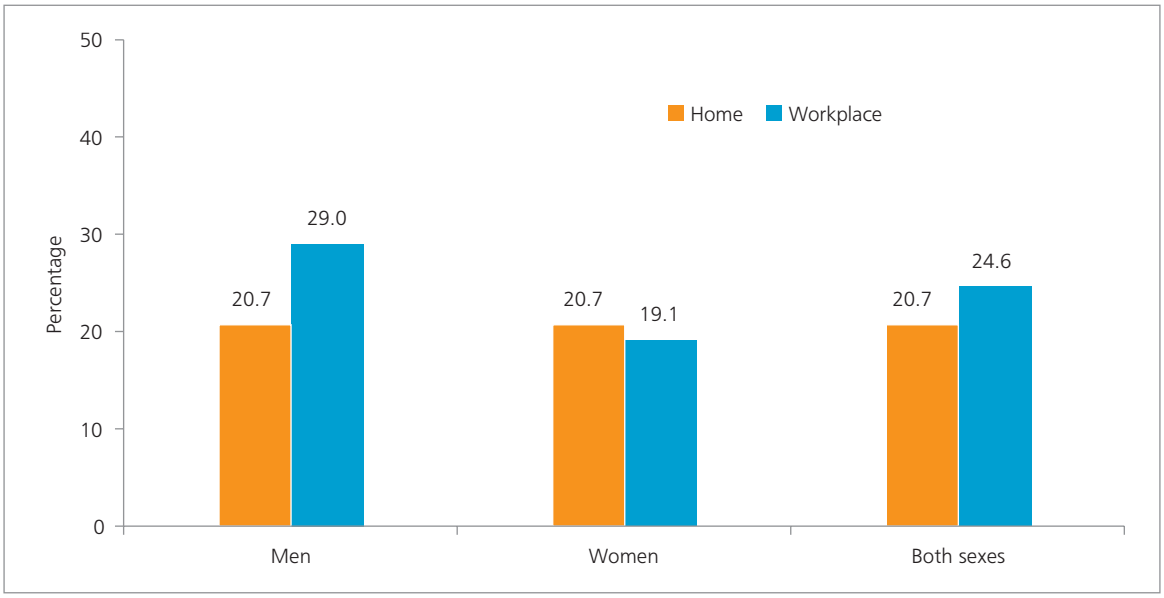
Figure 4.7: Percentage of smokeless tobacco products using by current smokeless tobacco users



Exposure to second-hand smoke (SHS)

One fifth of all respondents (20.7%) reported being exposed to second-hand smoke at home during the 30 days preceding the survey. One fourth (24.6%) of respondents were exposed to second-hand smoke in the workplace during the 30 days preceding the survey (Figure 4.8).

Figure 4.8: Percentage of respondents who reported being exposed to second-hand smoke at home or in the workplace classified by sex



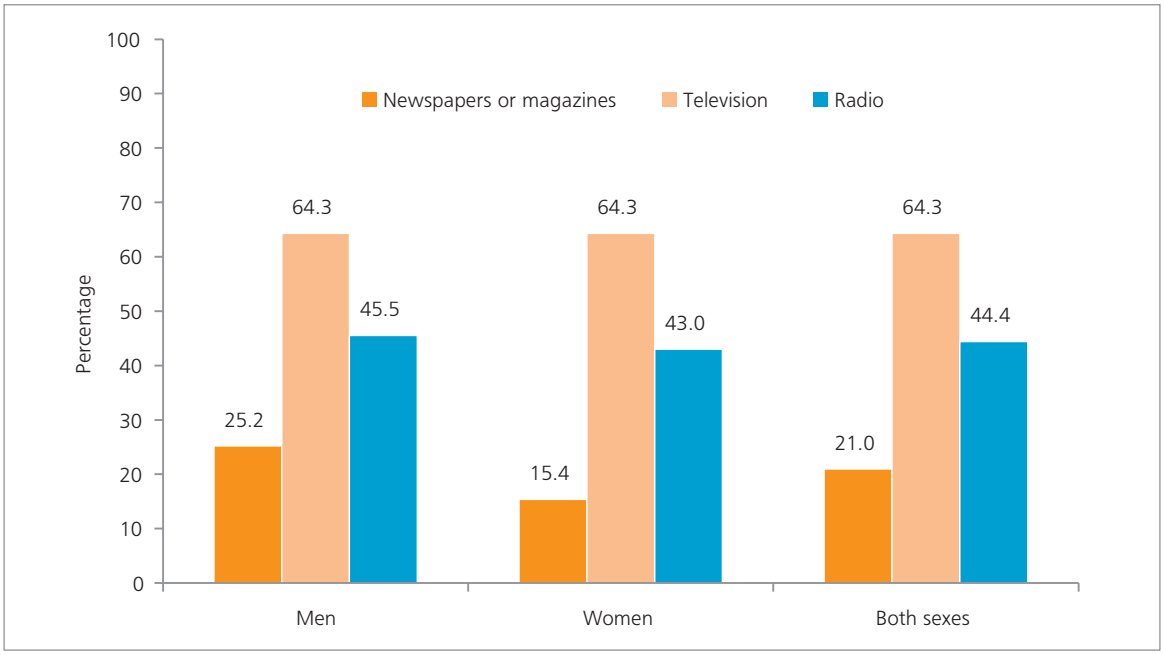
Tobacco policy

During the past 30 days preceding the survey, 21.0% of respondents noticed information about the dangers of smoking or information that encourages quitting in newspapers or magazines; 64.3% noticed such information on television; and 44.4% heard such information over the radio. While there was no significant difference between gender and age group of the respondents with regard to the information being noticed on television or radio, a significantly higher percentage of respondents from the younger age groups noticed information in newspapers or magazines as compared with respondents from the older age groups. The figures for these two were 24.3% and 14.1% respectively (Figure 4.9, Annex 1, Table 4.24).

Among the current smokers 69.8% noticed health warnings on cigarette packages during the 30 days preceding the survey. Of this group, 84.3% had thought about quitting due to the health warnings they saw on cigarette packages (Annex 1, Tables 4.25 and 4.26).

The average price paid for 20 manufactured cigarettes, based on the last cigarette purchased, was Ngultrum 269.3 (95% CI: 162.9-375.7) (Annex 1, Table 4.27).

Figure 4.9: Percentage of respondents who noticed information in the media about the dangers of smoking or that encourages quitting during past 30 days



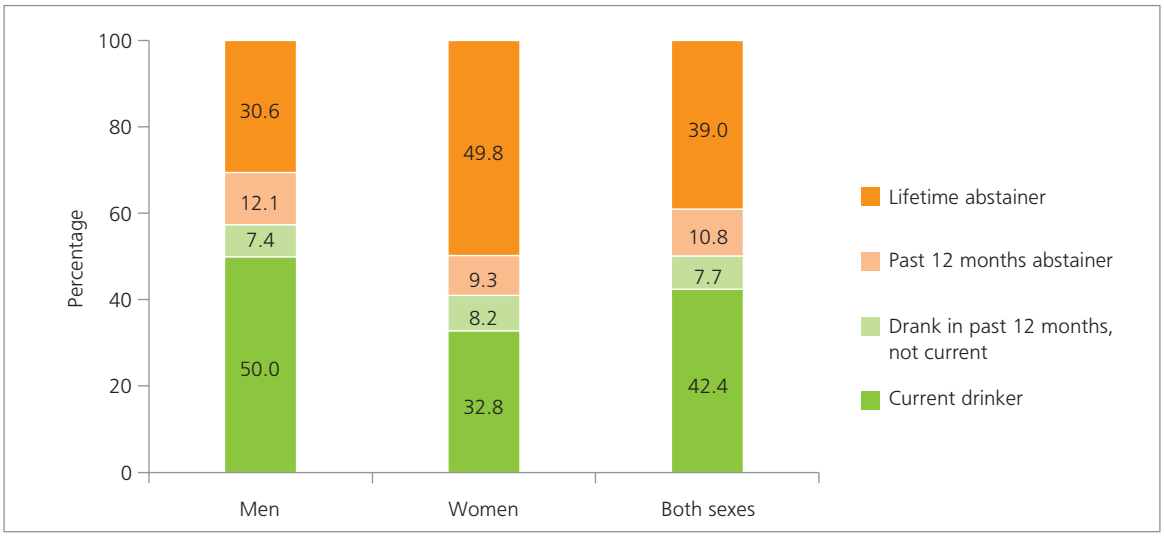
One third of the respondents (31.8%) were advised to stop smoking by a health-care provider in the past 12 month (Annex 1, Table 4.14).

5: Alcohol consumption

Consumption of alcohol

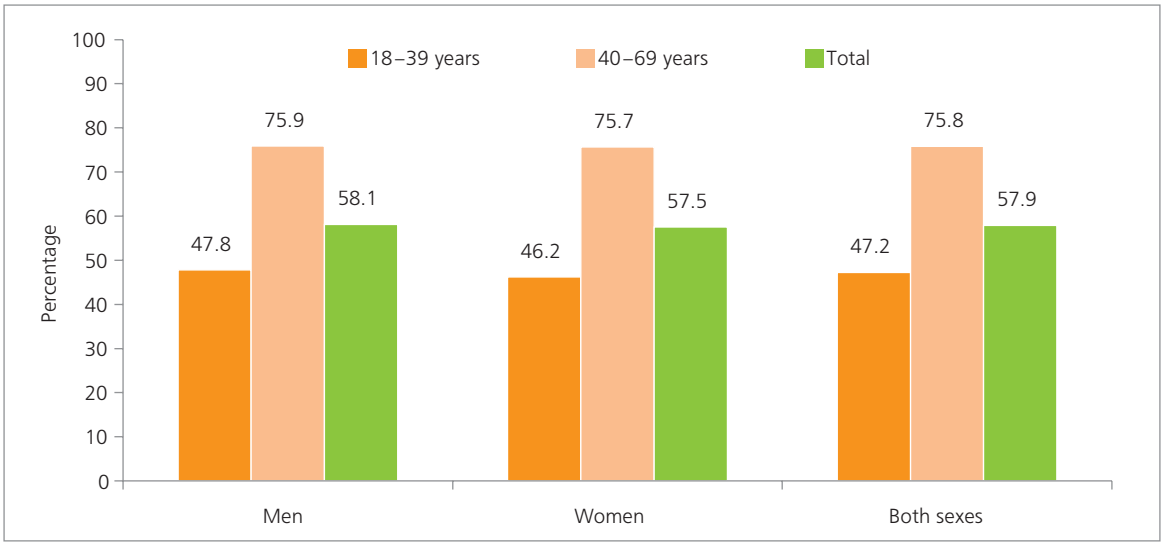
In Bhutan, 39.0% of all respondents had never consumed any alcohol (lifetime abstinence). More women (49.8%) reported lifetime abstinence as compared with men (30.6%). Half of the men (50%) reported being current drinkers of alcohol (past 30 days) as compared with 32.8% of women. There was no significant difference between the younger and the older age groups (Figure 5.1, Annex 1, Table 5.1).

Figure 5.1: Alcohol consumption status by sex



Among former drinkers who had abstained over the past 12 months, 57.9% had stopped drinking due to a negative impact of drinking on their health or following the advice of a doctor or other health worker. This percentage was similar among men and women but was significantly higher in older respondents aged 40–69 years than in younger ones aged 18–39 years (75.8% versus 47.2%) (Figure 5.2, Annex 1, Table 5.2).

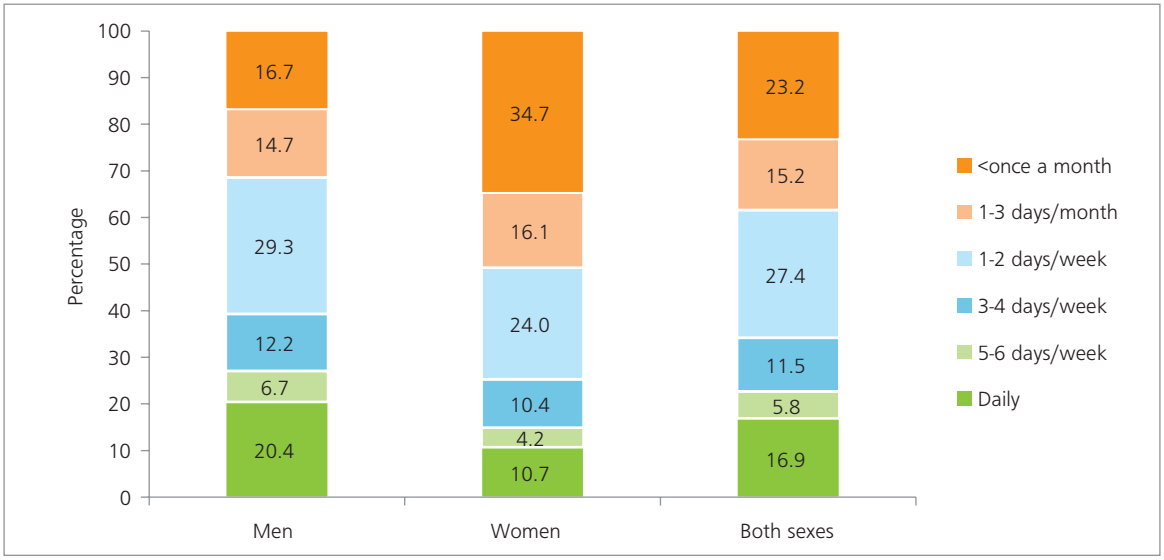
Figure 5.2: Having stopped drinking due to health reasons



Frequency of alcohol consumption

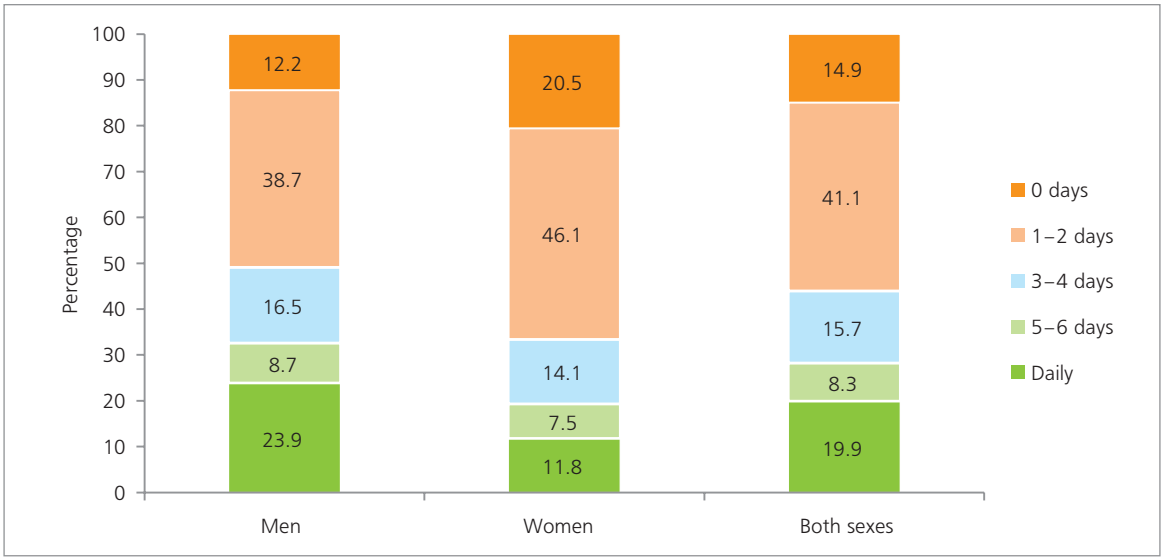
Among respondents who had consumed alcohol in the past 12 months preceding the survey, 16.9% had had at least one standard alcoholic drink daily. The frequency of daily drinking was significantly higher in men than women (20.4% versus 10.7%) (Figure 5.3, Annex 1, Table 5.3).

Figure 5.3: Frequency of alcohol consumption in the past 12 months



Among the current (past 30 days) drinkers, 19.9% had consumed alcohol daily in the past 7 days, 8.3% had consumed alcohol on 5–6 days, 15.7% had consumed on 3–4 days, 41.1% had consumed over the last 1–2 days, and 14.9% did not consume alcohol in the past 7 days (Figure 5.4).

Figure 5.4: Frequency of alcohol consumption in the past 7 days among current (past 30 days) drinkers

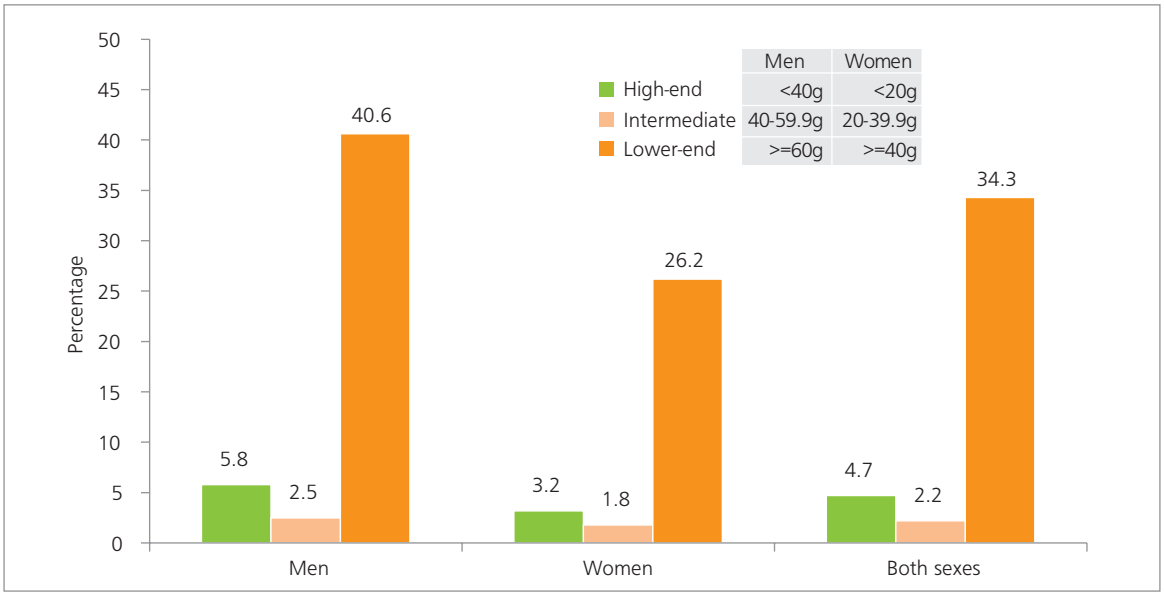


Among current (past 30 days) drinkers, the average number of standard drinks consumed on a drinking occasion was 7.0 for men and 5.0 for women (Annex 1, Table 5.5).

Level of alcohol consumption

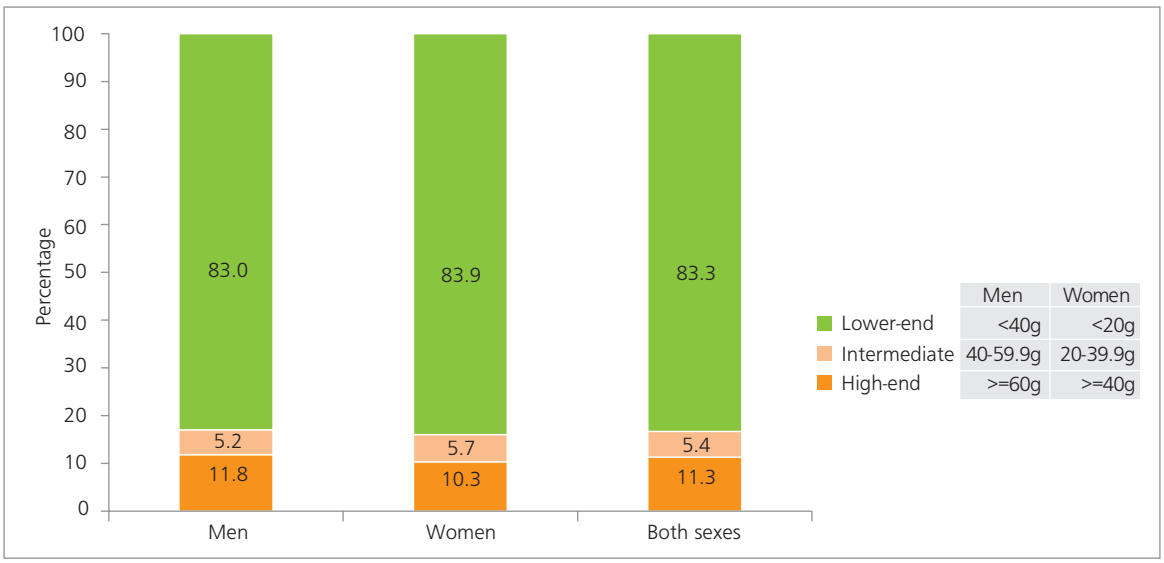
Of the 2756 respondents, 4.7% responded drinking at the high-end level (≥60g of pure alcohol on average per occasion among men and ≥40g of pure alcohol on average per occasion among women). Another 2.2% of the respondents drank at the intermediate level (40–59.9g of pure alcohol on average per occasion among men and 20–39.9g of pure alcohol on average per occasion among women). A total of 34.3% of respondents drank at the lower-end level (<40g of pure alcohol on average per occasion among men and <20g of pure alcohol on average per occasion among women) (Figure 5.5, Annex 1,Table 5.6).

Figure 5.5: Percentage of respondents drinking pure alcohol at different levels among all respondents on average per occasion classified by sex



Among the current (past 30 days) drinkers, 11.3% reported high-end-level drinking, 5.4% were intermediate, and 83.3% were lower-end-level drinkers (Figure 5.6).

Figure 5.6: Percentage current (past 30 days) drinkers with different drinking levels classified by sex

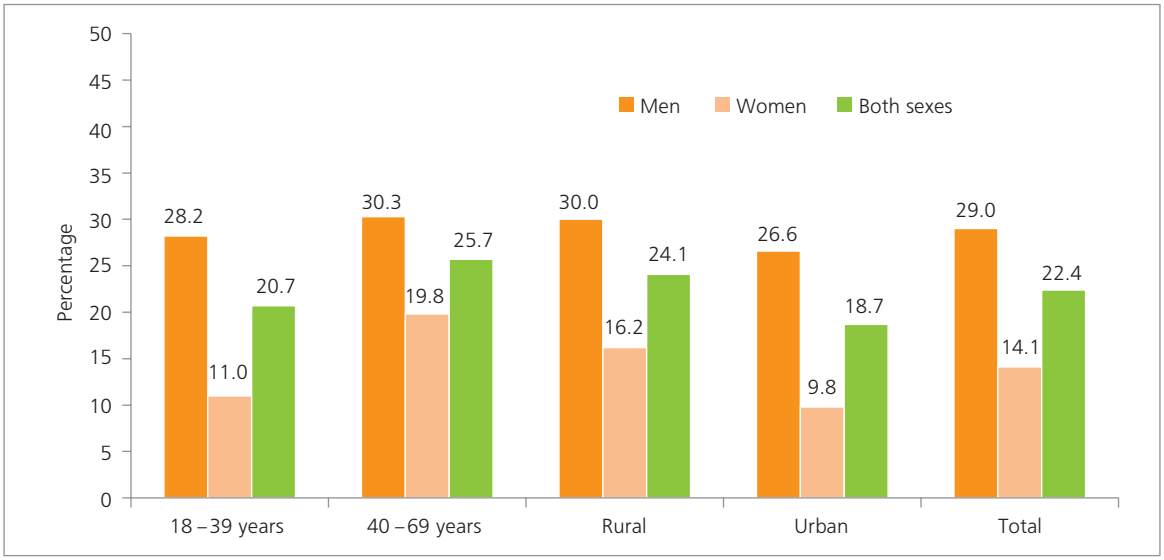


The largest number of standard drinks consumed during a single occasion in the past 30 days among current (past 30 days) drinkers was on an average 8.2; with 9.2 drinks for men and 6.1 drinks for women (Annex 1, Table 5.8).

Heavy episodic drinking

Heavy episodic drinking (binge drinking) was defined as having had six or more standard drinks on any occasion in the past 30 days at a single instance. Binge drinking was 22.4% among all adults; and was significantly higher in males (29%) than females (14.1%). Binge drinking was slightly higher in rural areas (24.1%) than urban areas (18.7%), though the difference was not significant (Figure 5.7).

Figure 5.7: Heavy episodic drinking on a single occasion at least once during the past 30 days



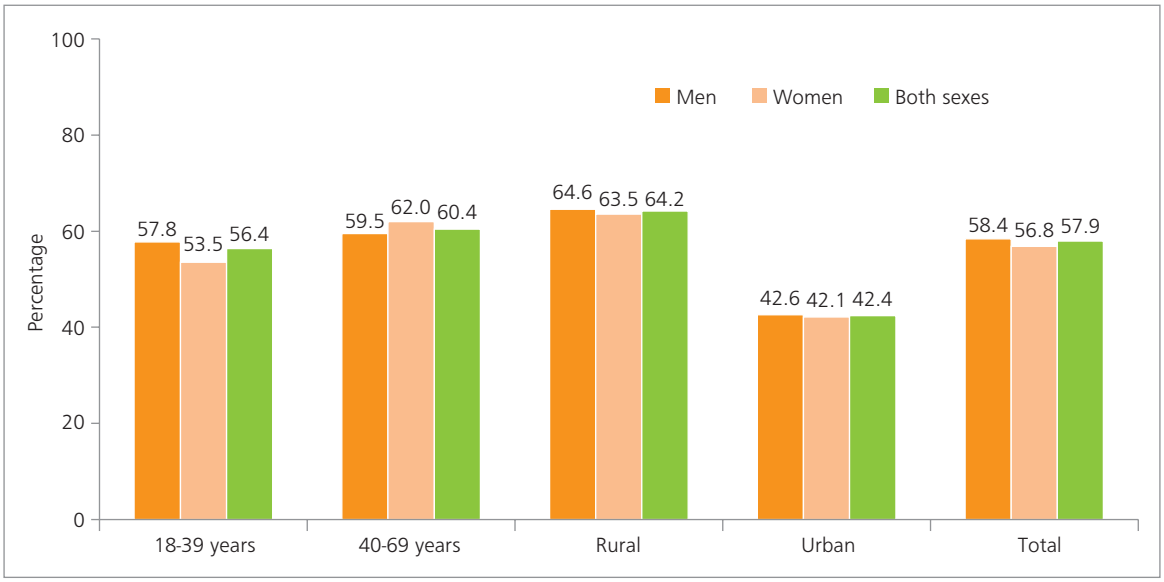
The mean number of drinking occasions among the current drinkers in the past 30 days was 8.5 (9.5 for men and 6.7 for women). The average number of standard drinks consumed on each occasion was 6.3 (7.0 in men and 5.0 in women) (Annex 1, Tables 5.4 and 5.5).

The mean number of standard drinks per drinking occasion in the past 7 days among current drinkers was 2.4 (2.8 for men and 1.7 for women). The mean number of standard drinks of unrecorded alcohol in the past 7 days was 1.4 (1.5 for men and 1.3 for women) (Annex 1, Table 5.12).

Unrecorded alcohol consumption

Overall, 57.9% respondents reported having consumed unrecorded alcohol. This proportion was similar among younger and older populations and among men and women. Consumption of unrecorded alcohol was significantly higher in the rural population (64.2%) than the urban population (42.4%) (Figure 5.8).

Figure 5.8: Consumption of unrecorded alcohol by sex, age and residence of respondents



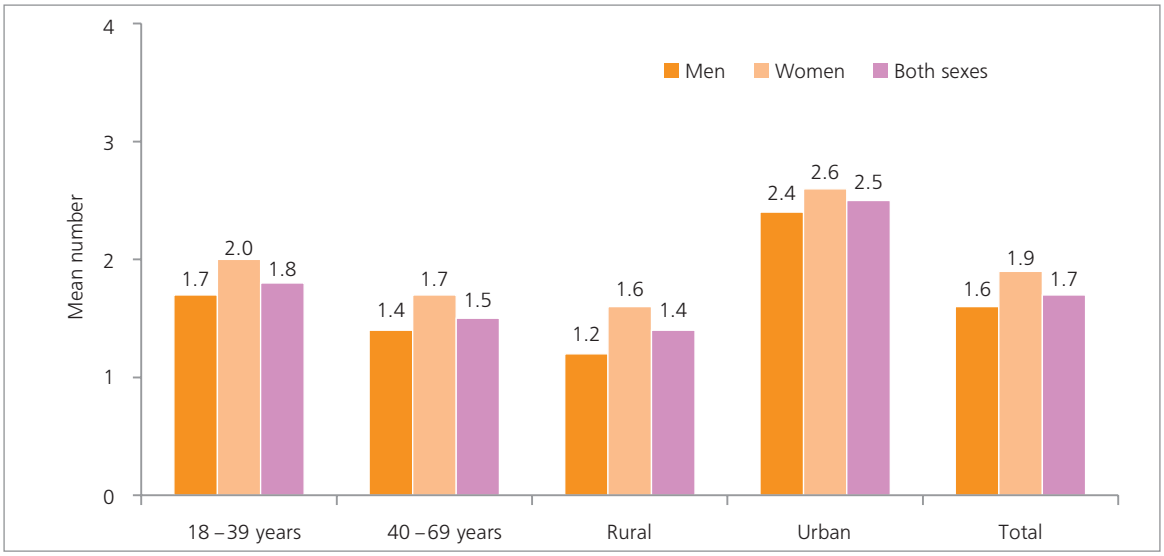
Overall, 47.6% of all alcohol consumed was unrecorded alcohol in the past 7 days (Annex 1, Table 5.14). Of the respondents who reported consuming unrecorded alcohol in the past 7 days, 50.1% had home-brewed spirits, 43.9% had home-brewed beer/wine and 5.3% had bought it from across the border (Annex 1, Table 5.15).

6. Dietary habits

Consumption of fruits and vegetables

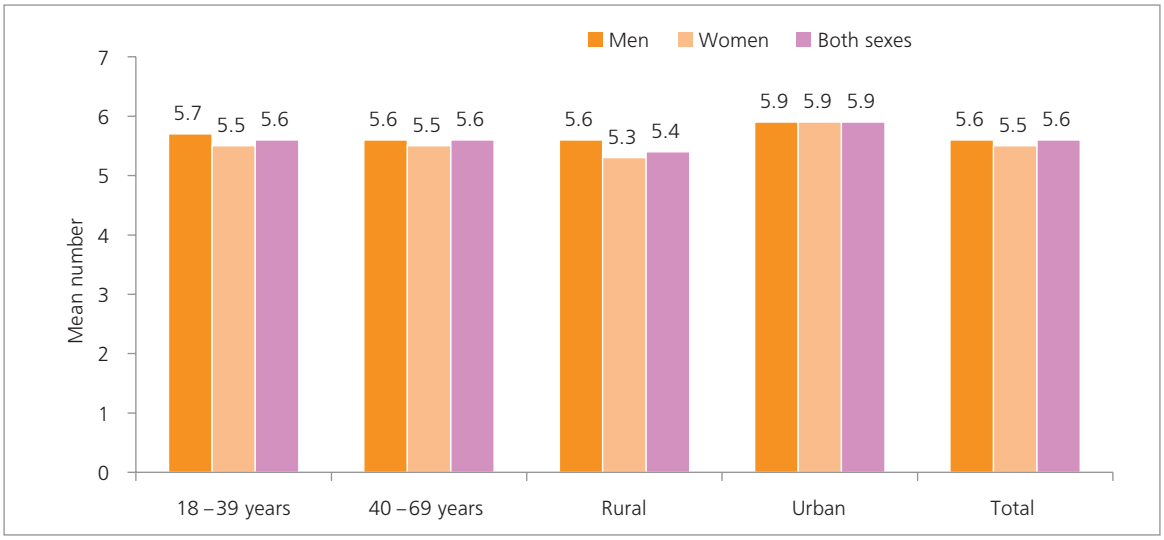
In a typical week, respondents reported eating fruits on 1.7 days. Among the sexes, both urban men and women have a significantly higher weekly consumption of fruits compared with their rural counterparts [urban women, 2.6 (95% CI 2.3–2.9), rural women, 1.6 (95% CI 1.3–1.8), urban men, 2.4 (95% CI 2.0–2.9), rural men, 1.2 (95% CI 1.0–1.5)]. People in urban areas have a higher level of fruit consumption in a typical week (urban 2.5, rural 1.4) (Figure 6.1, Annex 1, Table 6.1).

Figure 6.1: Mean number of days fruits are consumed in a typical week by age, sex and residence



Consumption of vegetables was higher at a mean of 5.6 days in a week. Urban women also had a significantly higher weekly consumption of vegetables compared with their rural counterparts [urban women 5.9% (95% CI 5.6–6.2), rural women 5.3% (95% CI 5.1–5.5) (Figure 6.2, Annex 1, Table 6.1).

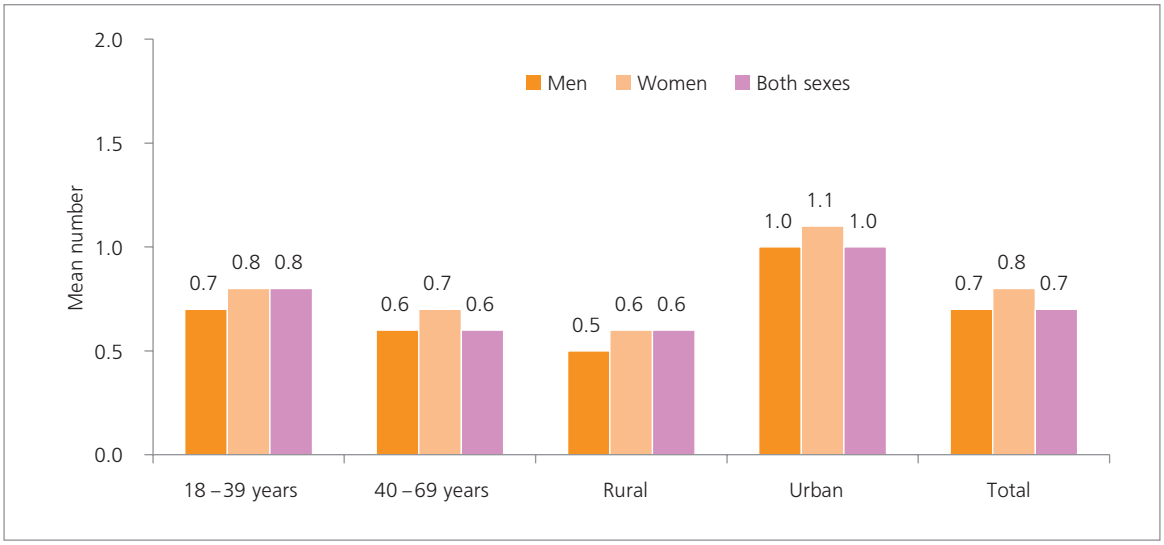
Figure 6.2: Mean number of days vegetables are consumed in a typical week by age, sex and residence



The quantity of intake was measured by servings: one serving of fruit was defined as equal to a medium-sized banana or apple or equivalent and one serving of vegetables equal to one cup of green leafy vegetables or half a cup of cooked vegetables.

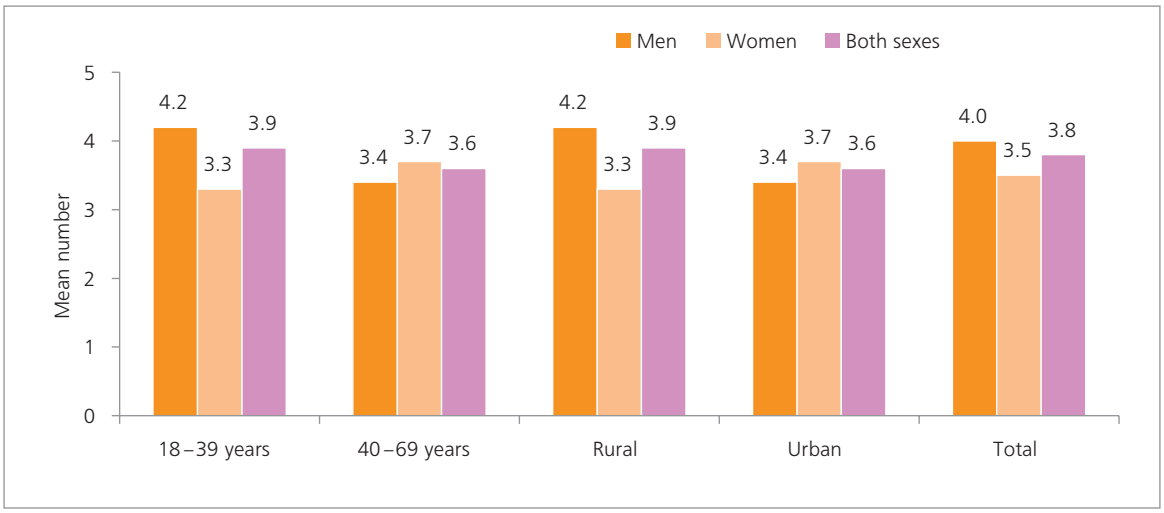
The mean number of servings of fruit consumed in a day was 0.7. There was no difference by sex; however, people in urban areas consumed more servings of fruit (1.0) than rural areas (0.6) (Figure 6.3).

Figure 6.3: Mean number of servings of fruits consumed on average per day classified by sex, age and residence of respondents



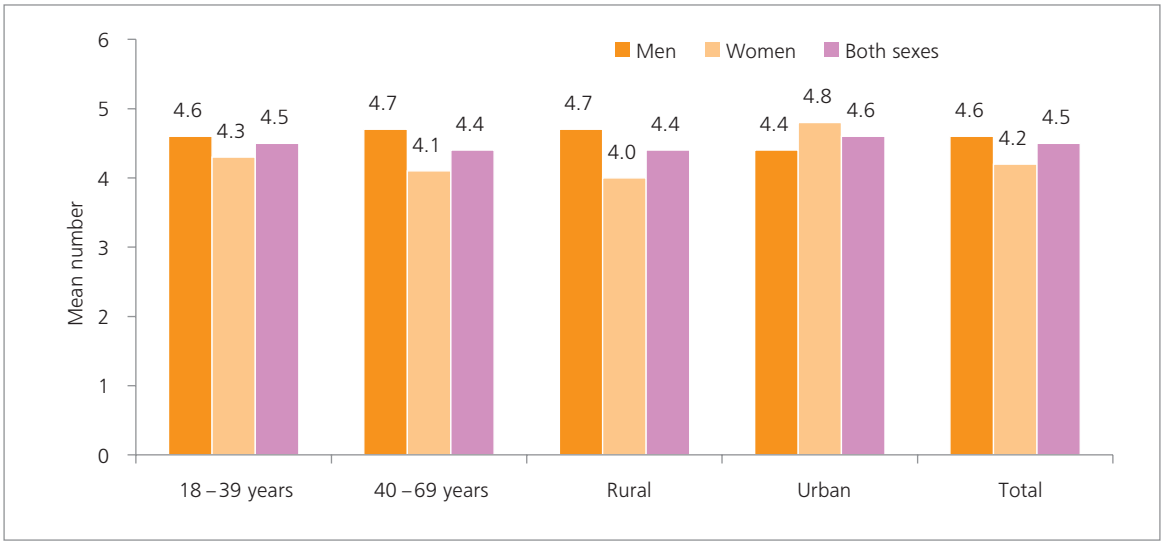
The mean number of servings of vegetables per day was 3.8. There was no difference by sex or residence in consumption of vegetable servings per day (Figure 6.4, Annex 1, Table 6.2).

Figure 6.4: Mean number of servings of vegetables consumed on average per day classified by sex and age of respondents



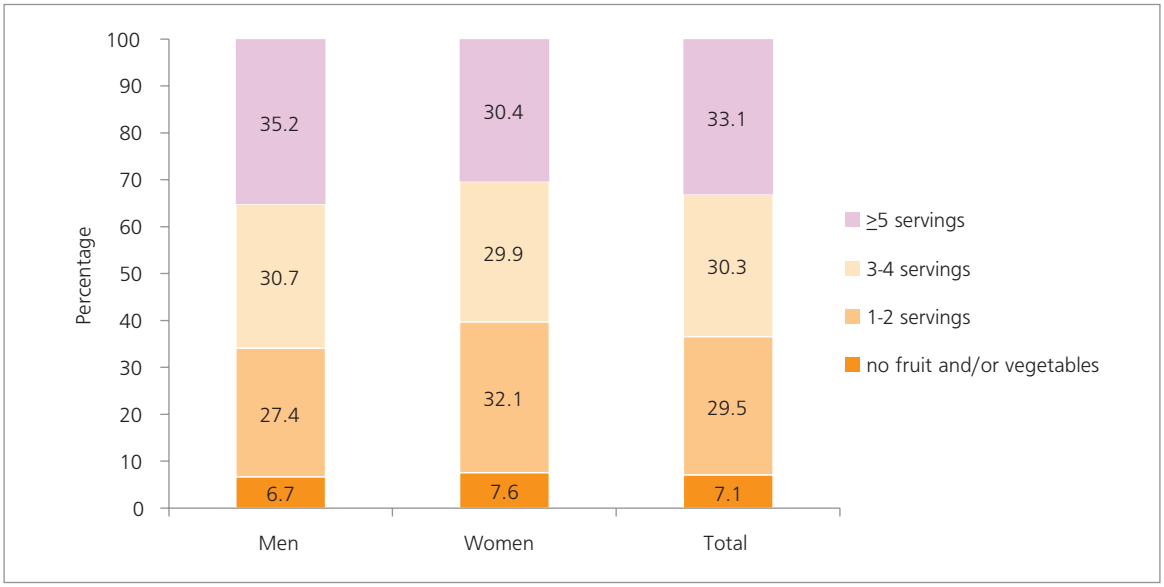
The mean number of servings of fruits and/or vegetables per day was 4.5 (Figure 6.5). There was no difference by sex or residence in consumption of fruit and/or vegetables servings per day (Figure 6.5).

Figure 6.5: Mean number of servings of fruits and/or vegetables consumed on average per day by sex, age and residence of respondents



Two thirds of respondents (66.9%) ate less than five servings of fruits and/or vegetables, hence not meeting the WHO recommendation. There was no significant difference by sex or age groups in fruit and vegetable intake (Figure 6.6 and Annex 1, Table 6.4).

Figure 6.6: Number of servings of fruit and/or vegetables on an average per day



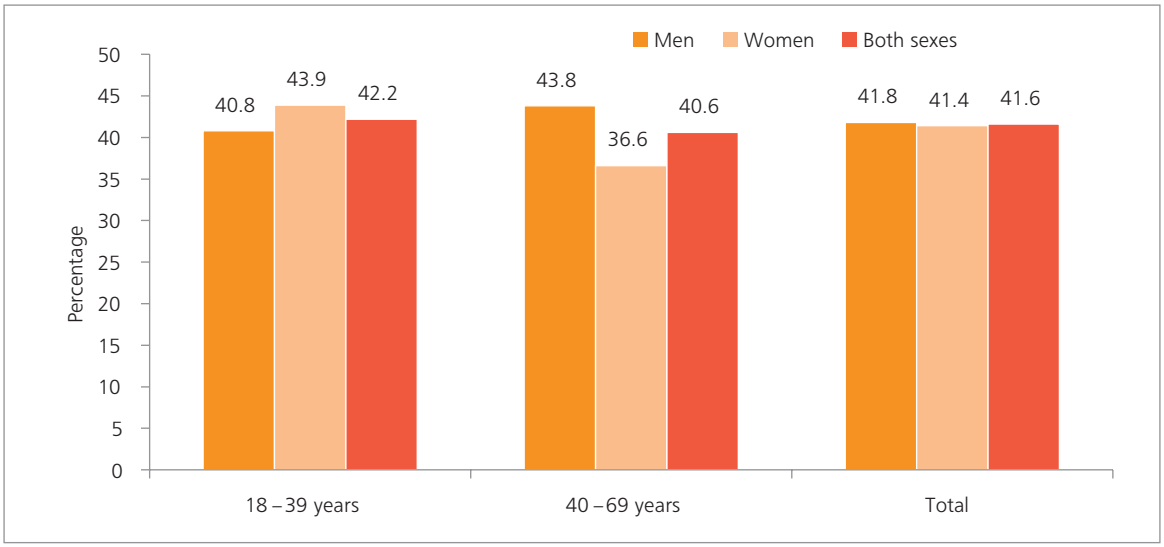
7. Dietary salt

The knowledge, attitude and behaviour of Bhutanese adults towards dietary salt consumption were assessed using structured questions.

Salt intake

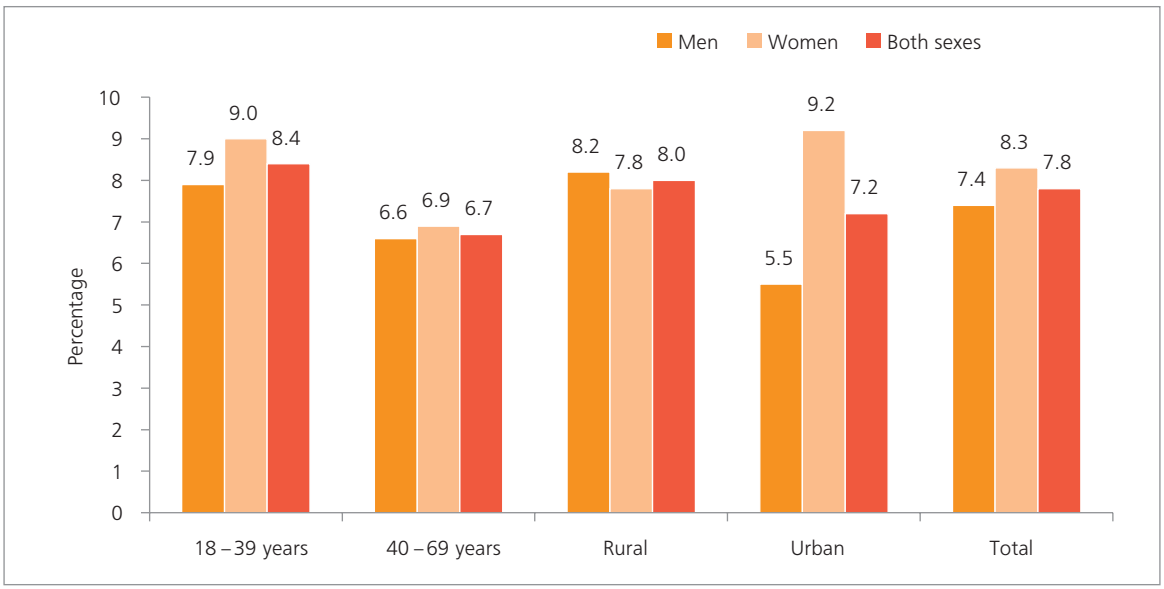
Four out of 10 (41.6%) respondents always or often added salt to their food when cooking or preparing foods at home.

Figure 7.1: Percentage of adults who always or often add salt when cooking or preparing food at home classified by age and sex of respondents



Nearly one in 10 respondents reported that they add salt always or often before eating or when eating (Figure 7.2).

Figure 7.2: Percentage of adults who always or often add salt before eating or when eating classified by age, sex and residence of respondents

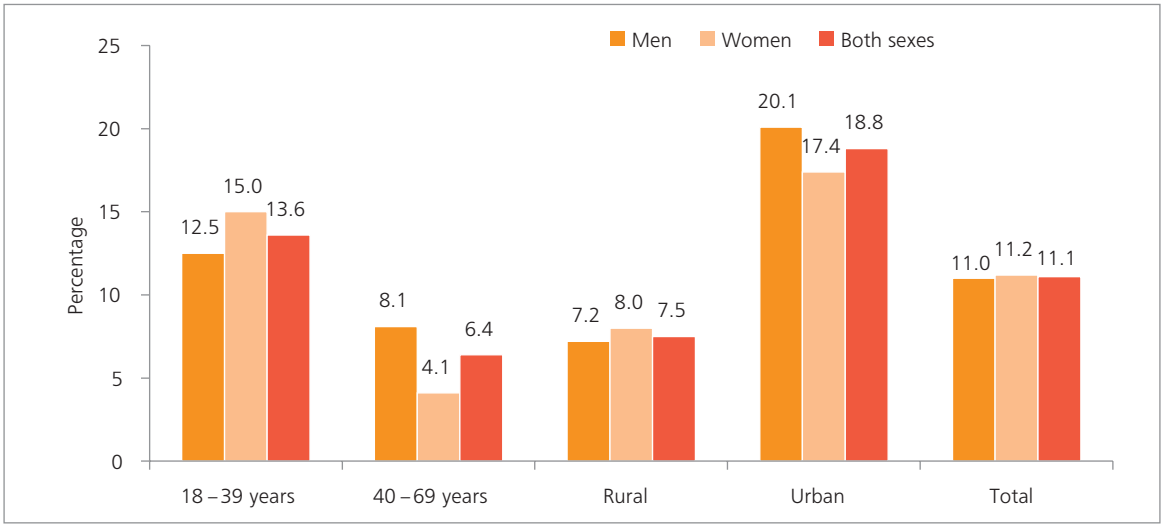


Nearly one in 10 adults (11.1%) always or often ate processed foods high in salt content (Figure 7.3).

The consumption of processed food high in salt is significantly lower among rural people compared with their urban counterparts and even by gender [both sexes rural 7.5% (5.6–9.5), both sexes urban 18.8% (15.1–22.6), rural men 7.2% (4.7–9.6), urban men 20.1% (14.2–26.0), rural women 8.0% (5.4–10.7), urban women 17.4% (14.1–20.7)].

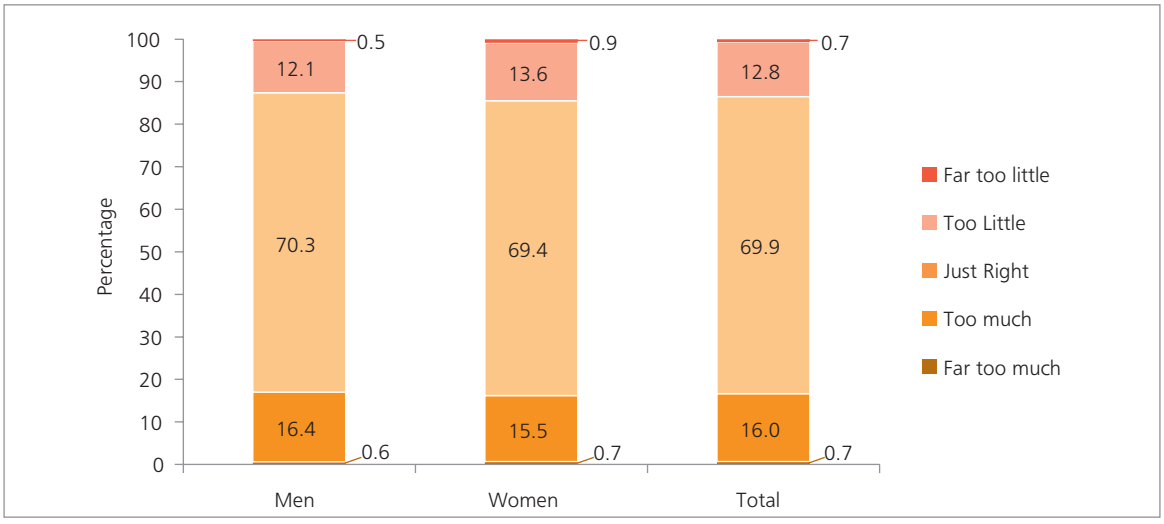
The consumption of processed food high in salt is significantly higher among the younger age group and also among younger women (both sexes age group 18–39 13.6%, both sexes age group 40–69 6.4%, women 18–39 15.0%, women 40–69 4.1%) (Figures 7.3 and Annex 1, Table 7.1).

Figure 7.3: Percentage of adults who always or often consumed processed foods high in salt classified by age, sex and residence of respondents



The self-reported quantity of salt consumed in relative measures was also assessed. Nearly seven in 10 (69.9%) respondents thought that they were using just the right amount of salt. Around 16% of respondents thought that they were using too much salt whereas 12.8% of respondents thought that they were using too little salt. Responses from men and women were not significantly different, as shown in Figure 7.4.

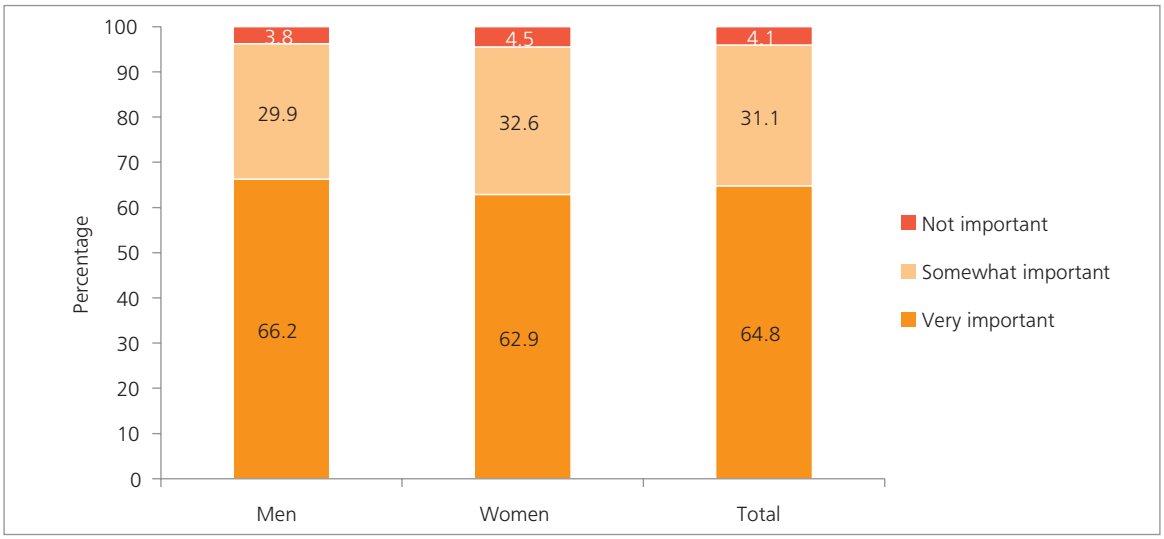
Figure 7.4: Self-reported quantity of salt consumed



Awareness on lowering salt intake

Nearly two thirds (64.8%) of the respondents (men 66.2%, women 62.9%) thought that lowering salt in their diet would be very important. Around one third of the respondents (31.3%) thought it would be somewhat important. This proportion was a little higher among women (32.6%) than men (29.9%). Only 4.1% (men 3.8%, women 4.5%) thought lowering salt intake would not be at all important (Figure 7.5).

Figure 7.5: Percentage of those who agreed with the importance of lowering salt in diet

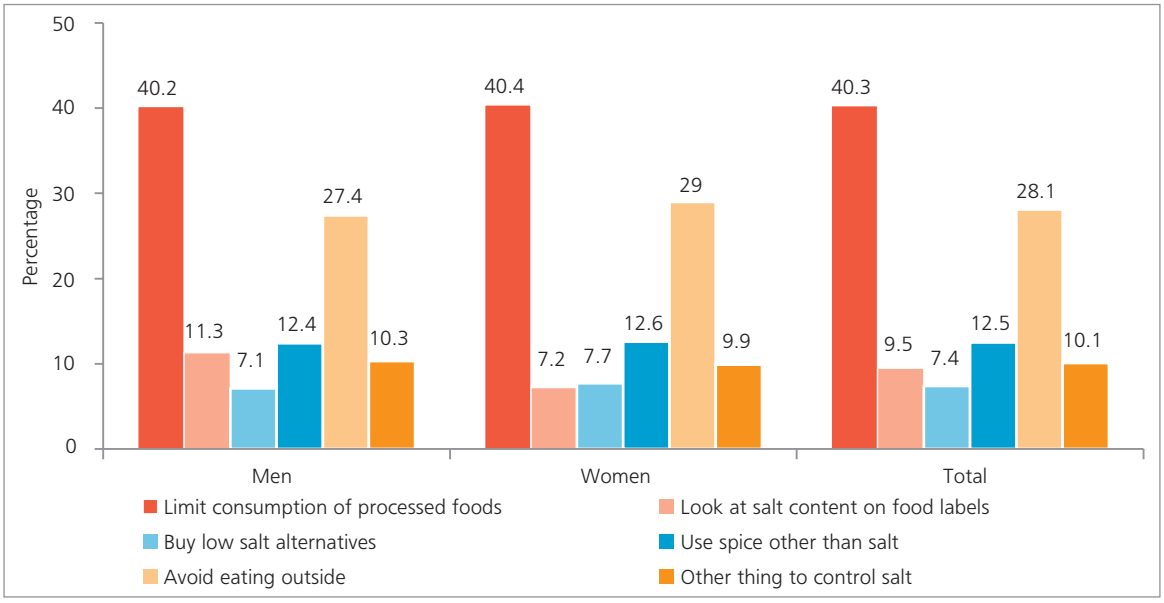


Of 2561 respondents, 92.1% thought consuming too much salt could cause a serious health problem (Annex 1, Table 7.5).

Actions to reduce salt intake

The survey also assessed the various actions which were used by respondents regularly to control their salt intake. In order to control salt intake 40.3% respondents limited consumption of processed foods, 9.5% looked at the salt or sodium content on food labels, 7.4% bought low salt/sodium alternatives, 12.5% used spices other than salt when cooking, 28.1% avoided eating foods prepared outside of a home, and 10.1% took other steps specifically to control salt intake (Figure 7.6).

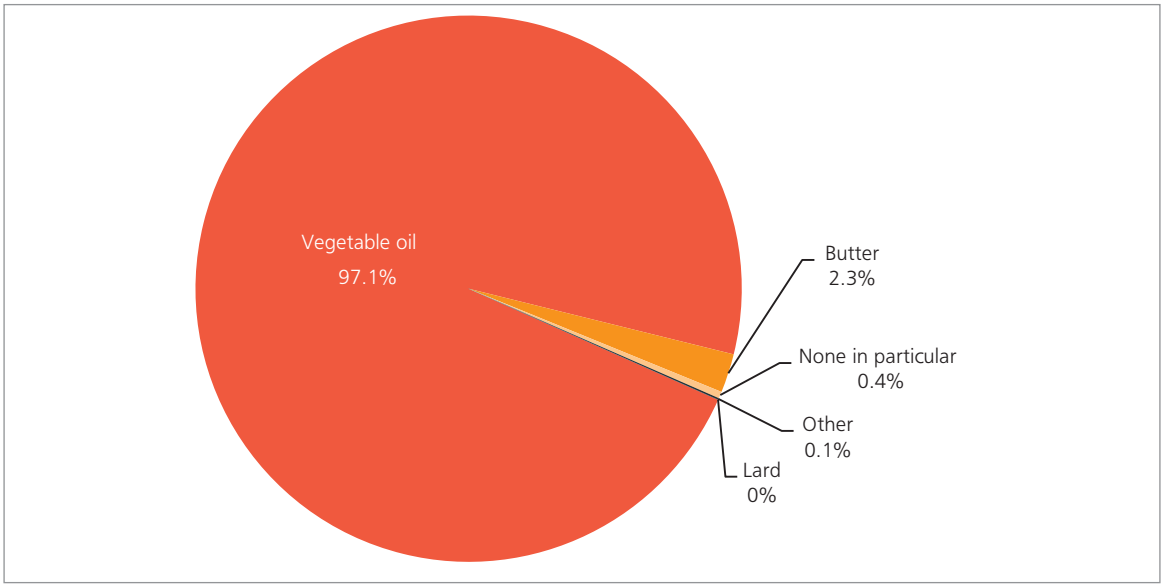
Figure 7.6: Steps taken on a regular basis to reduce salt intake



Type of oil used for cooking

In 97.1% of households, vegetable oil was the most often used type of oil or fat for meal preparation in the household. Butter was used in 2.3% of households, and 0.1% of households used other type of oil or fat (Figure 7.7).

Figure 7.7: Type of oil or fat most often used for meal preparation in households



Eating outside the home

On an average per week, adults consumed 0.9 meals (breakfast, lunch and dinner) that were not prepared at home (Annex 1, Table 7.9).

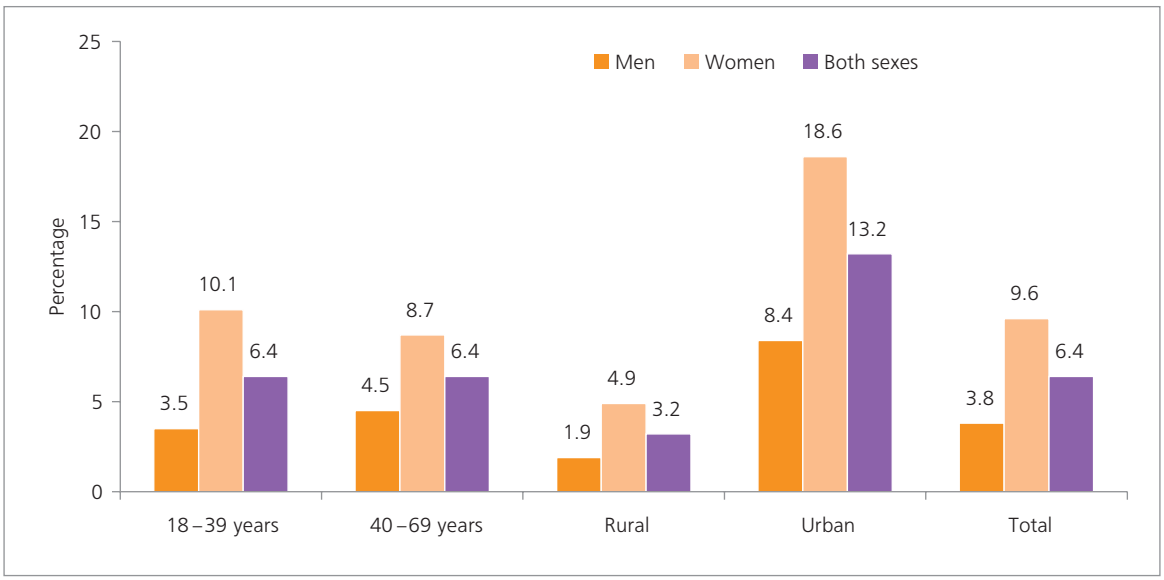
8. Physical inactivity

Physical activity of the survey population was assessed by evaluating the intensity and duration of activities undertaken during work, travel and recreation.

Not meeting WHO recommendations of physical activity

As per the results of the survey, Bhutanese adults in the age group 18–69 are physically active, with only 6.4% of all adults not meeting WHO recommendations on physical activity for health (i.e. <150 minutes of moderate-intensity physical activity per week, or equivalent). Significantly higher percentages of women (9.6% CI 6.8–12.4) do not meet the WHO recommendations as compared with men (3.8% CI 2.5–5.0). While there is no difference between the two age groups, the percentage of respondents not meeting the requirement is significantly higher in urban areas (13.2%) then rural (3.2%) (Figure 8.1, Annex 1,Table 8.2).

Figure 8.1: Percentage not meeting WHO recommendations on physical activity for health

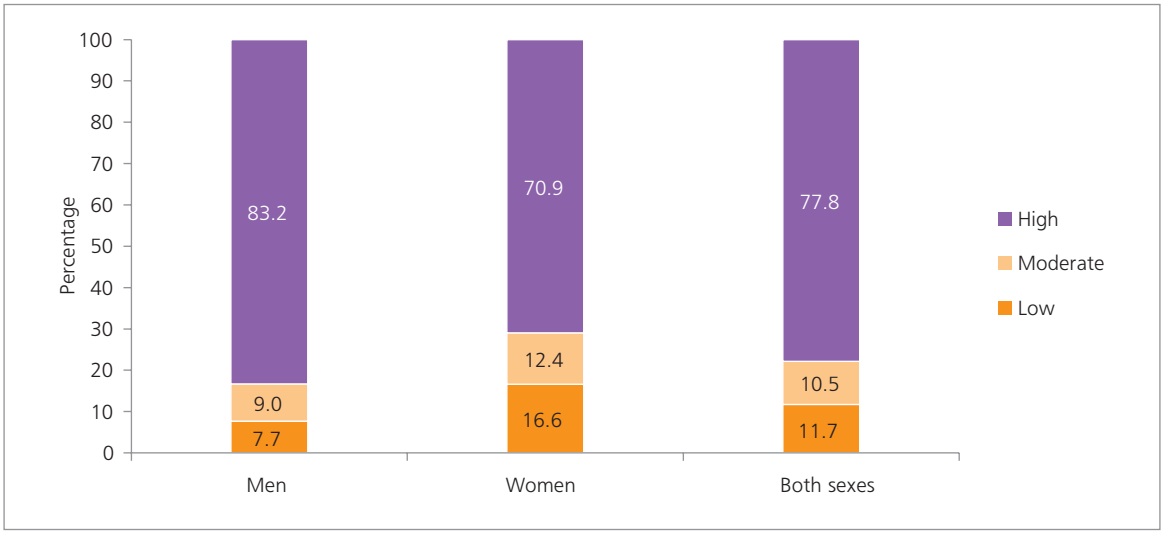


Physical activity by domain (work/household, transport and leisure time)

Among all respondents, 77.8% reported low levels of total physical activity, 10.5% reported moderate level of total physical activity, and 11.7% reported high level of total physical activity. More men reported higher levels of total physical activity (83.2%) than women (70.9%). A significantly higher percentage of women (16.6% CI 13.5–19.8) reported low level of total physical activity as compared with men (7.7% CI 5.5–10.0) (Figure 8.2, Annex 1, Table 8.3).

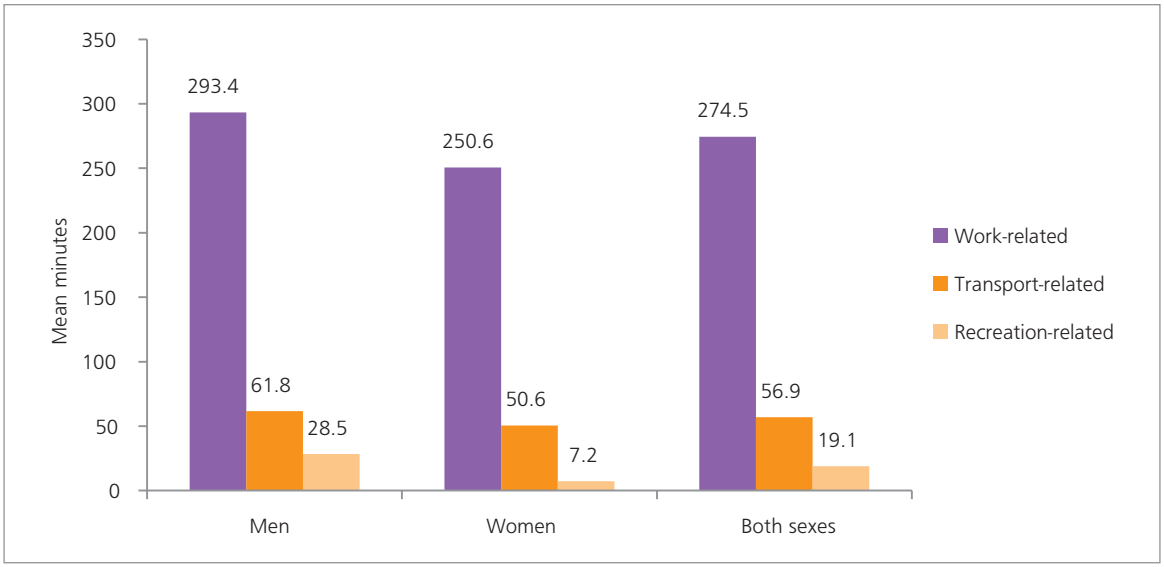
The mean minutes of total physical activity on average per day was 350.5 minutes. It was significantly higher for men (383.7 minutes, CI 357.3–410.2) than for women (308.3 minutes, CI 283.9–332.8). For all respondents, the median minutes of total physical activity on average per day was 330.0 minutes. The figure was 367.1 minutes for men and 274.3 minutes for women (Annex 1, Table 8.4).

Figure 8.2: Level of total physical activity



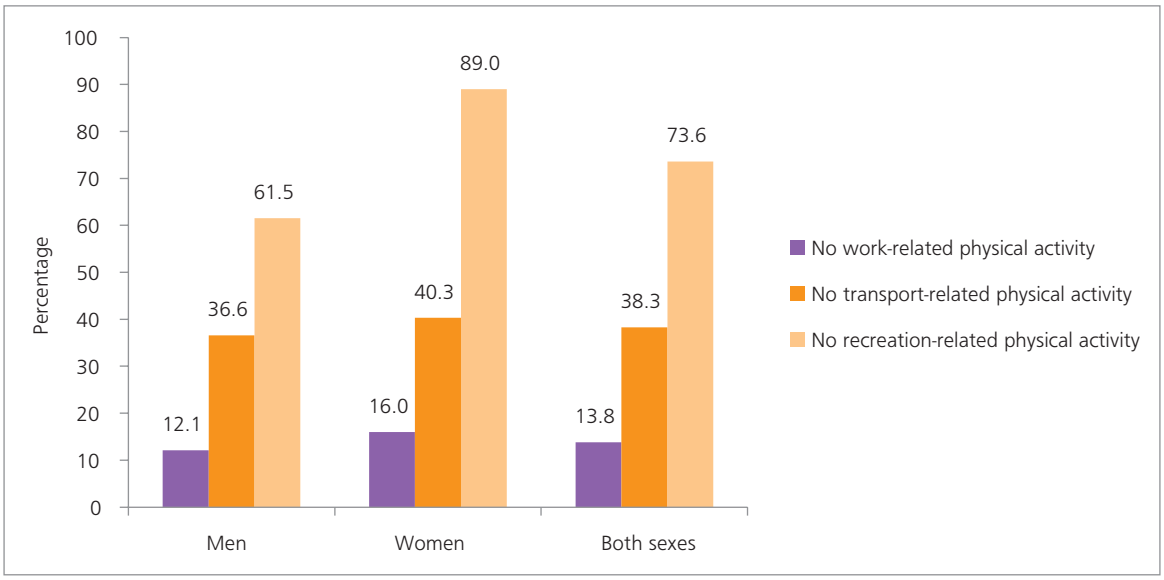
The mean time (minutes) spent in work-related physical activity on average per day was 274.5 minutes (293.4 for men and 250.6 for women). The mean minutes spent in transport-related physical activity on average per day was 56.9 minutes (61.8 for men and 50.6 for women); and the mean minutes spent in recreation-related physical activity on average per day was 19.1 minutes (28.5 for men and 7.2 for women). The mean minutes spent in recreation-related physical activity on average per day was significantly higher in younger group respondents (24.6 minutes) than older group respondents (8.5 minutes) (Figure 8.3, Annex 1, Table 8.5).

Figure 8.3: Mean minutes spent on physical activity on average per day



Of all respondents, 13.8% said they did not engage in any work-related physical activity (12.1% for men and 16.0% for women), 38.3% did not perform transport-related physical activity (36.6% for men and 40.3% for women), and 73.6% did not do any recreational-related physical activity (61.5% for men and 89.0% for women). Significantly higher percentages (85.6%) of older respondents did not do recreational-related physical activity than respondents from the younger group (67.4%) (Figure 8.4, Annex 1, Table 8.7).

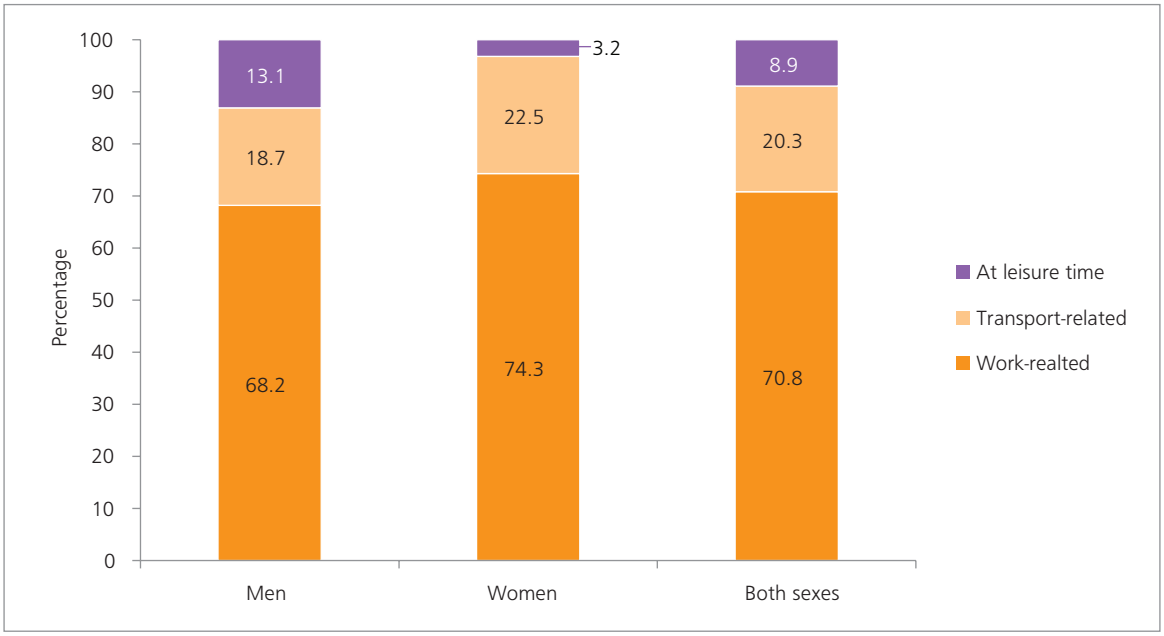
Figure 8.4: Percentage of respondents not doing any work-, transport-, or recreation-related physical activity



Contribution of domain-specific physical activity to total physical activity

When the composition of total physical activity of all respondents was analysed, 70.8% of the total activity was contributed by work activity, 20.3% was contributed by transport-related activity, and 8.9% was contributed by recreational activity. The contribution of recreational activity to the total corpus of activity for men was significantly higher (13.1%) than for women (3.2%), and was also significantly higher (10.9%) for the younger age group than the older group respondents (4.9%) (Figure 8.5, Annex 1, Table 8.8).

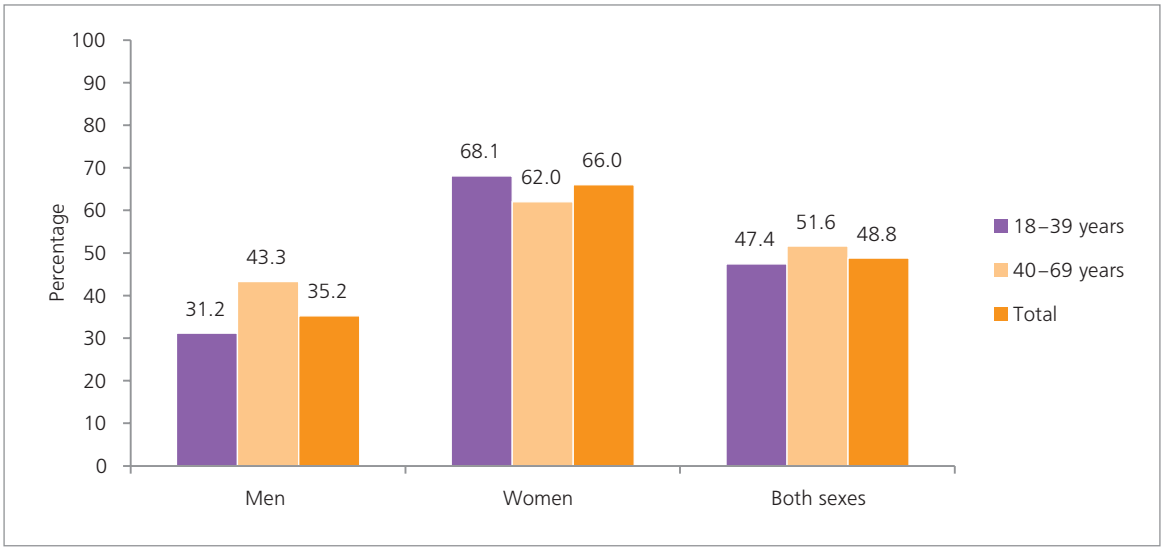
Figure 8.5: Contribution of work-, transport- and recreation-related physical activity to total activity



Engagement in vigorous physical activities

Nearly half (48.8%) of all respondents were not engaging in any vigorous physical activity. The percentage of women not engaging in vigorous physical activity was significantly higher (66.0%) than men (35.2%) (Figure 8.6, Annex 1, Table 8.9).

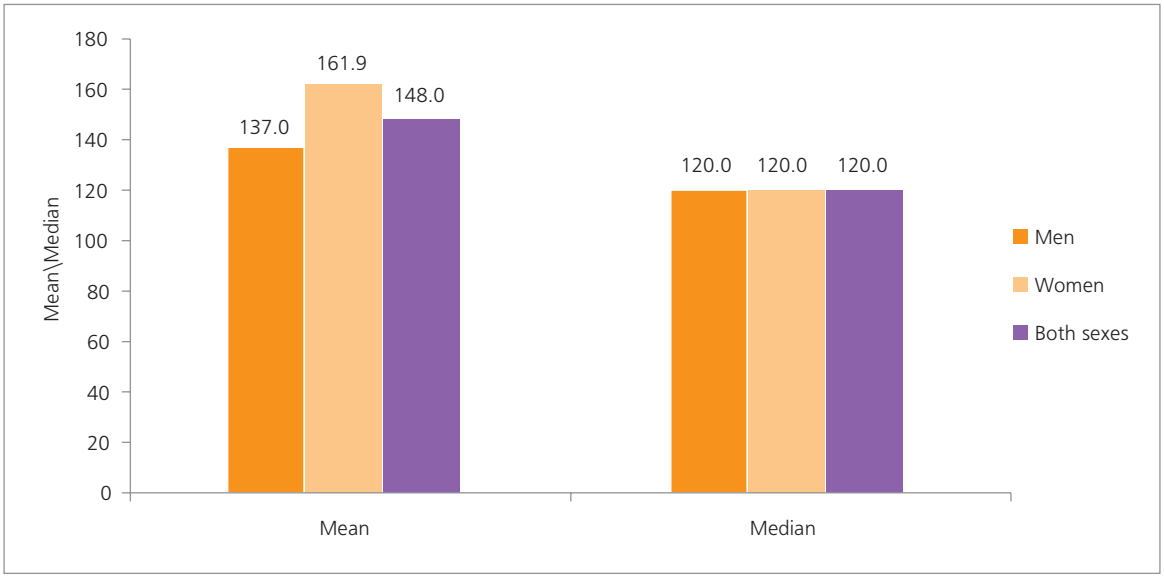
Figure 8.6: Percentage of respondents not engaging in vigorous physical activity



Time spent being sedentary

The mean minutes spent on sedentary activities in a typical day was 148.0 minutes (137.0 minutes for men and 161.9 for women) and the median minutes spent on sedentary activities in a typical day was 120.0 (the median minutes was the same irrespective of gender and age group) (Figure 8.7, Annex 1, Table 8.10).

Figure 8.7: Mean and median minutes spent on sedentary activity on a typical day

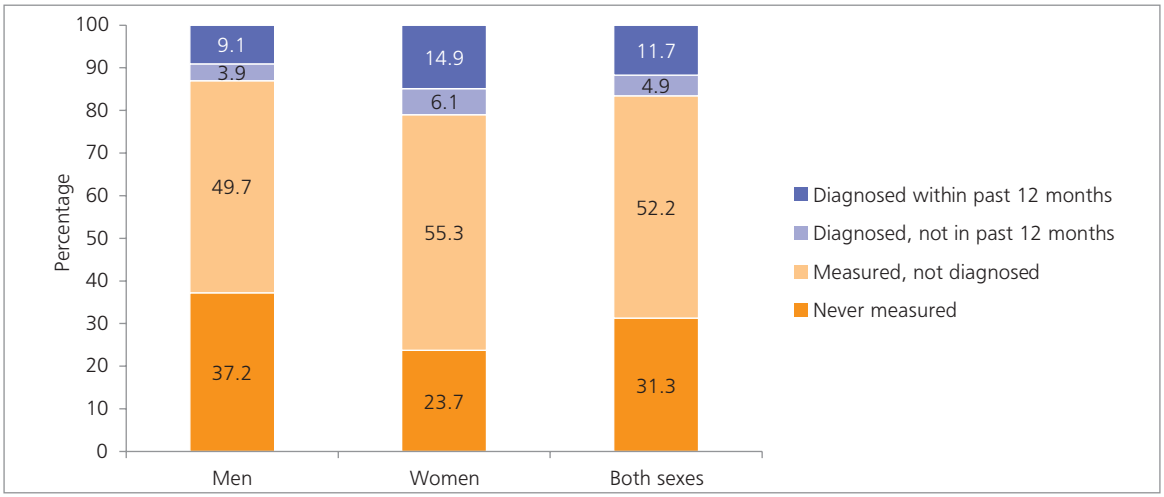


9. History of raised blood pressure

The current health status and health-seeking behaviours of the study population related to high blood pressure were assessed by asking respondents about the history of blood pressure and their treatment history. In addition, blood pressure of the respondents (who consented) was also measured by trained health-care workers.

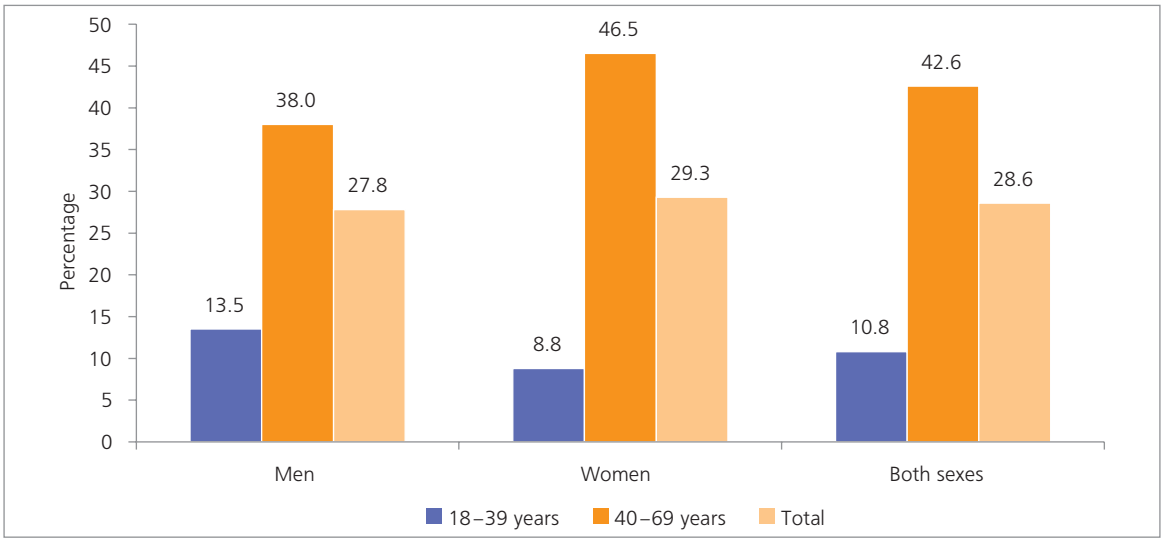
Of all respondents, 31.3% had never had their blood pressure measured, 52.2% of them had it measured but not diagnosed with raised blood pressure, 4.9% of them were diagnosed with raised blood pressure but not within the preceding 12 months. Of all adults, 11.7% were diagnosed with raised blood pressure within the preceding 12 months. One fifth (19.9%) of the respondents aged 40–69 years were diagnosed with raised blood pressure within the past 12 months but only 7.3% of younger respondents aged 18–39 years were diagnosed with raised blood pressure within the preceding 12 months (Figure 9.1 and Annex 1, Table 9.1).

Figure 9.1 Blood pressure measurement and diagnosis among adults



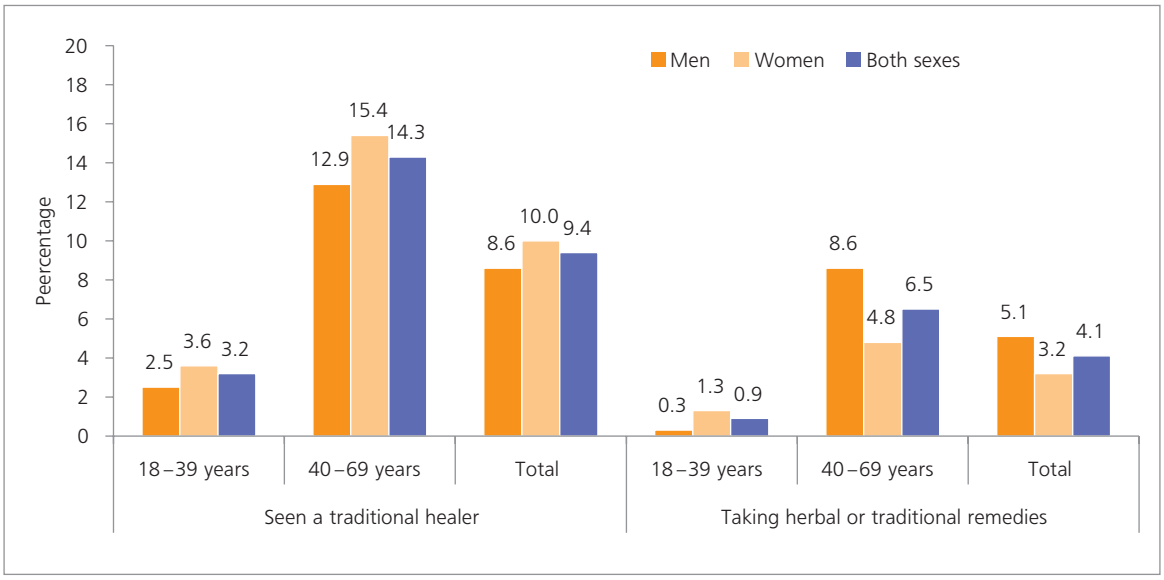
Among those diagnosed with raised blood pressure, approximately one third (28.6%) were currently taking drugs (medication) for raised blood pressure that were prescribed by a doctor or health worker (Figure 9.2).

Figure 9.2: Proportion of adults currently taking drugs (medication) for raised blood pressure prescribed by a doctor or health worker among those diagnosed, by sex and age



Of those previously diagnosed with raised blood pressure (n=566), 9.4% had sought advice or received treatment from a traditional healer for raised blood pressure while 4.1% were currently seeking herbal or traditional remedies for raised blood pressure. However, more respondents aged 40–69 years seen traditional healer or taking traditional remedy for raised blood pressure as compared with respondents aged 18–39 years (14.3% v. 3.2% respectively seen traditional healer) and (6.5% v. 0.9% respectively were taking traditional remedies) (Figure 9.3, Annex 1, Table 9.3).

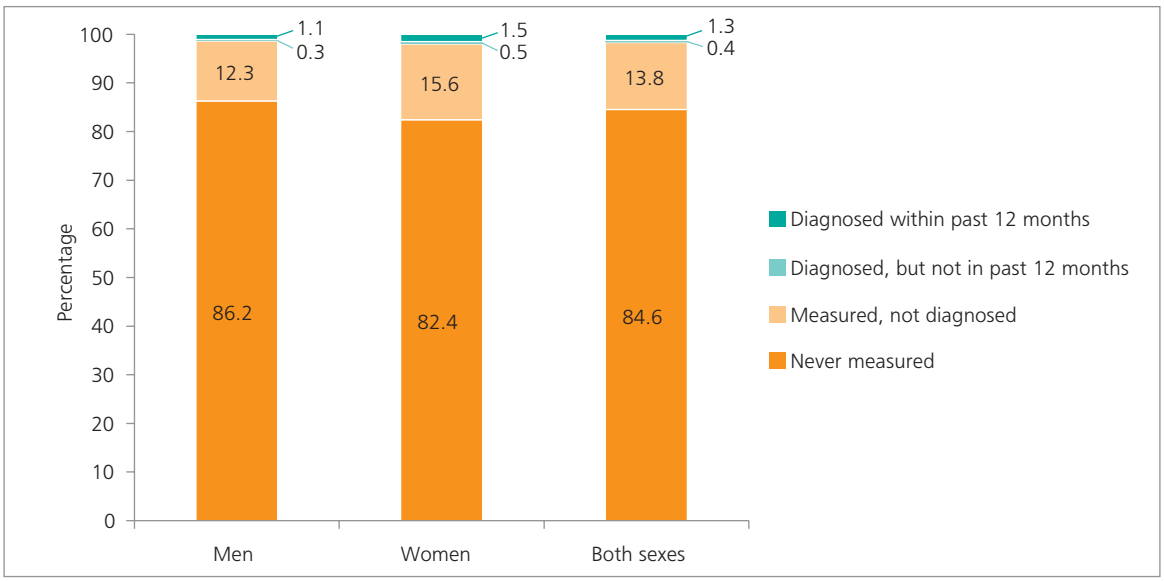
Figure 9.3: Percentage of previously diagnosed hypertensive respondents who visited or received treatment from a traditional healer



10. History of raised blood glucose

Of all respondents, 84.6% have never had their blood sugar measured, 13.8% were measured but were not diagnosed with raised blood sugar or diabetes, and 0.4% were diagnosed with raised blood sugar or diabetes but not within the past 12 months. A small fraction of adults (1.3%) were diagnosed with raised blood sugar or diabetes within the past 12 months. More (2.9%) respondents aged 40–69 years were diagnosed with raised blood sugar or diabetes than respondents aged 18–39 years (0.4%) (Figure 10.1 and Annex 1, Table 10.1).

Figure 10.1: Blood sugar measurement and diagnosis



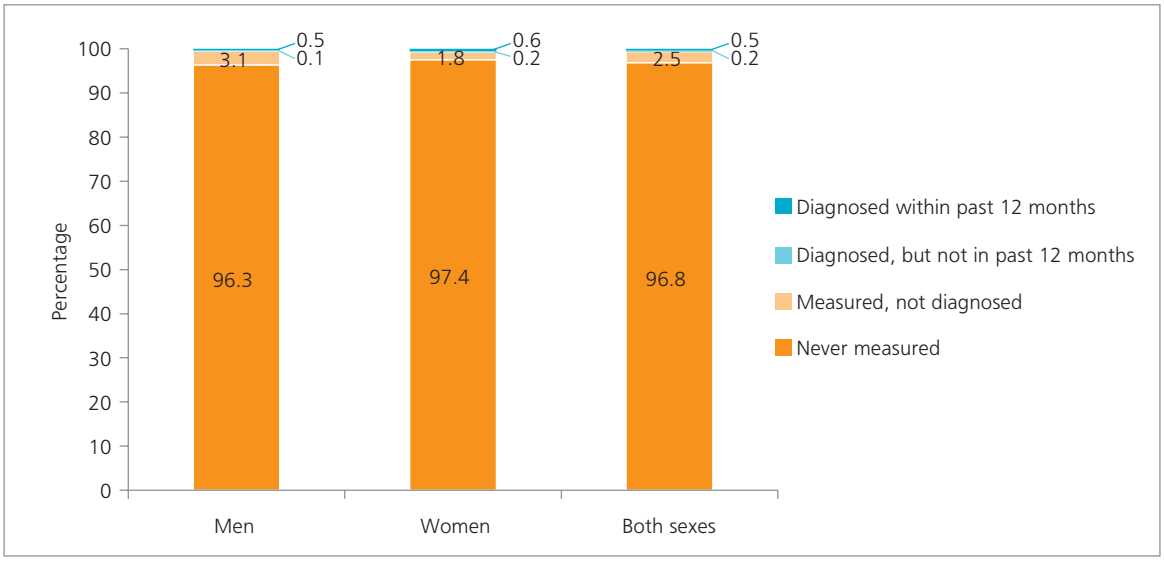
Among those previously diagnosed with diabetes, 35.0% were currently taking drugs (medication) prescribed for diabetes, and 4.8% are currently taking insulin prescribed for diabetes (Annex 1, Table 10.2).

About 11.5% of those previously diagnosed with diabetes have consulted a traditional healer for diabetes while 2.4% of those previously diagnosed are currently taking herbal or traditional treatment for diabetes (Annex 1, Table 10.3).

11. History of raised total cholesterol

Most of the respondents (96.8%) had never had their cholesterol measured. Only 0.5% of the respondents mentioned that they were diagnosed with raised cholesterol within the preceding 12 months, 0.2% of respondents were diagnosed with raised cholesterol but not within the preceding 12 months, and 2.5% have been measured but were not diagnosed with raised cholesterol (Figure 11.1).

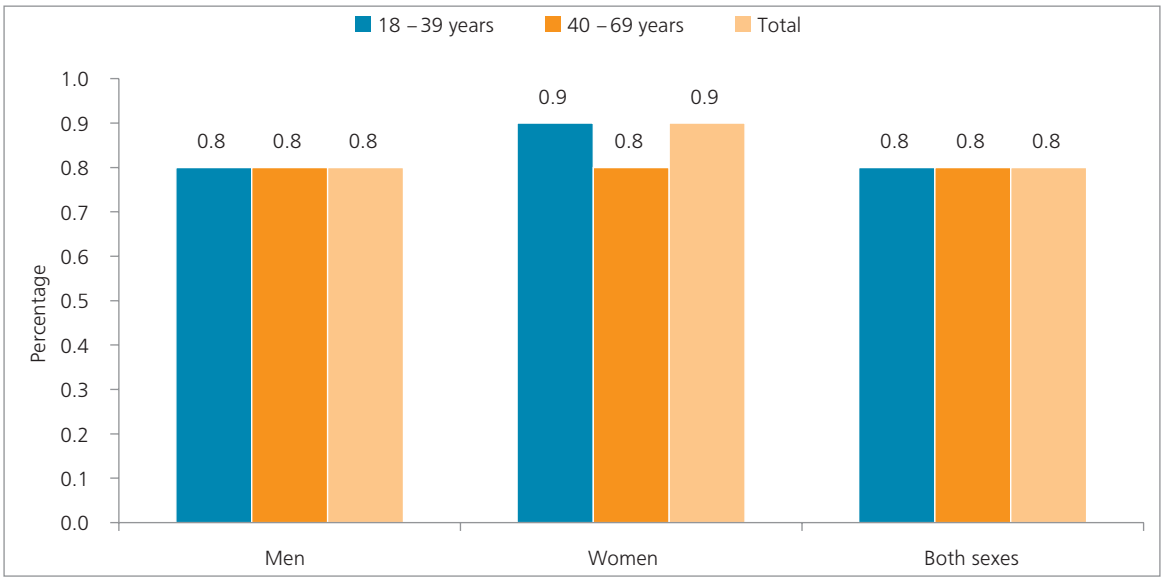
Figure 11.1: Total cholesterol measurement and diagnosis



12. History of cardiovascular diseases

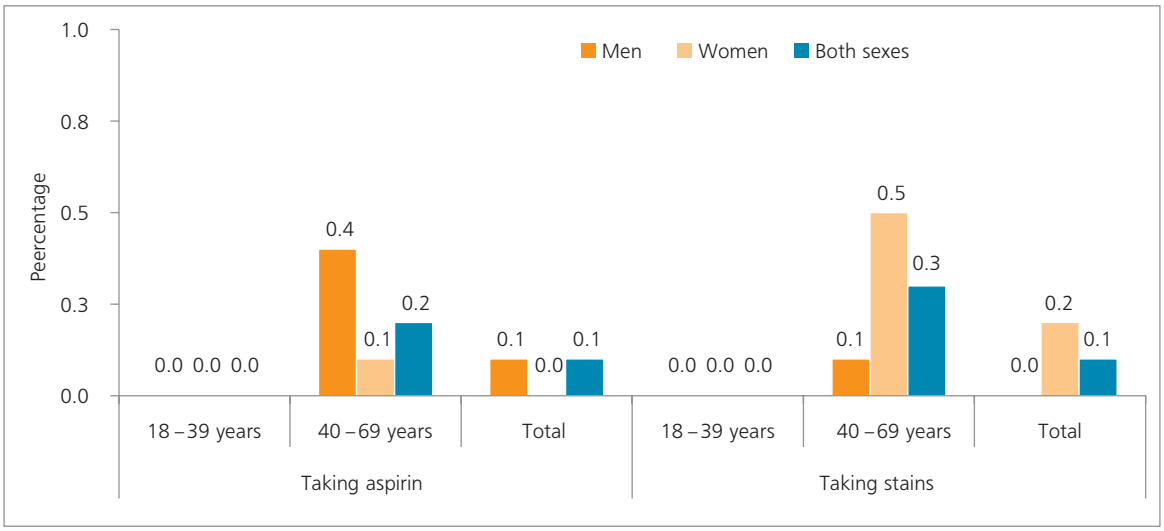
Of all the respondents (2819), 0.8% have had a heart attack, or chest pain from heart diseases (angina), or a stroke (cerebrovascular accident or incident). There is no significant difference here between age groups and gender (Figure 12.1, Annex 1, Table 12.2).

Figure 12.1: Percentage of respondents having ever had a heart attack or chest pain from heart diseases or a stroke



Among all the respondents and age groups, 0.1% are currently taking aspirin on a regular basis to prevent or treat heart disease and 0.1% are currently taking statins (lovastatin/simvastatin/atorvastatin, or any other statin) on a regular basis to prevent or treat heart diseases. They are mainly in the age group 40–69 years (Figure 12.2).

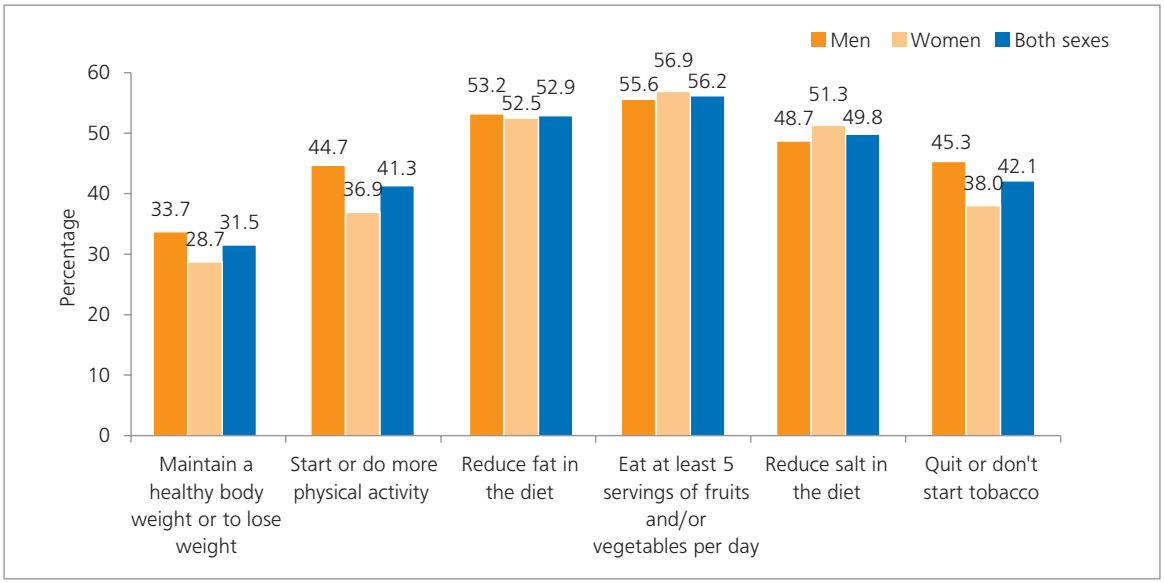
Figure 12.2: Percentage of respondents currently taking aspirin/statins on a regular basis to prevent or treat heart disease



13. Lifestyle advice

Of all respondents, 42.1% were advised by a doctor or health worker to quit using or not to start using tobacco; 49.8% were advised to reduce salt in the diet; and 56.2% were advised to eat at least five servings of fruits and/or vegetables each day. About 52.9% of respondents were advised to reduce fat in their diet; 41.3% were advised to start or do more physical activity; and 31.5% were advised to maintain a healthy body weight or to lose weight. There were no significant differences between gender and age groups (Figure 13.1 and Annex 1, Table 13.1).

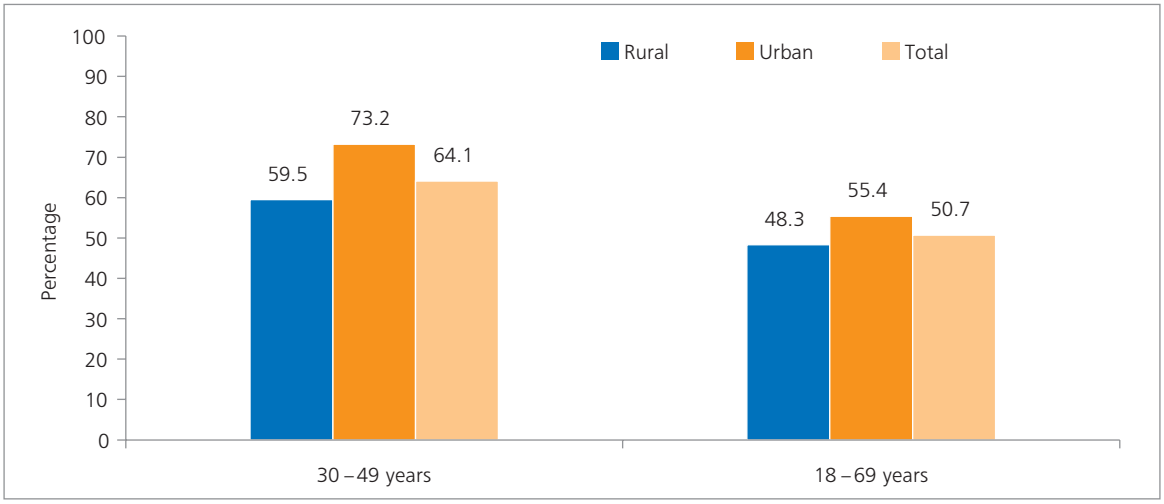
Figure 13.1: Lifestyle advice by doctor or health worker



Cervical cancer screening

About half (50.7%) of the women who were interviewed (aged 18–69 years) have ever undergone a screening test for cervical cancer. There is no significant difference between the two age groups and place of residency (rural/urban). Among women aged 30–49 years, 64.1% in total – 73.2% from urban areas and 59.5 % from rural areas – reported being screened for cervical cancer (Figure 13.2 and Annex 1, Table 13.2).

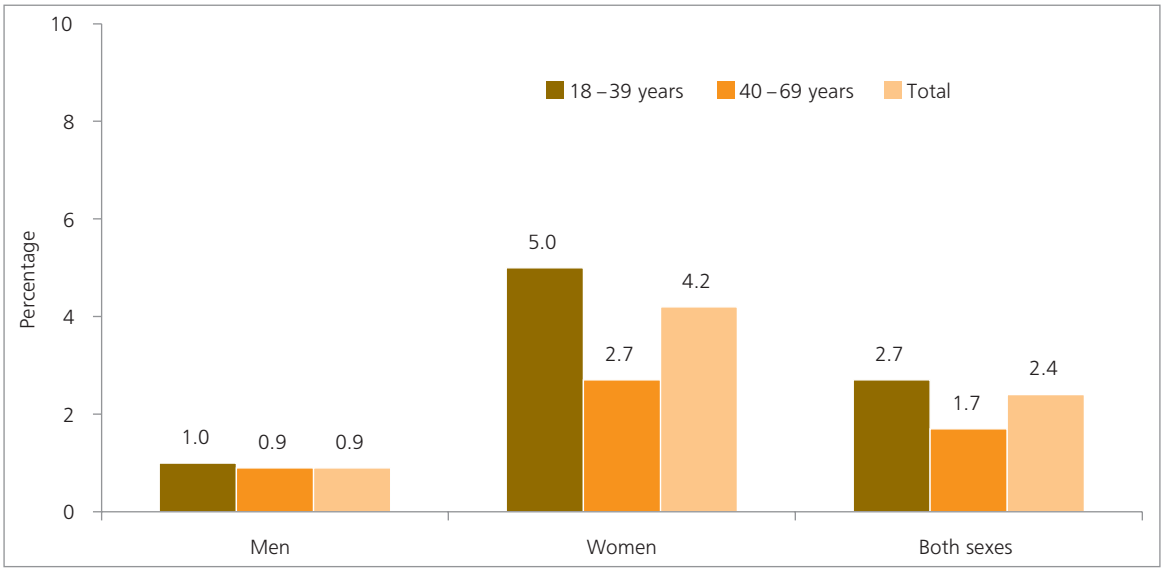
Figure 13.2 Percentage of female respondents who have ever had a screening test for cervical cancer among all female respondents



14. Mental health

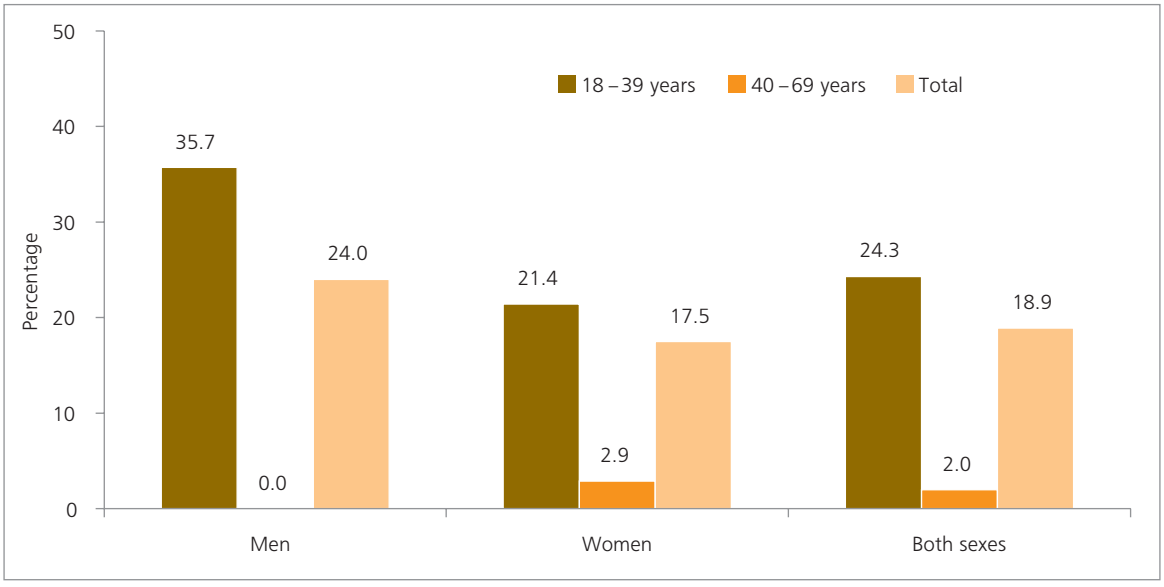
Of all respondents 2.4% had seriously considered attempting suicide in the preceding 12 months. Of them, 2.7% of respondents aged 18–39 years had seriously considered attempting suicide while 1.7% in the age group of 40–69 years had considered the same. The percentage of women who seriously considered attempting suicide in the last 12 months was significantly higher (4.2%) than their male counterparts (0.9%) (Figure 14.1, Annex 1, Table 14.1).

Figure 14.1: Percentage of respondents who seriously considered attempting suicide in the preceding 12 months among all respondents



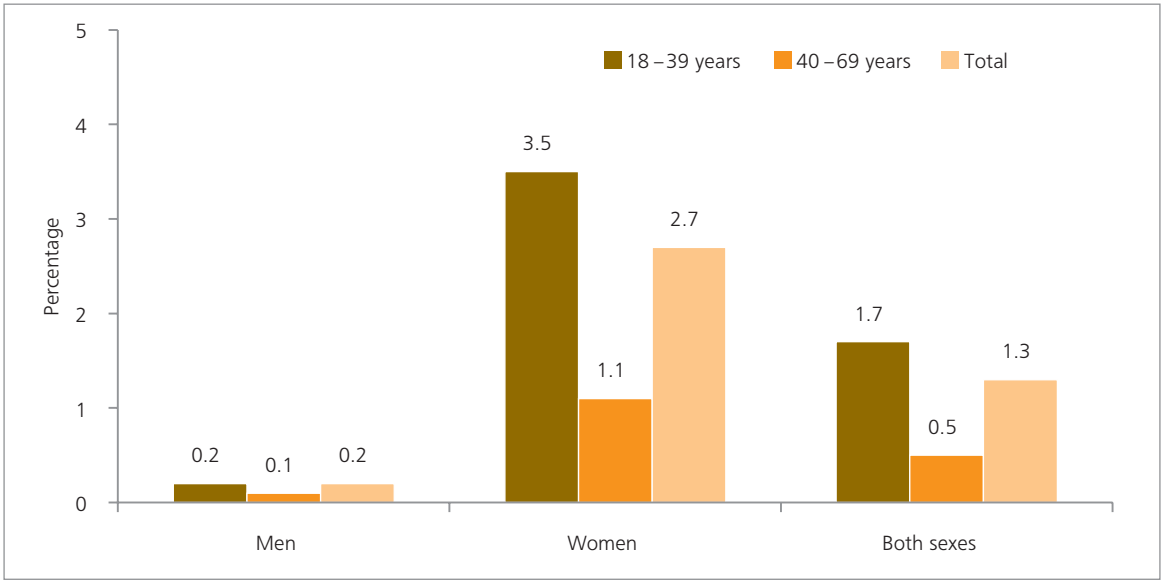
Among those who considered attempting suicide in the preceding 12 months, 18.9% had sought professional help. Seeking professional help was reported in significantly more numbers among the younger age group as compared with the older (Figure 14.2, Annex 1, Table 14.2).

Figure 14.2: Percentage of respondents who sought professional help among those who had considered attempting suicide in the preceding 12 months



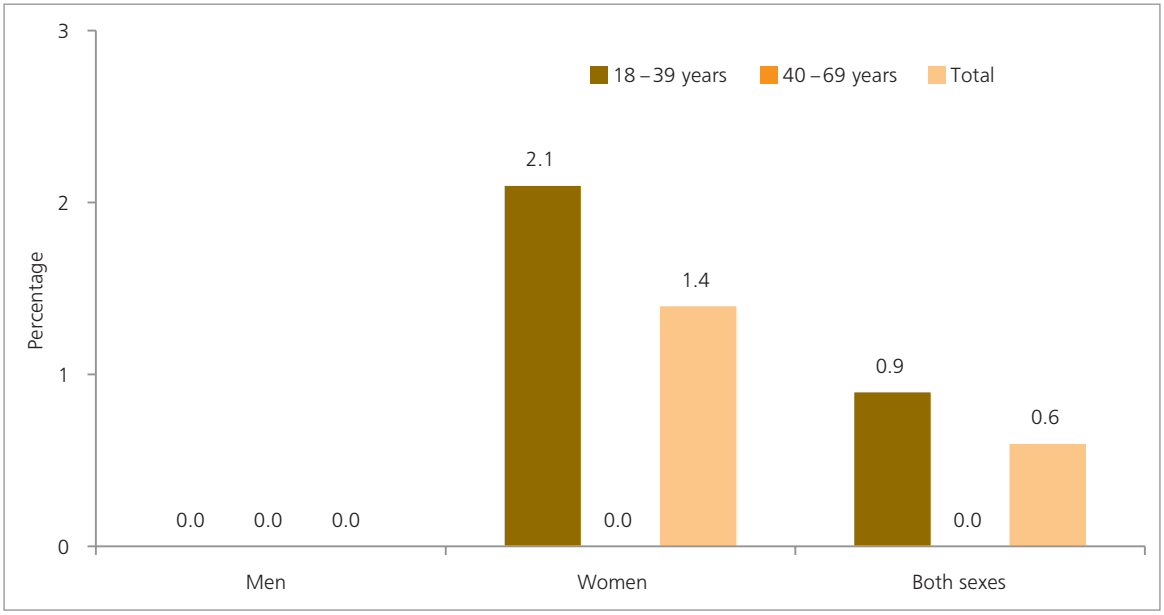
Out of 2816 respondents, 1.3% had made a plan about how to attempt suicide in the preceding 12 months. More (2.7%) women had such a plan than men (0.2%) (Figure 14.3, Annex 1, Table 14.3).

Figure 14.3: Percentage of respondents who made a plan about how to attempt suicide in the preceding 12 months



Among all female respondents, 1.4% had attempted suicide. None of the men had attempted suicide. Women only younger respondents aged (18–39 years) had attempted suicide (Figure 14.4, Annex 1, Table 14.4).

Figure 14.4: Percentage of respondents who have ever attempted suicide among all respondents



Among the respondents, 1.5% have had someone in their close family (mother, father, brother, sister or children) who had attempted suicide and 1.8% have had someone in their close family who had committed suicide (Figures 14.5 and 14.6).

Figure 14.5: Percentage of respondents who have ever had anyone in their close family attempt suicide

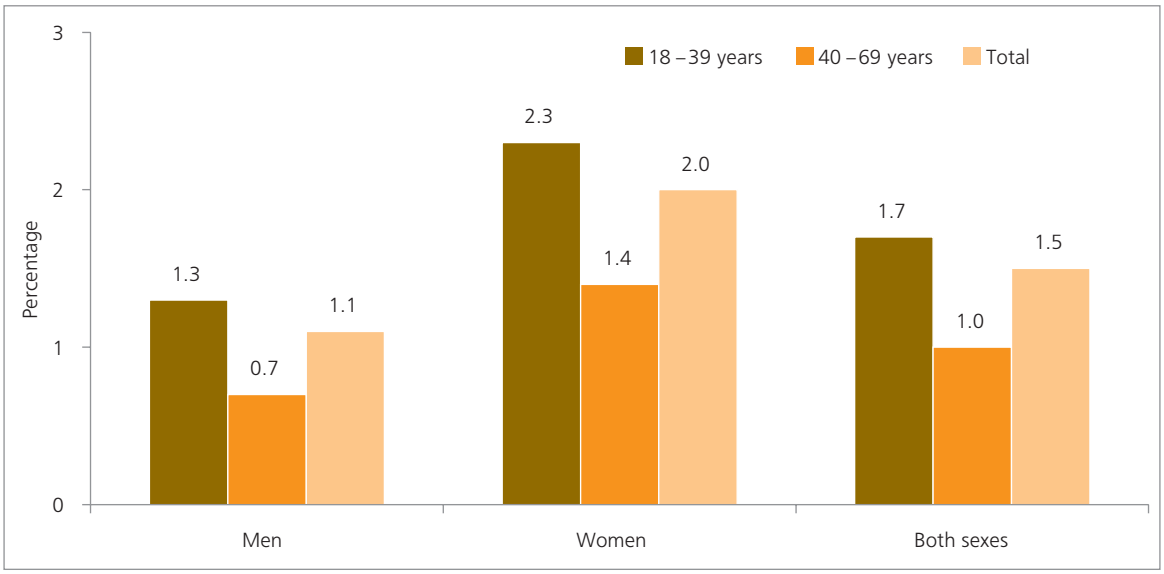
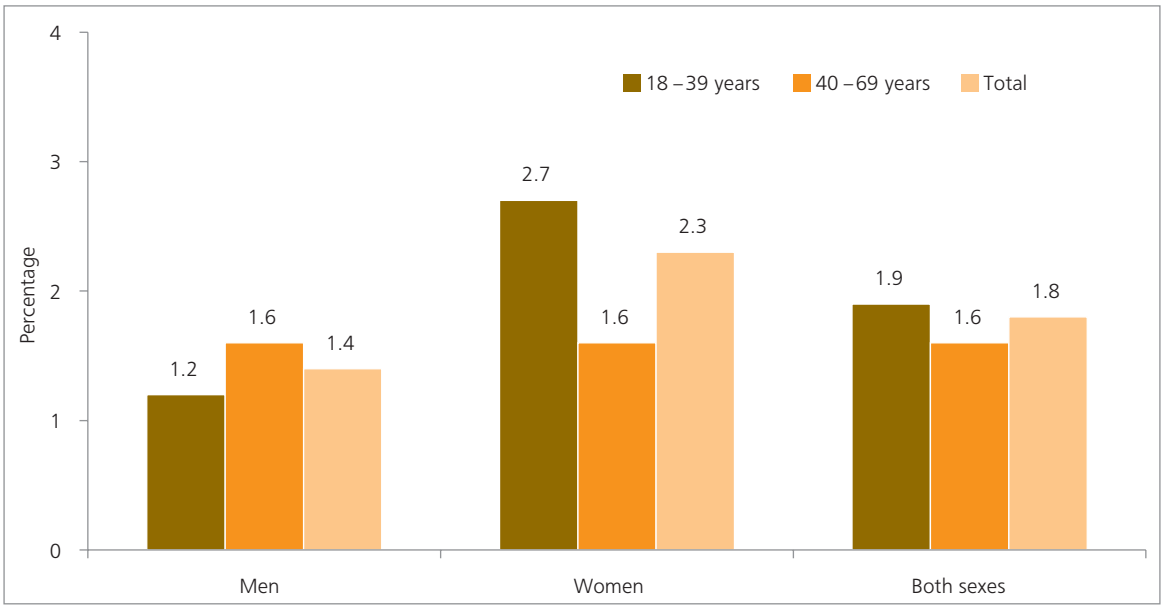
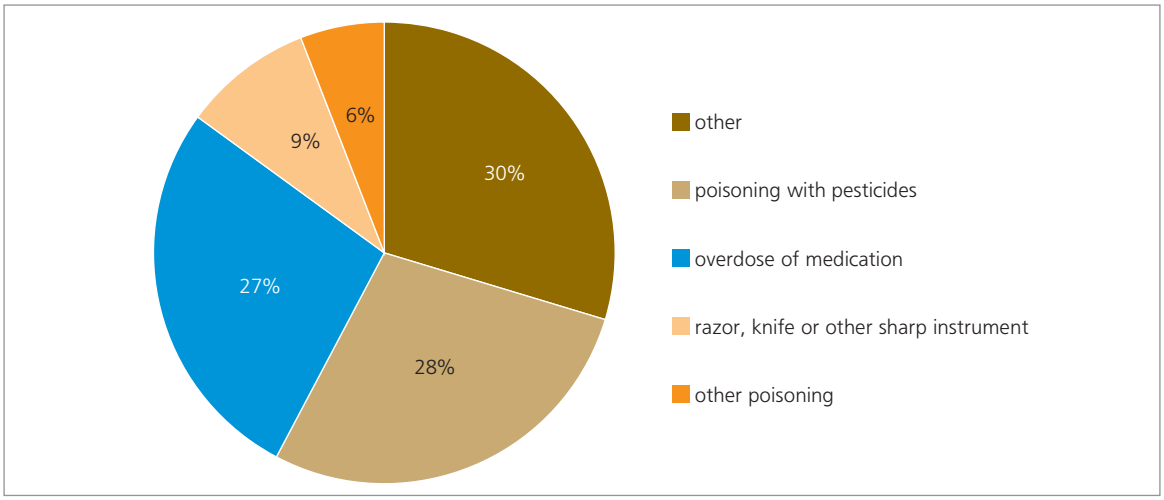


Figure 14.6: Percentage of respondents who have ever had anyone in their close family commit suicide



Of all respondents 28.1% used poisoning with pesticides to attempt suicide, following that 27.3% used overdose of medication; 9.1% used razor, knife or other sharp instrument and 5.9% used other poisoning items (Figure 14.7, Annex 1, Table 14.6).

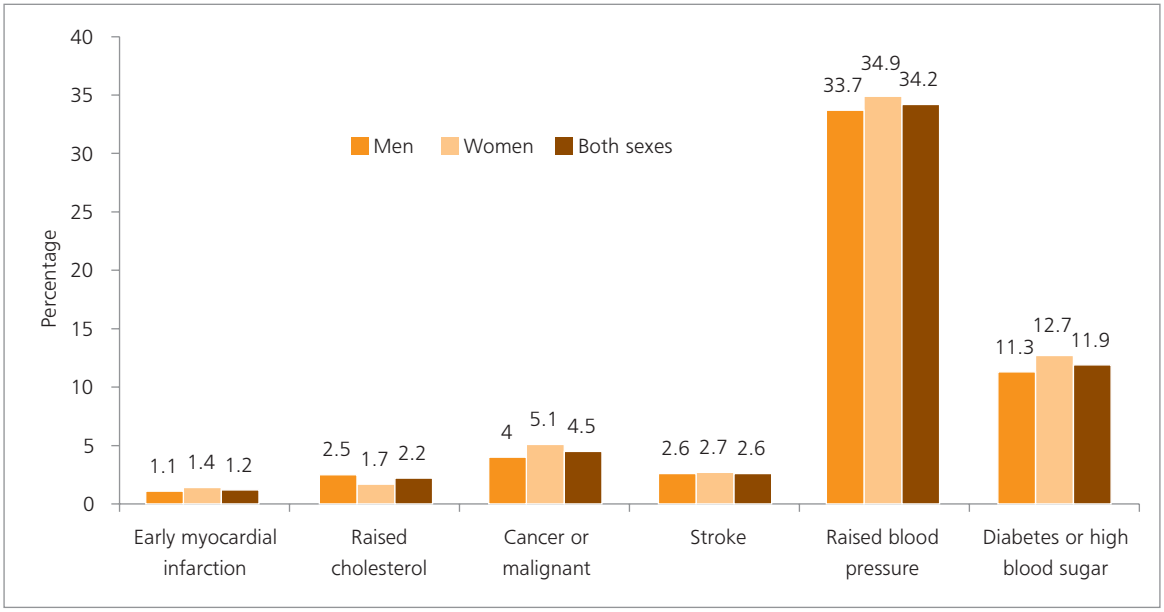
Figure 14.7: Percentage of different methods used the last time suicide was attempted among those female respondents who have ever attempted suicide



15. Family history of chronic disease conditions

Of all respondents, 11.9% said that a family member has been diagnosed with diabetes or high blood sugar, 34.2% said a family member has been diagnosed with raised blood pressure, 2.6% said a family member has been diagnosed with stroke, 4.5% have had a family member diagnosed with cancer or malignant tumor, 2.2% said a family member has been diagnosed with raised cholesterol, and 1.2% declared that a family member has been diagnosed with early myocardial infarction (Figure 15.1, Annex 1, Table 15.1).

Figure 15.1: Percentage of people with a family member who has been diagnosed with a chronic disease condition



STEP 2:

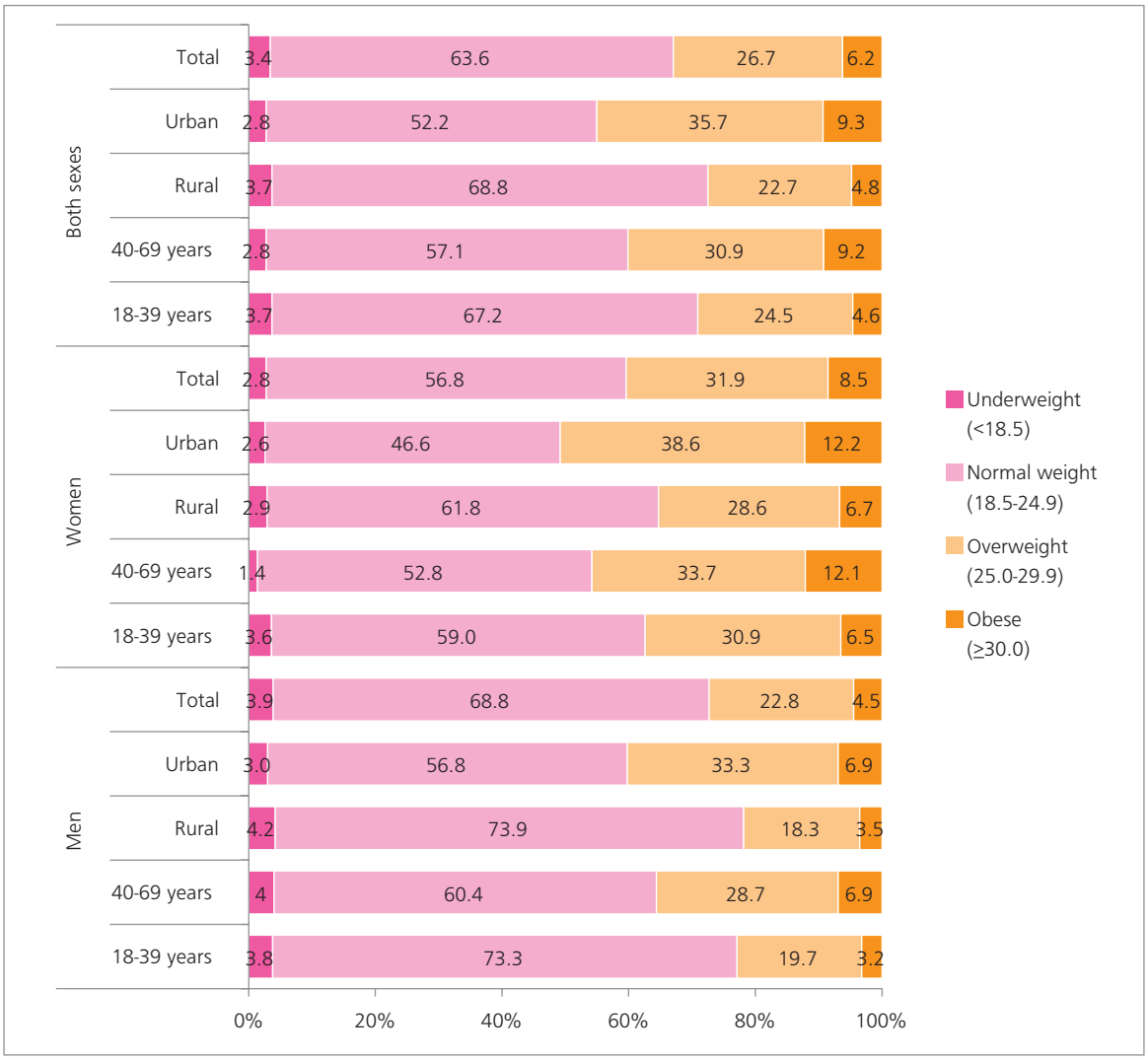
16. Physical measurements

Body mass index

The mean body mass index (BMI) among all respondents excluding pregnant women was 24.0. Of all respondents, 3.4% were underweight (BMI <18.5), 63.6% showed normal weight (BMI 18.5–24.9), 26.7% were overweight (BMI 25.0–29.9), and 6.2% were obese (BMI ≥30.0).

The prevalence of overweight in women (31.9%) was higher than in men (22.8%). Women (8.5%) were more frequently obese than men (4.5%). About 4.6% of those aged 18–39 years and 9.2% of all respondents aged 40–69 years were obese (Figure 16.1, Annex 1, Table 16.4).

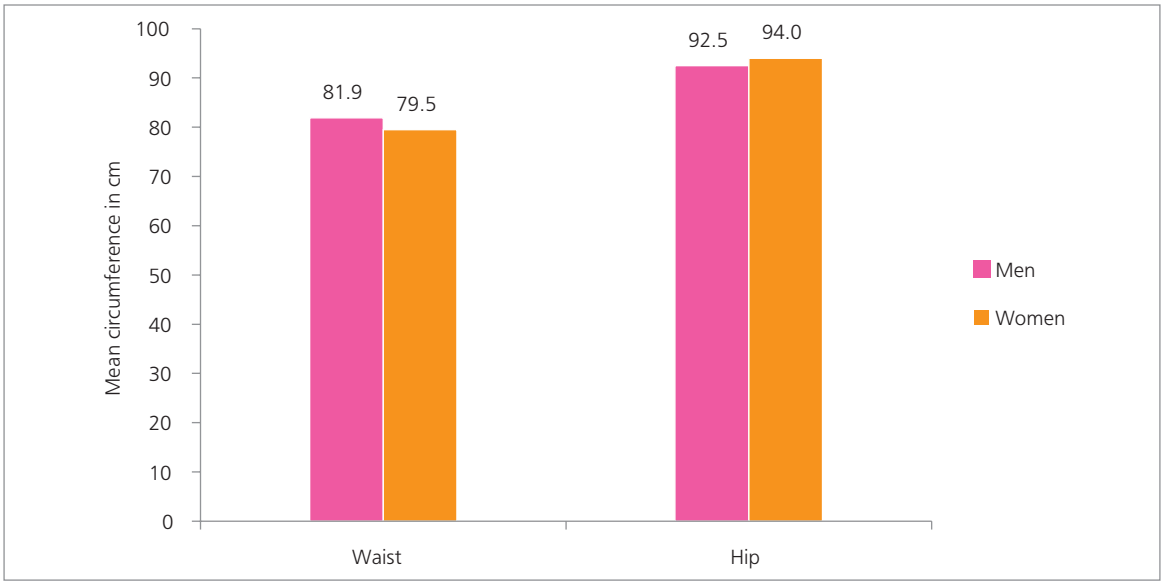
Figure 16.1: BMI classifications of respondents by sex and age (excluding pregnant women) and residence



Waist and hip circumference

Of all respondents excluding pregnant women, the mean waist circumference was 81.9 cm for men and 79.5 cm for women. The mean hip circumference was 92.5 cm for men and 94.0 cm for women. The mean waist-to-hip ratio among all respondents excluding pregnant women was 0.9 for men and 0.8 for women (Figure 16.2, Annex 1, Table 16.8).

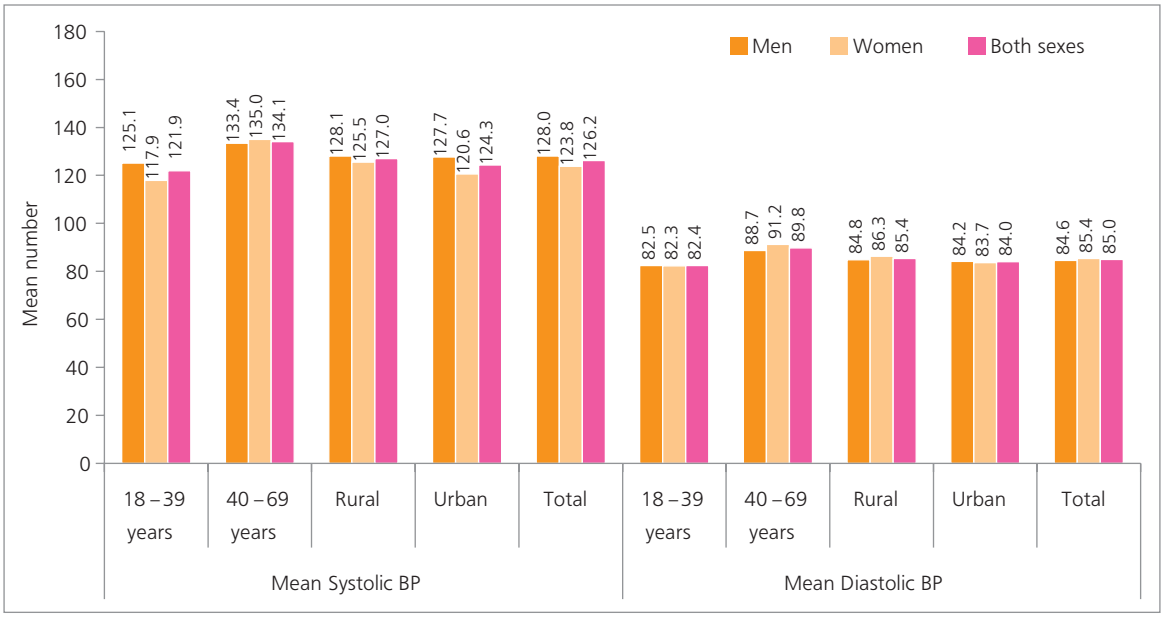
Figure 16.2: Mean waist and hip circumference (cm) of respondents by sex



Blood pressure (mmHg)

The mean systolic blood pressure (SBP) among all respondents, including those currently on medication for raised blood pressure, was 126.2 mmHg. The mean diastolic blood pressure (DBP) among them, including those currently on medication for raised blood pressure, was 85.0 mmHg. Mean systolic and diastolic blood pressures were higher for older respondents aged 40–69 years than their younger counterparts (134.1 mmHg versus 121.9 mmHg and 89.8 mmHg versus 82.4 mmHg respectively) (Figure 16.3, Annex 1, Table 9.4).

Figure 16.3: Mean blood pressure among all respondents, including those currently on medication for raised blood pressure, classified by age, sex and residence of respondents



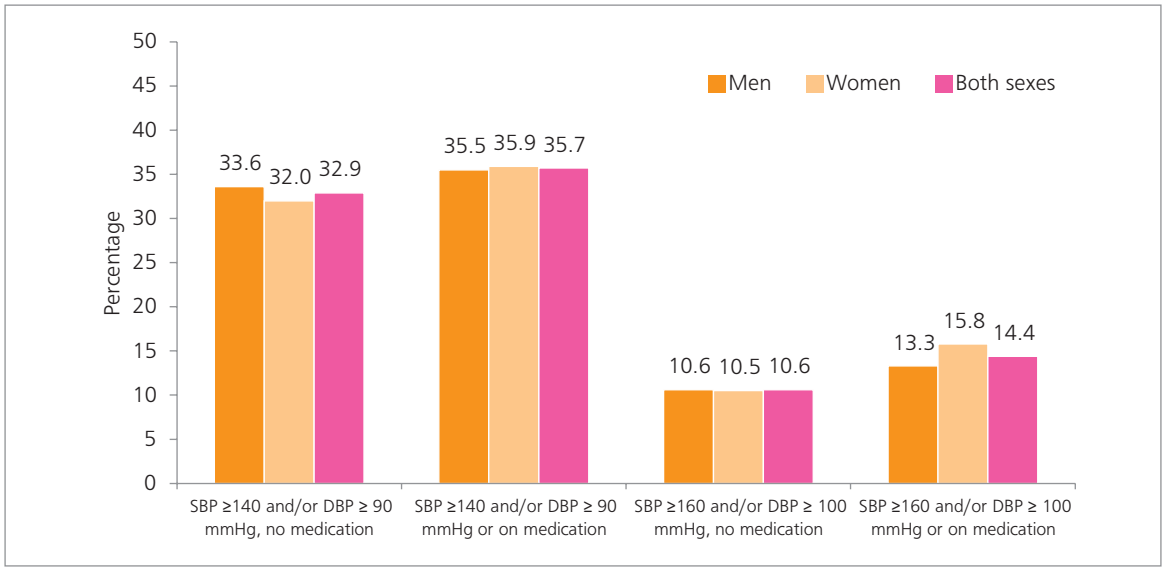
Blood pressure and treatment

Of all respondents, 32.9% had SBP ≥140 and/or DBP ≥90 mmHg, excluding those on medication for raised blood pressure. While there was no significant difference by gender, a significantly higher percentage of older age group respondents had SBP ≥140 and/or DBP ≥90 mmHg, as compared with younger age group respondents (47.9% versus 25.6%).

Of 2816 respondents, 35.7% had SBP ≥140 and/or DBP ≥90 mmHg or were currently on medication for raised blood pressure. While there was no significant difference by gender, a significantly higher percentage of older age group respondents had SBP ≥140 and/or DBP ≥90 mmHg as compared to younger age group respondents (53.3% v. 26.3%).

Out of 2660 respondents excluding those on medication for raised blood pressure, 10.6% of them have had SBP ≥160 and/or DBP ≥100 mmHg. While there was no significant difference by gender, a significantly higher percentage of older age group respondents had SBP ≥160 and/or DBP ≥100 mmHg as compared to younger age group respondents (18.9% v. 6.6%). Of 2816 respondents, 14.4% of them have SBP ≥160 and/or DBP ≥100 mmHg or are currently on medication for raised blood pressure (Figure 16.4 and Annex 1, Table 9.5).

Figure 16.4: Percentage of respondents with raised blood pressure by sex



Of all respondents, 88.1% with high blood pressure (SBP≥140 and/or DBP≥90 mmHg) were not on medication (Annex 1, Table 9.6).

Heart rate

The mean heart rate (beats per minute or bpm) of respondents was 73.8 beats per minute. While there was no significant difference between the two age groups the mean was significantly higher in women [76.4 bpm (CI: 75.5–77.2)] as compared with men [71.8 bpm (CI: 70.8–72.7)] (Annex 1, Table 9.7).

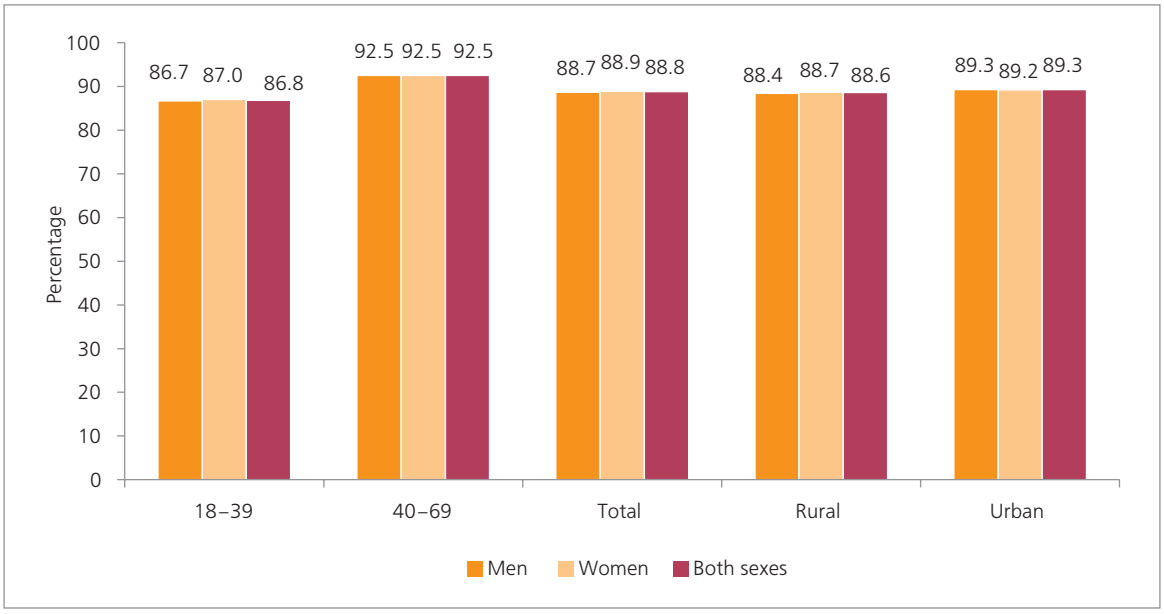
STEP 3:

17. Biochemical measurements

Fasting blood glucose

The mean fasting blood glucose of all respondents, including those currently on medication for diabetes, was 88.8 mg/dl or 4.9 mmol/L. The mean fasting blood glucose for older respondents aged 40–69 years was 92.5 mg/dl or 5.1 mmol/L and 86.8 mg/dl or 4.8 mmol/L for younger respondents aged 18–39 years. There was no significant difference in mean fasting blood glucose between rural and urban respondents (Figure 17.1, Annex 1, Table 10.4).

Figure 17.1: Mean fasting blood glucose (mg dl) classified by age, sex and residence



Out of all respondents 10.7% had impaired fasting glycaemia[1], 6.4% of the respondents had raised blood glucose or were currently on medication for diabetes[2], and 0.6% were currently on medication for diabetes. There is no significant difference between men and women respondents; however, a significantly higher percentage of older respondents aged 40–69 years had impaired fasting glycaemia as compared with younger respondents aged 18–39 years (10.5% v. 4.3%). A significantly higher percentage of urban respondents aged 40–69 years had impaired fasting glycaemia as compared with rural respondents aged 18–39 years (8.5% vs 5.5%).

1 Impaired fasting glycaemia is defined as either plasma venous value of ≥6.1 mmol/L (110 mg/dl) and <7.0 mmol/L (126 mg/dl), or capillary whole blood value of ≥5.6 mmol/L (100 mg/dl) and <6.1 mmol/L (110 mg/dl).

2 Raised blood glucose is defined as either plasma venous value of >7.0 mmol/L (126 mg/dl) or capillary whole blood value of >6.1 mmol/L (110 mg/dl).

A significantly higher percentage of older respondents aged 40–69 years had impaired fasting glycaemia as compared with younger respondents aged 18–39 years (13.2% v. 9.4%). There was no significant difference between rural and urban respondents with impaired fasting glycaemia (Figure 17.2 and 17.3, Annex 1, Table 10.5).

Figure 17.2: Percentage of respondents with raised blood glucose, including those on medication, classified by age, sex and residence

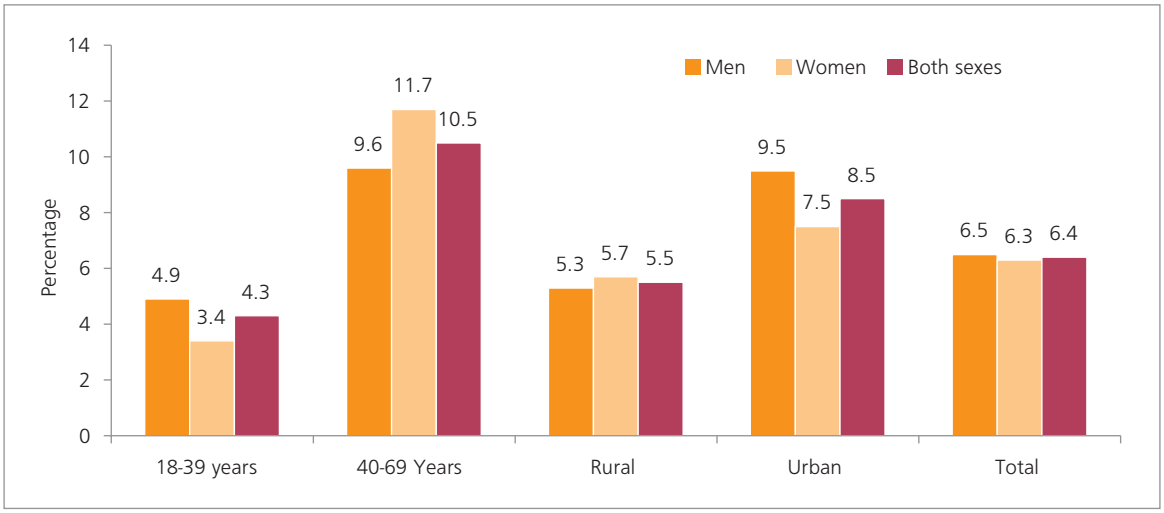
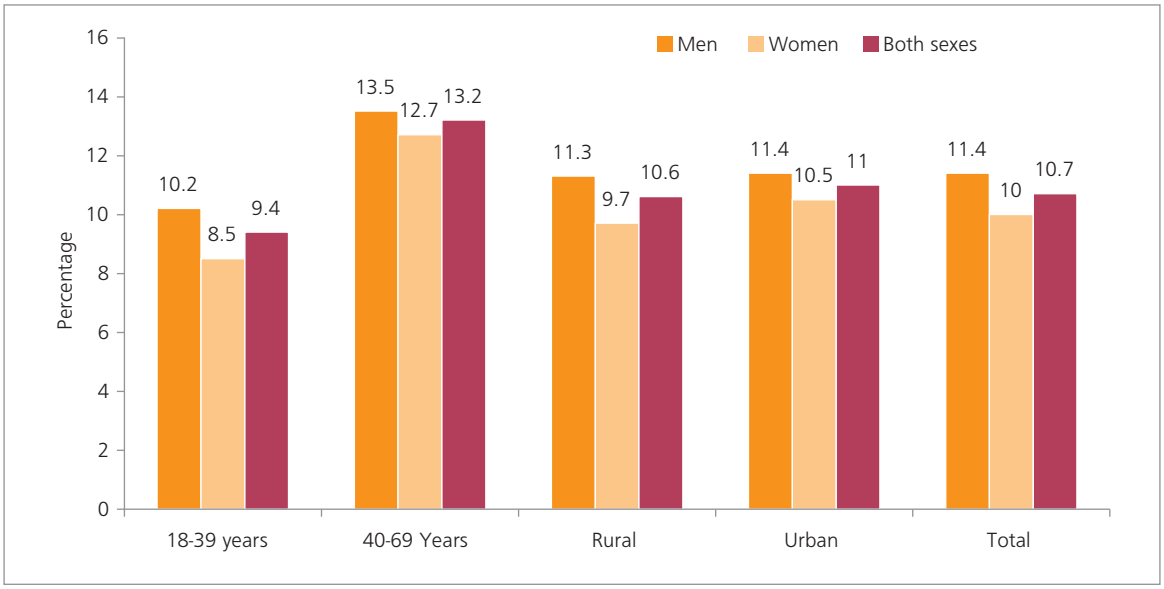


Figure 17.3: Percentage of respondents with impaired fasting glycaemia, classified by sex, age and residence

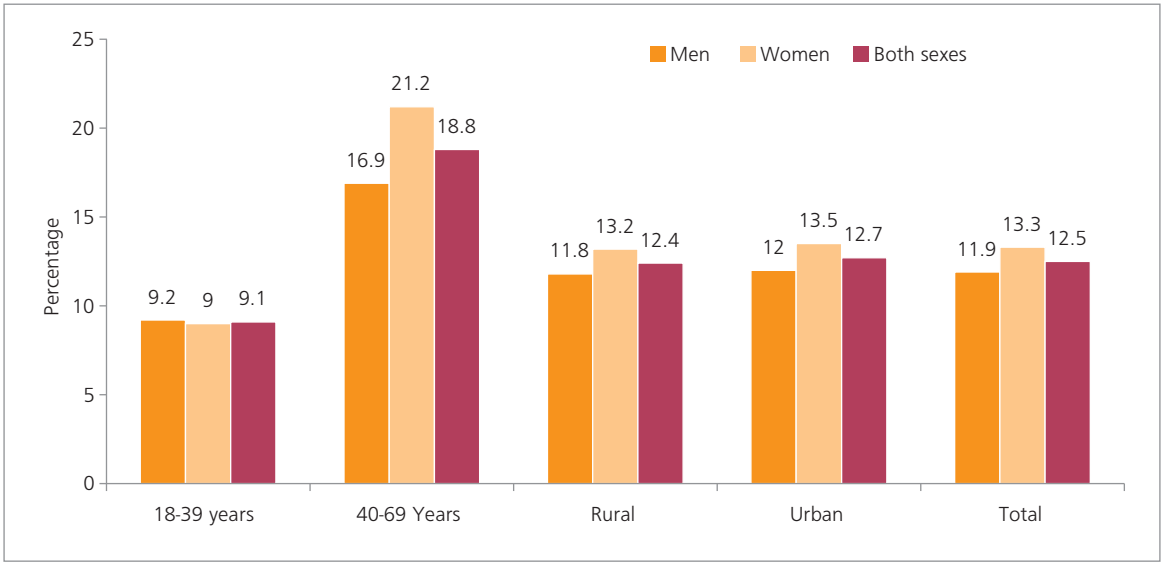


Total cholesterol

The mean total cholesterol among all respondents, including those currently on medication for raised cholesterol, was 146.1 mg/dl or 3.8 mmol/L. The mean total cholesterol is higher in respondents aged 40–69 years (156.1 mg/dl or 4.0 mmol/L) than in those aged 18–39 years (140.8 mg/dl or 3.6 mmol/L). There is no significant difference between the rural and urban respondents (Annex 1, Table 11.1).

Of all respondents, 12.5% had raised total cholesterol (≥5.0 mmol/L or ≥190 mg/dl) or were currently on medication for raised cholesterol. About 2.0% of them have total cholesterol of ≥6.2 mmol/L or ≥240 mg/dl or are currently on medication for raised cholesterol (Figure 17.4, Annex 1, Table 11.2).

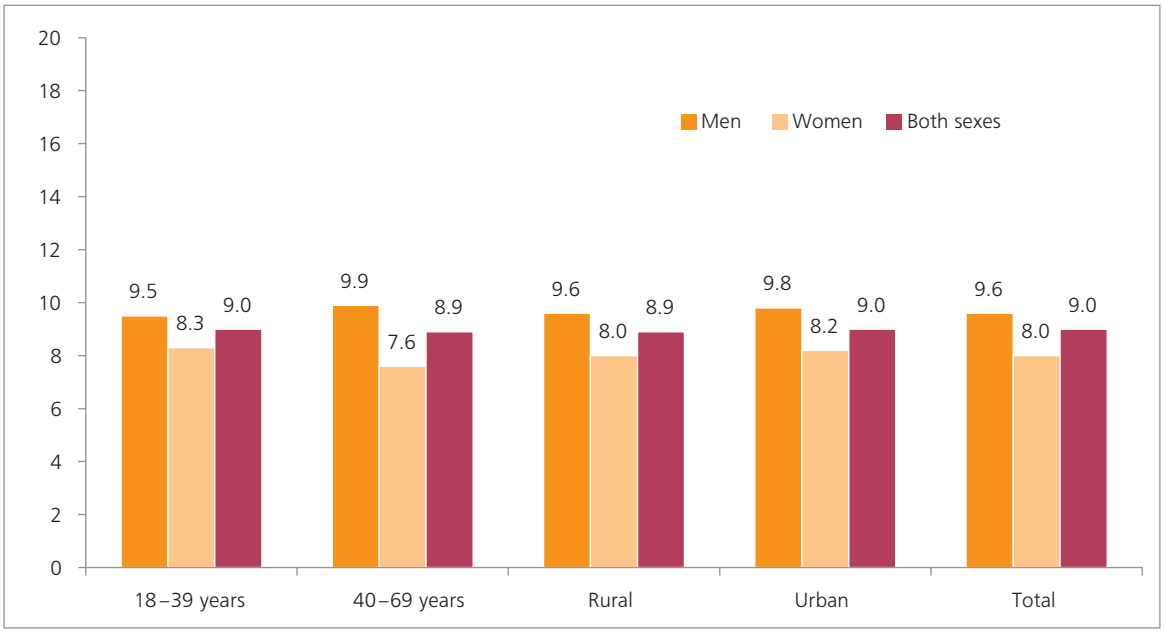
Figure 17.4: Percentage of respondents with raised cholesterol, including those on medication, classified by sex, age and residence



Salt intake

Bhutan was the first STEPs survey country to undertake spot urine testing for sodium. The mean intake of salt was 9.0 grams per day (95% CI: 8.8–9.1). Mean salt intake for men was higher at 9.6 g/day (CI 9.4–9.8) as compared with women at 8.0 g/day (CI 7.9–8.2). There was also no significant difference between rural and urban respondents on this score (Figure 17.5, Annex 1, Table 7.6).

Figure 17.5: Mean intake of salt classified by sex, age and residence



18. Combined risk factors and cardiovascular diseases risk prediction

Summary of combined risk factors

All respondents were assessed for the following five risk factors:

(1) current daily smoking

(2) less than five servings of fruits and/or vegetables per day

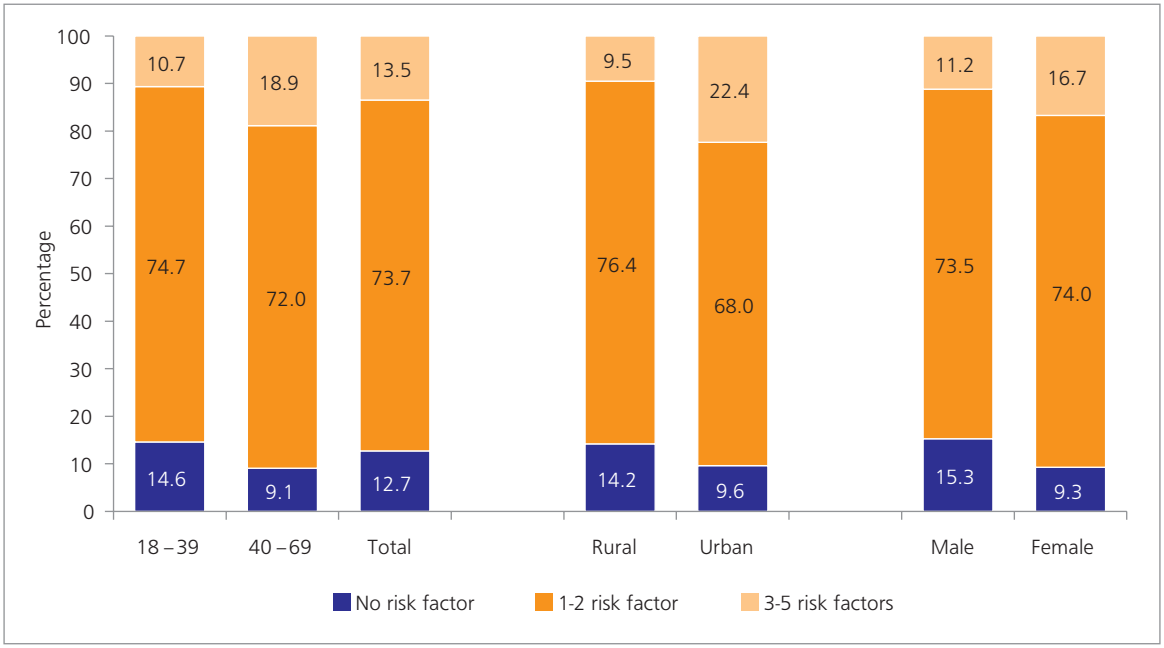
(3) not meeting WHO recommendations on physical activity for health (<150 minutes of moderate activity per week or equivalent)

(4) overweight or obese (BMI ≥25 kg/m^2)

(5) raised BP (SBP ≥140 and/or DBP ≥90 mmHg or currently on medication for raised BP).

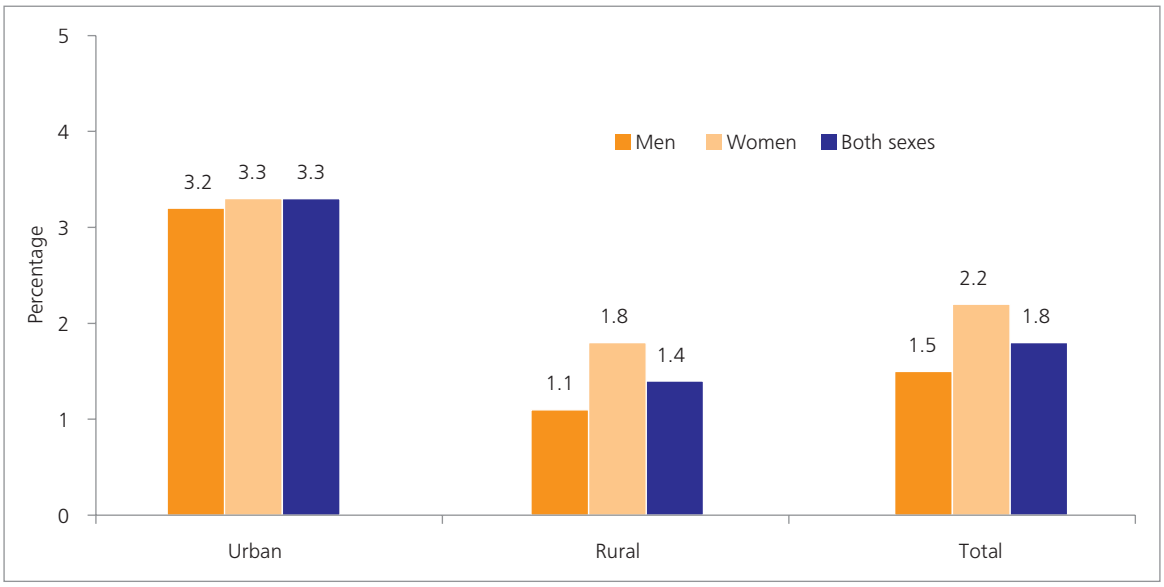
Overall, 13.5% of the respondents had three or more of the above-mentioned risk factors; 73.7% had 1–2 risk factors, and 12.7% of them did not have any of the risk factors (Figure 19.2). A higher proportion of older respondents aged 40–69 years had 3–5 risk factors (18.9%) than younger respondents aged 18–39 years (10.9%). Similarly, higher numbers of women (16.7%) had 3-5 risk factors than their male counterparts (11.2%). A significantly higher percentage of urban respondents (22.4%) had 3–5 risk factors compared with rural respondents (9.5%). However, a higher percentage of rural respondents (76.4%) had 1–2 risk factors than urban respondents (68.0%) (Figure 18.1, Annex 1, Table 12.1).

Figure 18.1: Summary of risk factors



A 10-year CVD risk of ≥30% is defined according to age, sex, blood pressure, smoking status (current smokers or those who quit smoking less than one year before the assessment), total cholesterol, and diabetes (previously diagnosed or a fasting plasma glucose concentration of >7.0 mmol/l or 126 mg/dl). The percentage of respondents aged 40–69 years with a 10-year cardiovascular disease (CVD) risk of ≥30% or with existing CVD was 1.8%. The percentage among urban women was 1.5 percentage points higher than among rural women (3.3% v. 1.8%) (Figure 18.2, Annex 1, Table 12.4).

Figure 18.2: Percentage of respondents in age group 40–69 years with a 10-year CVD risk >30% or with existing CVD



19. Discussions and recommendations

Bhutan is undergoing an epidemiological transition whereby the proportion of population aged 65 years and above as well as the older age groups will nearly double by 2025. Noncommunicable diseases have become the biggest health challenge in Bhutan in terms of the number of life years lost due to ill health, disability and early death (DALYs). The major NCDs in Bhutan are cardiovascular diseases (CVD), mental health (neuropsychiatric) conditions, injuries, respiratory diseases, cancer and diabetes. National hospital-based cancer and diabetes surveillance is in place in Bhutan. Cervical cancer screening is part of the National Reproductive Health Strategy 2012. The cost of health care due to NCDs in Bhutan is rapidly increasing.

This first nationwide STEPs survey to evaluate the prevalence of NCDs and NCD risk factors in Bhutan was a comprehensive study incorporating all three STEPs, as recommend by the World Health Organization. It is the first survey in Bhutan to measure population salt intake through spot urinary sodium testing. Modules on mental health (focusing on suicide) and cervical cancer were also included. This survey – also including urban and rural comparisons – provides crucial risk factor data for focusing and prioritizing national efforts to reduce the NCD burden and setting and monitoring national targets on NCDs.

Bhutan has robust tobacco control policies in place. Bhutan adopted the WHO Framework Convention on Tobacco Control in 2004. The National Tobacco Control Act was promulgated in 2010 and several rules were developed in subsequent years for its implementation. Tobacco control in Bhutan is unique in the sense that it bans production, distribution and sale of tobacco products across the country. In addition it also has other components such as a ban on smoking in public places and a ban on all kinds of tobacco. In spite of these rules nearly a quarter of the adult population uses tobacco and is exposed to second-hand smoke in public places. This shows that enforcement of the existing policy needs to be further strengthened.

Among current smokers, 69.0% have tried to stop smoking during the preceding 12 months of the survey. Bhutan is trying to get its health professionals trained in tobacco cessation and to establish smoking cessation guidelines. However, the challenges to establishing tobacco cessation at the community level are still considerable.

While any degree of alcohol consumption is harmful for health, hazardous drinking such as in excess of the recommended daily limit is damaging to health. Alcohol drinking is also common in Bhutan. Nearly half of all men and a third of women consume alcohol on a regular basis. Binge drinking is a serious problem in Bhutan (22.4%). Apart from increasing risks for CVDs, the harmful use of alcohol will also increase the number road traffic injuries.

Intake of fruits and vegetables plays a protective role in the prevention of cancers, heart diseases and many other diseases. WHO recommends a minimum of five daily servings of fruits and/or vegetables. The survey reveals a huge gap in consumption of fruits and/or vegetables in the population with more than two thirds not consuming the recommended number of five servings per day. This is not only a health literacy issue but is also determined by the underlying social and economic factors such as pricing and affordability. This should be changed through

broad and supportive public and economic policy reforms. Awareness at the national level is needed through regular campaigns to increase health literacy. It may be included in the school curriculum too.

The benefits of physical activity include prevention of heart diseases and diabetes, reduction in obesity, blood pressure and cholesterol, and improved mental health conditions. However, only 6.4% (men 3.8%, women 9.6%) of the population did not attain the WHO recommended level of physical activity (≥150 minutes of moderate intensity physical activity per week or equivalent). Strategic national health promotion activities should encourage sports and other recreational opportunities.

Taking the stairs at home and in public places instead of the elevators, observance of car-free days and regular use of bicycles are other good examples of ways to increase the level of physical activity among the general population. Rural populations showed better performance than urban with regard to physical activity. Median minutes of physical activity among rural population were 390 minutes as compared with 180 minutes for the urban population. Such disparities call for greater urban health promotion, such as regular health activities, the conduct of marathon races and the availability of more fitness centres.

The metabolic risk factors for NCDs are raised blood pressure, obesity, and raised cholesterol and blood sugar levels. These will lead to a growing burden of NCDs. Nearly half the population above 18 years has raised blood pressure, and 10.7% have impaired fasting glycaemia. Those living with metabolic abnormalities or already suffering from NCDs do not receive the required treatment. Health-seeking behaviour for NCD management is low: nearly nine out of 10 persons have never had their blood sugar (85%) and blood cholesterol (96%) measured. As many as 97.3% of people with raised blood pressure were not receiving treatment. Even among those diagnosed with hypertension or raised cholesterol, or diabetes, the majority are not receiving treatment.

This survey also shows that mean intake of salt among Bhutanese adults is nine grams per day. This is due to cultural factors that calls for salted preservatives for food and adding salt to food. Processed foods are consumed more frequently in urban areas (18.8%) than rural (7.5%).

Health systems should be made more responsive to address treatment issues and health-seeking behaviours. Both private and public health systems should be involved in integrating NCD services to promote health as well as manage NCD patients.

Access to cervical cancer is poor for the rural population. Cervical cancer screening coverage was reported to be lower for women aged 30–49 years in rural areas (59.5%) as compared to urban area (73.2%) . The degree of public health initiatives taken by health-care providers is poor in Bhutan. Less than half of all health-care providers have advised patients to quit using tobacco or not start using, or to reduce salt in diet, or to start or do more physical activity, maintain a healthy body weight or lose weight.

The prevalence of combined risk factors such as current daily smoking, less than five servings of fruits and vegetables per day, insufficient physical activity, overweight and raised blood pressure also need to be taken into account. Nearly three fourths of the population is exposed to 1–2 risk factors and nearly one in 10 are exposed to three or more of the risk factors. Those in the higher age group (45–69 years) are more exposed (18.9%) than those in the younger age group (18–44 years) (10.7%). Females had a higher prevalence (16.7%) of three or more risk factors

than males (11.2%). Exposure to a single risk factor as well as a combination of more risk factors substantially increases the risk of developing NCDs. One out of 10 individuals in Bhutan is already exposed to three or more NCD risk factors. NCDs will potentially emerge as the biggest public health challenge in Bhutan due to the high prevalence of NCD risk factors and the existing gap between prevalence and treatment. Best buys to control NCDs in Bhutan are the formulation of the correct policies and effective implementation with the help of several sectors. Sustainable health literacy programmes also need to be increased.

Bhutan adopted a National Policy and Strategy Framework on the Prevention and Control of NCDs in December 2009. Bhutan has a set of time-bound national targets for NCD indicators (11th Five Year Plan). Bhutan has a national NCD policy, strategy or action plan which integrates several NCDs and their risk factors (National Policy and Strategic Framework on Prevention and Control of NCDs). The National NCD Action Plan 2015–2020 and the National Policy and Strategy to Control Harmful Effects of Alcohol are at different stages of development. National Food-Based Dietary Guidelines serve as a roadmap for reducing unhealthy diets related to NCDs and for promoting in tandem healthy diets. A national public awareness programme on healthy food has been launched through national television and the medium of posters. Bhutan`s Health Promotion Plan 2013–2023 addresses several NCD risk factors including increased physical exercise.

Bhutan is gradually integrating NCDs prevention and treatment into its primary care system. Treatment of several NCDs is still referred, and the country has not yet developed a sustainable strategy to enhance skills of health professionals in NCDs. Basic health units that deliver primary health care consist of a health assistant, an assistant nurse-midwife and a basic health worker. NCD training is not included in the Village Health Worker programme. In general, there is a conspicuous lack of health-care professionals in adequate numbers in the country, especially for NCDs. In the past few health care professionals on NCD control. Currently neither in-country training facilities for NCDs nor institutionalized international exchange programmes are available to address the training gap that exists among Bhutanese health-care professionals.

The Ministry of Health of the Royal Government of Bhutan through its Department of Public Health initiated the implementation of PEN interventions in two pilot districts (Paro and Bunthang) in 2009. A performance assessment study of the PEN pilot was conducted by the MoH over a three-month period during 2012. Changes in the behavioural and biological risk factors could be assessed as patient data were recorded during each clinic visit in individual case records. Comparisons of the characteristics of patients revealed a significant improvement with regard to reduced CVD risk due to better control of hypertension and diabetes through the regular intake of medications, and the reduction in alcohol and tobacco use.

Recommendations

The following recommendations were made on the basis of findings from this survey in the following areas:

Strengthening health services delivery

- Bhutan should assign greater priority to the development of NCD-related skills among its health workforce. Both the number of workers and the type of skill sets available with them need to be expanded.

- There should be a framework for monitoring accessibility (e.g. drugs), action plans and their evaluation, and the like.
- Facilities need to be equipped with basic diagnostic and management infrastructure. Essential NCD drugs could be made more available and accessible, especially for the poor.
- Bhutan should use regional education and training capacities to improve staffing and skill levels.
- Health system delivery should reach people at the grassroot level.

Strengthening enforcement of obacco control legislation and legislation regulating use of alcohol

- While the tobacco ban and alcohol-related restrictions are commendable, the government should place greater emphasis on their enforcement.
- Health risk literacy regarding tobacco and more broadly on all NCD risk factors is needed urgently.

Strengthening implementation of new NCD plans

- The government and major stakeholders should work jointly for implementation of the national NCD policy.

Evaluating programmes and policies

- An objective evaluation of the tobacco policy and NCD policies would provide an evidence base for future efforts.
- A health technology assessment institution should be established to improve the comparative effectiveness of interventions for NCDs and other conditions.

Developing national NCD surveillance

- This is the first national NCD risk factor survey. Bhutan should integrate periodic risk factor surveys in their national programme.
- Notwithstanding the initial efforts, much needs to be done to strengthen the national health system. Vital registration systems for mortality should go beyond hospitals (population based).
- Surveillance of morbidity and risk factors should be institutionalized and recorded.
- Public and private institutions have to be included to build up a surveillance system.

Developing and strengthening policies to address all risk factors

- Standardizing and mandating food labelling through a policy to improve knowledge and awareness of food composition needs to be implemented.
- Collaboration on group purchase of essential medications to increase access and affordability is recommended.
- Mulisectoral high level committee should be made for effective implementation of the existing NCD policies and time to time modification of the programmes based on the mod term evaluation and lessons learnt.

Bibliography

Word Health Organization. Disease and injury country estimates: burden of disease. Geneva: WHO. http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/index.html - accessed 22 December 2015.

World Health Organization, Regional Office for South-East Asia. Approaches to establishing country-level, multisectoral coordination mechanisms for the prevention and control of noncommunicable diseases. New Delhi: WHO-SEARO, 2015.

The World Bank, South Asia Human Development, Health Nutrition, and Population. NCDs policy brief: Bhutan. 2011. http://siteresources.worldbank.org/SOUTHASIAEXT/Resources/223546-1296680097256/7707437-1296680114157/NCD_BH_Policy_Feb_2011.pdf - accessed 22 December 2015.

Royal Government of Bhutan, Ministry of Health, Department of Medical Service. Managing diabetes mellitus: guide for health workers. Thimphu, 2007.

Royal Government of Bhutan, Ministry of Health, Department of public health. Package of essential NCD (PEN) interventions for hospitals. Thimphu, 2015.

Wangchuk D, Virdi NK, Garg R, Mendis S, Nair N, Kumar R. Package of essential noncommunicable disease (PEN) interventions in primary health-care settings of Bhutan: a performance assessment study. WHO South-East Asia J Public Health. 2014;3(2): 154-160.

World Health Organization. Global status report on noncommunicable diseases 2010. Geneva: WHO, 2011.

World Health Organization. The WHO STEP-wise approach to surveillance of noncommunicable diseases (STEPS). Geneva: WHO, 2003. http://www.who.int/ncd_surveillance/en/stepsinstrumentcore_exp_v1.4.pdf - accessed 22 December 2015.

Royal Government of Bhutan, Ministry of Health. Annual health bulletin. Thimphu: Policy and Planning Department, 2012.

Royal Government of Bhutan, Ministry of Health. Report on 2007 STEPS survey for risk factors and prevalence of non-communicable diseases in Thimphu. Thimphu, 2009. http://www.who.int/chp/steps/2007NCDreport.pdf - accessed 22 December 2015.

World Health Organization. Package of essential noncommunicable (PEN): disease interventions for primary health care in low-resource settings. Geneva: WHO, 2010.

Royal Government of Bhutan, Ministry of Health. Package of essential NCD (PEN) interventions for basic health units. Thimphu, 2011.

World Health Organization. Noncommunicable disease progress monitor 2015. Geneva: WHO, 2015.

World Health Organization. Preventing chronic diseases: a vital investment. Geneva: WHO, 2005.

Annex 1: Data tables

Background characteristics

*Table 3.1: Age group and sex of respondents

	Men		Women		Both Sexes	
	n	%	n	%	n	%
Age Group (years)						
18–39	500	34.0	969	66.0	1469	52.1
40–69	574	42.4	779	57.6	1353	47.9
Total	**1074**	**38.1**	**1748**	**61.9**	**2822**	**100**
Residence						
Rural	775	39.7	1177	60.3	1952	69.2
Urban	299	34.4	571	65.6	870	30.8
Total	**1074**	**38.1**	**1748**	**61.9**	**2822**	**100**

Table 3.2: Mean number of years of education

Age Group (years)	Men		Women		Both Sexes	
	n	Mean	n	Mean	n	Mean
18–39	492	5.5	938	4.3	1430	4.8
40–69	553	2.2	732	0.9	1285	1.4
Total	**1045**	**3.8**	**1670**	**2.8**	**2715**	**3.2**

Table 3.3: Highest level of education by sex and age

Age Group (years)	n	% No formal schooling	% Less than primary school	%Primary school completed	%Secondary school completed	%High school completed	%College/ University completed	% Post graduate degree completed
Men								
18–39	500	36.6	20.2	14.4	9.8	11.6	5.2	2.2
40–69	573	68.2	17.6	5.9	4.0	1.0	1.7	1.4
Total	**1073**	**53.5**	**18.8**	**9.9**	**6.7**	**6.0**	**3.4**	**1.8**
Women								
18–39	969	52.3	14.0	11.2	10.5`	8.7	2.2	1.0
40–69	777	88.2	5.5	4.6	1.0	0.4	0.3	0.0
Total	**1746**	**68.3**	**10.3**	**8.3**	**6.3**	**5.0**	**1.3**	**0.6**

* First digit of table number are matching with chapter numbers for ease of understanding.

Age Group (years)	n	% No formal schooling	% Less than primary school	%Primary school completed	%Secondary school completed	%High school completed	%College/ University completed	% Post graduate degree completed
Both Sexes								
18–39	1469	47.0	16.1	12.3	10.3	9.7	3.2	1.4
40–69	1350	79.7	10.7	5.2	2.3	0.7	0.9	0.6
Total	**2819**	**62.6**	**13.5**	**8.9**	**6.5**	**5.4**	**2.1**	**1.0**

Table 3.4: Marital status of respondents by sex and age

Age Group (years)	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed	% Cohabiting
Men							
18–39	500	18.4	78.8	0.2	1.6	0.6	0.4
40–69	573	2.1	89.2	1.4	2.1	5.2	0.0
Total	**1073**	**9.7**	**84.3**	**0.8**	**1.9**	**3.1**	**0.2**
Women							
18–39	969	10.4	82.7	1.3	4.4	1.1	–
40–69	778	2.6	73.3	1.8	7.2	15.2	–
Total	**1747**	**6.9**	**78.5**	**1.5**	**5.7**	**7.4**	–
Both Sexes							
18–39	1469	13.1	81.3	1.0	3.5	1.0	0.1
40–69	1351	2.4	80.0	1.6	5.0	11.0	0.0
Total	**2820**	**8.0**	**80.7**	**1.3**	**4.2**	**5.7**	**0.1**

Table 3.5: Employment status of respondents by sex and age

Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
Men					
18–39	500	31.0	9.8	45.2	14.0
40–69	573	16.1	5.6	66.3	12.0
Total	**1073**	**23.0**	**7.5**	**56.5**	**13.0**
Women					
18–39	969	7.0	5.5	47.7	39.8
40–69	778	2.1	1.9	63.0	33.0
Total	**1747**	**4.8**	**3.9**	**54.5**	**36.8**

Age Group (years)	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
Both Sexes					
18–39	1469	15.2	6.9	46.8	31.0
40–69	1351	8.0	3.5	64.4	24.1
Total	**2820**	**11.7**	**5.3**	**55.2**	**27.7**

Table 3.6: Proportion unpaid work and unemployed among respondents by age and sex

Age Group (years)	n	% Non-paid	% Student	%Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
Men							
18–39	70	4.3	34.3	15.7	0.0	42.9	2.9
40–69	69	8.7	0.0	21.7	24.6	39.1	5.8
Total	**139**	**6.5**	**17.3**	**18.7**	**12.2**	**41.0**	**4.3**
Women							
18–39	386	0.8	9.1	81.9	–	7.3	1.0
40–69	257	1.2	0.0	84.4	–	13.6	0.8
Total	**643**	**0.9**	**5.4**	**82.9**	–	**9.8**	**0.9**
Both Sexes							
18–39	456	1.3	12.9	71.7	0.0	12.7	1.3
40–69	326	2.8	0.0	71.2	5.2	19.0	1.8
Total	**782**	**1.9**	**7.5**	**71.5**	**2.2**	**15.3**	**1.5**

Table 3.7: Per capita annual income

Mean annual per capita income	
n	Mean
2739	**67622.70**

Tobacco use

Table 4.1: Percentage of current smokers by sex, age and residence of respondents

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Age Group (Years)									
18–39	500	14.5	10.8–18.3	969	3.1	1.7–4.5	1469	9.5	7.3–11.7
40–69	573	3.8	1.9–5.8	778	3.1	1.2–5.1	1351	3.5	2.2–4.8
Residence									
Rural	775	8.3	5.3–11.4	1176	2.3	1.2–3.4	1951	5.8	3.9–7.6
Urban	298	16.7	11.1–22.2	571	4.7	2.3–7.1	869	11.0	8.1–14.0
Total	**1073**	**10.8**	**8.1–13.6**	**1747**	**3.1**	**2.0–4.2**	**2820**	**7.4**	**5.8–9.0**

Table 4.2: Smoking status

Age Group (years)	n	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Former smoker	95% CI	% Never smoker	95% CI
Men									
18–39	500	8.4	5.8–10.9	6.2	3.2–9.1	24.2	19.6–28.8	61.3	55.5–67.0
40–69	573	1.6	0.4–2.8	2.2	0.7–3.8	31.5	26.2–36.7	64.7	59.3–70.1
Residence									
Rural	775	3.7	2.1–5.3	4.7	2.1–7.2	25.4	21.3–29.6	66.2	60.8–71.6
Urban	298	11.5	7.5–15.5	5.1	1.7–8.6	29.8	23.1–36.4	53.6	46.7–60.5
Total	**1073**	**6.0**	**4.2–7.8**	**4.8**	**2.7–6.9**	**26.7**	**23.2–30.3**	**62.5**	**58.0–66.9**
Women									
18–39	969	2.3	1.1–3.4	0.8	0.2–1.4	7.5	5.3–9.8	89.4	86.6–92.2
40–69	778	1.9	0.7–3.0	1.3	0.1–2.5	15.9	12.1–19.7	80.9	76.4–85.4
Residence									
Rural	1176	1.3	0.6–2.0	1.0	0.3–1.7	10.7	7.8–13.5	87.0	83.7–90.3
Urban	571	3.7	1.8–5.7	1.0	0.2–1.7	10.0	6.3–13.6	85.3	80.9–89.8
Total	**1747**	**2.1**	**1.3–3.0**	**1.0**	**0.4–1.5**	**10.4**	**8.2–12.7**	**86.4**	**83.8–89.1**
Both Sexes									
18–39	1469	5.7	4.2–7.2	3.8	2.1–5.5	16.9	13.9–19.8	73.6	69.8–77.5
40–69	1351	1.7	0.9–2.6	1.8	0.8–2.8	24.6	21.2–28.0	71.8	68.1–75.5
Residence									
Rural	1951	2.7	1.7–3.7	3.1	1.6–4.6	19.2	16.2–22.1	75.1	71.2–79.0
Urban	869	7.9	5.7–10.1	3.2	1.4–5.0	20.5	16.4–24.5	68.5	64.1–72.8
Total	**2820**	**4.3**	**3.2–5.4**	**3.1**	**1.9–4.3**	**19.6**	**17.2–21.9**	**73.0**	**69.9–76.1**

Table 4.3: 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
18–39	76	57.5	43.2–71.9	32	73.2	58.0–88.5	108	59.8	47.2–72.4
40–69	25	41.9	17.3–66.5	23	59.2	36.1–82.3	48	48.7	30.6–66.7
Total	**101**	**55.6**	**43.0–68.2**	**55**	**68.3**	**55.3–81.3**	**156**	**57.9**	**47.4–68.5**

Table 4.4: Mean age started smoking and mean duration of smoking among current daily smokers

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Mean age started smoking									
18–69	**57**	**19.0**	**17.3–20.8**	*	*	*	**93**	**18.9**	**17.5–20.3**
Mean duration of smoking									
18–69	**57**	**11.9**	**9.6–14.2**	*	*	*	**93**	**13.0**	**10.8–15.2**

* Less than 50 respondents.

Table 4.5: Manufactured cigarette smokers among daily smokers

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–69	**56**	**90.1**	**82.2–98.0**	*	*	*	**93**	**84.1**	**76.3–92.0**

* Less than 50 respondents.

Table 4.6: Manufactured cigarette smokers among current smokers

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Rural	57	71.5	57.1–85.9	*	*	*	88	65.0	52.6–77.5
Urban	*	*	*	*	*	*	64	91.1	83.3–98.9
Total	**98**	**81.5**	**71.4–91.6**	**54**	**61.2**	**43.4–79.1**	**152**	**77.6**	**68.5–86.7**

* Less than 50 respondents.

Table 4.7: Mean amount of tobacco used by daily smokers by type

Age Group (years)	n	Mean # of manufac-tured cig.	95% CI	n	Mean # of hand-rolled cig.	95% CI	n	Mean # of bidi	95% CI	n	Mean # of cigars, cheerots, cigarillos	95% CI	n	Mean # of other type of tobacco	95% CI
Men															
18–69	**55**	**3.7**	**2.6–4.8**	**56**	**0.4**	**0.0–0.8**	**57**	**1.3**	**0.2–2.4**	**57**	**0.1**	**0.0–0.4**	**57**	**0.2**	**0.0–0.5**
Both Sexes															
18–69	**89**	**3.5**	**2.6–4.3**	**93**	**0.6**	**0.1–1.0**	**92**	**1.2**	**0.3–2.1**	**92**	**0.2**	**0.0–0.4**	**93**	**0.3**	**0.0–0.7**

Table 4.8: Percentage of current smokers smoking by products, sex and age

Age Group (years)	n	% Manuf. cigs.	95% CI	% Hand-rolled cigs.	95% CI	% bidi	95% CI	n	% Cigars, cheroots, cigarillos	95% CI	% Other	95% CI
Men												
18–69	101	77.2	66.5–87.9	10.9	3.5–18.3	20.4	11.2–29.7	101	4.6	0.2–9.1	5.6	0.4–10.8
Women												
18–69	55	60.8	44.7–76.9	22.1	8.1–36.2	11.9	2.8–21.1	55	9.8	0.2–19.3	8.3	0.0–18.5
Both Sexes												
Total	156	74.2	64.9–83.5	13.0	6.3–19.6	18.9	11.2–26.6	156	5.6	1.5–9.7	6.1	1.5–10.7

Table 4.9: Percentage of daily smokers smoking given quantities of manufactured or hand-rolled cigarettes per day: Both Sexes

Age Group (years)	n	% <5 Cigs.	95% CI	% 5–9 Cigs.	95% CI	% 10–14 Cigs.	95% CI	% 15–24 Cigs.	95% CI
18–69	68	56.2	40.9–71.5	27.4	13.3–41.5	13.9	3.6–24.2	2.4	0.0–5.8

Table 4.10: Former daily smokers (who don't smoke currently) among respondents

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	16.3	12.6–20.0	969	3.1	1.6–4.7	1469	10.5	8.1–12.9
40–69	573	25.0	20.8–29.2	778	11.0	7.6–14.4	1351	18.9	16.1–21.6
Total	**1073**	**19.3**	**16.5–22.2**	**1747**	**5.9**	**4.2–7.5**	**2820**	**13.4**	**11.6–15.3**

Table 4.11: Former daily smokers (who don't smoke currently) among ever daily smokers

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	125	66.1	57.6–74.6	53	58.1	42.1–74.1	178	64.9	57.3–72.5
40–69	147	94.0	89.8–98.1	95	85.5	77.8–93.2	242	91.6	87.9–95.4
Total	**272**	**76.3**	**70.7–81.9**	**148**	**73.4**	**65.0–81.9**	**420**	**75.7**	**71.0–80.5**

Table 4.12: Mean years since cessation

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–39	122	6.6	5.3–7.9	77	6.9	5.0–8.7	199	6.7	5.5–7.8
40–69	171	21.2	18.5–23.8	110	19.7	16.6–22.9	281	20.8	18.6–22.9
Total	**293**	**12.5**	**10.8–14.2**	**187**	**13.6**	**11.7–15.6**	**480**	**12.8**	**11.4–14.2**

Table 4.13: Current smokers who have tried to stop smoking in the last 12 months

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–69	**101**	**66.0**	**55.2–76.8**	**55**	**82.1**	**68.6–95.7**	**156**	**69.0**	**59.8–78.1**

Table 4.14: Current smokers who have been advised by doctor to stop smoking

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–69	**80**	**33.2**	**22.2–44.3**	*	*	*	**124**	**31.8**	**22.6–41.0**

* Less than 50 respondents.

Table 4.15: Percentage of current users of smokeless tobacco by sex, age and residence of respondents

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Age Group (years)									
18–39	500	28.6	23.1–34.1	969	9.7	7.0–12.4	1469	20.3	16.5–24.0
40–69	573	22.7	17.2–28.2	778	13.5	9.9–17.2	1351	18.7	15.0–22.4
Residence									
Rural	775	27.4	21.7–33.1	1176	13.5	10.0–17.0	1951	21.5	17.2–25.8
Urban	298	24.4	17.9–30.9	571	6.1	3.9–8.2	869	15.8	12.1–19.5
Total	**1073**	**26.5**	**22.1–31.0**	**1747**	**11.0**	**8.6–13.5**	**2820**	**19.7**	**16.5–22.9**

Table 4.16: Percentage of smokeless tobacco use history by sex and age

Age Group (years)	n	Current user				Non user			
		% Daily	95% CI	% Non-daily	95% CI	% Past user	95% CI	% Never used	95% CI
Men									
18–39	500	27.0	21.5–32.5	1.5	0.3–2.8	11.4	7.8–14.9	60.1	54.1–66.0
40–69	573	21.8	16.3–27.2	1.0	0.0–2.0	18.8	14.3–23.3	58.5	52.1–64.9
Total	**1073**	**25.2**	**20.7–29.7**	**1.3**	**0.5–2.2**	**13.9**	**10.8–17.0**	**59.5**	**54.3–64.7**
Women									
18–39	969	8.6	5.9–11.2	1.1	0.2–2.0	8.3	6.1–10.6	82.0	78.4–85.6
40–69	778	12.5	8.9–16.2	1.0	0.3–1.7	17.6	14.0–21.2	68.9	63.9–73.8
Total	**1747**	**9.9**	**7.5–12.4**	**1.1**	**0.5–1.7**	**11.5**	**9.6–13.5**	**77.4**	**74.2–80.6**
Both Sexes									
18–39	1469	18.9	15.2–22.6	1.4	0.6–2.2	10.0	7.8–12.2	69.7	65.7–73.8
40–69	1351	17.7	14.0–21.4	1.0	0.3–1.6	18.3	15.0–21.5	63.1	58.2–67.9
Total	**2820**	**18.5**	**15.3–21.7**	**1.2**	**0.7–1.8**	**12.9**	**10.8–15.0**	**67.4**	**63.6–71.2**

Table 4.17: Former daily smokeless tobacco users (who don't use tobacco currently) among all respondents

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	9.9	6.6–13.3	969	7.4	5.2–9.7	1469	8.8	6.8–10.9
40–69	573	17.1	12.8–21.5	778	15.8	12.6–19.1	1351	16.6	13.5–19.6
Total	**1073**	**12.4**	**9.6–15.2**	**1747**	**10.4**	**8.5–12.2**	**2820**	**11.5**	**9.6–13.4**

Table 4.18: Former daily smokeless tobacco users (who don't use tobacco currently) among ever daily users

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	180	26.9	18.7–35.1	142	46.5	35.6–57.4	322	31.9	24.8–38.9
40–69	217	44.1	34.3–53.8	205	55.8	46.7–64.9	422	48.3	41.2–55.4
Total	**397**	**33.1**	**26.6–39.5**	**347**	**51.0**	**43.7–58.4**	**744**	**38.4**	**32.8–44.0**

Table 4.19: Mean times per day smokeless tobacco used by daily smokeless tobacco users by type

Age Group (years)	n	Chewing tobacco/ Snuff by mouth	95% CI	n	Snuff by nose	95% CI	n	Betel quid	95% CI	n	Other	95% CI
Men												
18–39	126	13.8	11.0–16.5	133	0.4	0.0–0.9	132	0.1	0.0–0.3	132	0.1	0.0–0.2
40–69	116	10.5	8.5–12.6	122	0.0	0.0–0.1	122	1.0	0.2–1.8	122	0.2	0.0–0.5
Total	**242**	**12.8**	**10.6–14.9**	**255**	**0.3**	**0.0–0.7**	**254**	**0.4**	**0.1–0.7**	**254**	**0.1**	**0.0–0.2**
Women												
18–39	77	11.2	8.9–13.5	79	0.0	0.0–0.0	79	0.5	0.0–1.3	79	0.2	0.0–0.4
40–69	80	11.5	9.0–14.0	83	0.4	0.0–1.0	82	2.0	0.2–3.7	84	0.1	0.0–0.2
Total	**157**	**11.3**	**9.5–13.2**	**162**	**0.2**	**0.0–0.4**	**161**	**1.2**	**0.3–2.0**	**163**	**0.2**	**0.0–0.3**
Both Sexes												
18–39	203	13.2	10.9–15.6	212	0.3	0.0–0.7	211	0.2	0.0–0.4	211	0.1	0.0–0.2
40–69	196	10.8	9.1–12.5	205	0.1	0.0–0.3	204	1.3	0.5–2.1	206	0.2	0.0–0.4
Total	**399**	**12.4**	**10.6–14.2**	**417**	**0.3**	**0.0–0.5**	**415**	**0.6**	**0.2–0.9**	**417**	**0.1**	**0.0–0.2**

Table 4.20: Percentage of current users of smokeless tobacco using each of the following products

Age Group (years)	n	%Chewing tobacco/ Snuff by mouth	95% CI	% Snuff by nose	95% CI	% Betel quid	95% CI	% Other	95% CI
Men									
18–39	141	97.6	94.7–100.0	4.8	0.0–10.8	2.0	0.0–4.3	2.4	0.0–5.2
40–69	128	93.6	87.8–99.3	0.9	0.0–2.8	10.6	4.0–17.1	2.4	0.0–5.8
Total	**269**	**96.4**	**93.8–99.0**	**3.6**	**0.0–8.0**	**4.6**	**1.8–7.3**	**2.4**	**0.2–4.6**
Women									
18–39	86	93.5	87.5–99.6	3.5	0.0–8.5	6.7	1.2–12.2	8.7	2.3–15.1
40–69	94	91.5	85.6–97.4	4.1	0.3–7.9	16.5	5.0–28.0	2.3	0.0–4.9
Total	**180**	**92.7**	**87.9–97.4**	**3.7**	**0.0–7.7**	**10.9**	**5.1–16.7**	**5.9**	**1.8–10.1**
Both Sexes									
18–39	227	96.7	94.2–99.3	4.5	0.0–9.3	3.0	0.8–5.2	3.7	1.1–6.3
40–69	222	92.9	88.7–97.1	1.9	0.2–3.7	12.5	6.2–18.7	2.4	0.0–4.8
Total	**449**	**95.5**	**93.2–97.8**	**3.7**	**0.3–7.0**	**6.1**	**3.3–8.9**	**3.3**	**1.2–5.3**

Table 4.21: Percentage of current tobacco users by sex, age and residence of respondents

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Age Group (Years)									
18–39	500	38.1	32.4–43.9	969	12.4	9.4–15.5	1469	26.8	22.8–30.8
40–69	573	25.2	19.6–30.7	778	16.0	11.8–20.1	1351	21.1	17.3–25.0
Residence									
Rural	775	32.8	26.4–39.1	1176	15.3	11.6–19.1	1951	25.3	20.6–30.0
Urban	298	35.6	29.0–42.3	571	10.3	6.9–13.6	869	23.7	19.8–27.7
Total	**1073**	**33.6**	**28.8–38.5**	**1747**	**13.6**	**10.9–16.4**	**2820**	**24.8**	**21.4–28.3**

Table 4.22: Daily tobacco users

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	33.9	28.4–39.4	969	10.6	7.8–13.5	1469	23.6	19.9–27.4
40–69	573	22.7	17.2–28.3	778	13.9	10.1–17.8	1351	18.9	15.0–22.7
Residence									
Rural	775	30.0	24.1–35.9	1176	13.5	9.9–17.1	1951	23.0	18.4–27.5
Urban	298	30.0	23.4–36.6	571	8.4	5.6–11.2	869	19.8	16.3–23.4
Total	**1073**	**30.0**	**25.4–34.6**	**1747**	**11.8**	**9.2–14.4**	**2820**	**22.0**	**18.7–25.3**

Table 4.23: Exposed to second-hand smoke in home and workplace during the past 30 days

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Home									
18–39	500	23.3	18.6–28.0	969	23.7	20.0–27.5	1469	23.5	20.2–26.8
40–69	573	15.8	11.6–20.0	778	15.0	11.4–18.6	1351	15.4	12.3–18.6
Total	**1073**	**20.7**	**17.0–24.4**	**1747**	**20.7**	**17.8–23.6**	**2820**	**20.7**	**18.0–23.4**
Workplace									
18–39	434	33.6	28.0–39.3	838	22.1	18.0–26.2	1272	28.6	24.6–32.6
40–69	479	19.8	14.7–24.9	676	13.6	9.6–17.5	1155	17.0	13.4–20.6
Total	**913**	**29.0**	**24.6–33.4**	**1514**	**19.1**	**15.9–22.3**	**2427**	**24.6**	**21.5–27.7**

Table 4.24: Percentage of all respondents who noticed information in media about the dangers of smoking or that encourages quitting during the past 30 days.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Newspapers or magazines									
18–39	460	27.9	22.5–33.3	852	19.6	15.6–23.6	1312	24.3	20.6–28.1
40–69	498	19.7	15.5–24.0	651	6.9	4.2–9.6	1149	14.3	11.4–17.1
Total	**958**	**25.2**	**21.2–29.2**	**1503**	**15.4**	**12.5–18.2**	**2461**	**21.0**	**18.2–23.7**
Television									
18–39	487	65.2	58.7–71.8	934	67.1	61.0–73.2	1421	66.1	60.9–71.2
40–69	547	62.6	56.4–68.9	745	58.9	52.4–65.4	1292	61.0	55.7–66.3
Total	**1034**	**64.3**	**59.1–69.6**	**1679**	**64.3**	**59.1–69.4**	**2713**	**64.3**	**59.8–68.8**
Radio									
18–39	477	44.2	37.6–50.9	895	43.5	38.4–48.5	1372	43.9	39.0–48.8
40–69	536	48.0	41.3–54.7	729	42.3	36.9–47.6	1265	45.5	40.6–50.3
Total	**1013**	**45.5**	**40.1–50.9**	**1624**	**43.0**	**38.8–47.3**	**2637**	**44.4**	**40.3–48.6**

Table 4.25: Percentage of current smokers who noticed health warnings on cigarette packages during the past 30 days.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–69	97	68.7	55.7–81.8	*	*	*	145	69.8	58.3–81.2

*Less than 50 respondents

Table 4.26: Percentage of current smokers who noticed health warnings on cigarette packages during the past 30 days that thought about quitting due to the health warnings they saw.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–69	66	83.1	73.1–93.1	*	*	*	99	84.3	76.1–92.6

*Less than 50 respondents

Table 4.27: Average price paid for 20 manufactured cigarettes, based on the last manufactured cigarette purchase (in Ngultrum).

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–69	76	252.4	137.5–367.2	*	*	*	111	269.3	162.9–375.7

*Less than 50 respondents

Alcohol consumption

Table 5.1: Alcohol consumption status by sex and age

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
Men									
18–39	500	48.3	42.0–54.6	9.1	5.9–12.3	11.7	7.7–15.6	30.9	24.9–36.9
40–69	572	53.3	47.5–59.0	4.1	2.0–6.2	12.8	9.3–16.3	29.8	25.0–34.7
Residence									
Rural	775	51.4	45.9–56.9	5.9	3.5–8.4	10.8	7.9–13.7	31.9	26.7–37.0
Urban	297	46.7	39.2–54.2	10.7	5.4–16.0	15.1	8.7–21.5	27.5	19.3–35.7
Total	**1072**	**50.0**	**45.5–54.5**	**7.4**	**5.0–9.7**	**12.1**	**9.2–14.9**	**30.6**	**26.2–35.0**
Women									
18–39	969	30.8	27.4–34.2	9.3	6.9–11.7	8.8	5.6–11.9	51.2	46.5–55.9
40–69	778	36.5	31.3–41.7	6.1	4.0–8.2	10.2	7.4–13.0	47.2	41.9–52.5
Residence									
Rural	1176	33.9	29.5–38.2	6.9	4.8–9.0	8.9	5.8–11.9	50.4	45.3–55.5
Urban	571	30.6	26.2–35.0	10.7	7.5–14.0	10.1	6.8–13.4	48.6	42.9–54.3
Total	**1747**	**32.8**	**29.5–36.0**	**8.2**	**6.4–10.0**	**9.3**	**7.0–11.6**	**49.8**	**45.9–53.7**
Both Sexes									
18–39	1469	40.6	36.8–44.4	9.2	7.0–11.4	10.4	7.8–13.0	39.8	35.6–44.1
40–69	1350	45.9	41.7–50.1	5.0	3.5–6.5	11.7	9.1–14.3	37.5	33.8–41.2
Residence									
Rural	1951	43.9	39.9–47.9	6.3	4.6–8.1	10.0	7.7–12.2	39.8	35.8–43.8
Urban	868	39.2	34.7–43.6	10.7	7.3–14.2	12.7	8.9–16.6	37.4	31.7–43.0
Total	**2819**	**42.4**	**39.3–45.5**	**7.7**	**6.1–9.4**	**10.8**	**8.8–12.8**	**39.0**	**35.7–42.3**

Table 5.2: Stop drinking due to health reasons

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	61	47.8	31.3–64.3	76	46.2	34.6–57.9	137	47.2	36.0–58.4
40–69	76	75.9	64.3–87.5	96	75.7	66.1–85.4	172	75.8	67.1–84.6
Total	**137**	**58.1**	**45.9–70.4**	**172**	**57.5**	**49.3–65.7**	**309**	**57.9**	**49.4–66.4**

Table 5.3: Frequency of alcohol consumption in the past 12 months

Age Group (years)	N	% Daily	95% CI	% 5–6 days/ week	95% CI	% 3–4 days/ week	95% CI	% 1–2 days/ week	95% CI	% 1–3 days/ mon	95% CI	% < once a month	95% CI
Men													
18–39	283	14.3	8.7–19.9	6.0	2.2–9.9	10.3	6.6–14.0	34.2	27.5–40.9	15.9	10.7–21.1	19.2	13.4–25.0
40–69	333	31.8	24.7–38.9	7.9	4.3–11.5	15.6	11.2–20.1	20.3	15.2–25.4	12.3	7.7–16.9	12.0	7.8–16.3
Total	**616**	**20.4**	**15.3–25.6**	**6.7**	**3.9–9.5**	**12.2**	**9.4–15.0**	**29.3**	**24.5–34.1**	**14.7**	**10.8–18.5**	**16.7**	**12.5–20.9**
Women													
18–39	420	7.3	4.1–10.5	2.1	0.5–3.7	8.9	5.4–12.4	24.9	18.7–31.1	18.1	13.0–23.3	38.7	31.7–45.7
40–69	320	16.6	11.1–22.1	7.8	3.7–11.8	13.0	8.5–17.5	22.4	17.0–27.8	12.5	7.8–17.1	27.8	21.3–34.3
Total	**740**	**10.7**	**7.7–13.6**	**4.2**	**2.1–6.2**	**10.4**	**7.3–13.4**	**24.0**	**19.7–28.3**	**16.1**	**12.3–19.9**	**34.7**	**29.3–40.2**
Both Sexes													
18–39	703	11.8	7.8–15.9	4.6	2.2–7.1	9.8	7.1–12.6	30.9	25.2–36.6	16.7	13.0–20.4	26.2	20.9–31.4
40–69	653	26.2	20.8–31.6	7.9	5.0–10.7	14.7	11.1–18.2	21.0	17.4–24.6	12.4	8.6–16.2	17.8	13.9–21.7
Total	**1356**	**16.9**	**13.1–20.7**	**5.8**	**3.9–7.7**	**11.5**	**9.3–13.8**	**27.4**	**23.5–31.3**	**15.2**	**12.4–17.9**	**23.2**	**19.3–27.1**

Table 5.4: Mean number of drinking occasions in the past 30 days among current (past 30 days) drinkers

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–39	233	8.1	6.5–9.6	302	5.3	4.2–6.3	535	7.2	6.0–8.3
40–69	290	12.0	10.2–13.8	259	8.9	6.9–10.9	549	10.9	9.5–12.3
Total	**523**	**9.5**	**8.2–10.8**	**561**	**6.7**	**5.5–7.8**	**1084**	**8.5**	**7.5–9.6**

Table 5.5: Mean number of standard drinks per drinking occasion among current (past 30 days) drinkers

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–39	238	7.1	5.3–8.9	306	4.6	3.6–5.5	544	6.3	5.0–7.5
40–69	299	6.8	5.6–8.0	262	5.6	4.7–6.5	561	6.4	5.5–7.3
Total	**537**	**7.0**	**5.7–8.2**	**568**	**5.0**	**4.2–5.7**	**1105**	**6.3**	**5.4–7.2**

Table 5.6: Percentage of respondents drinking at high-end, intermediate and lower-end level among all respondents of pure alcohol on average per occasion by sex and age

Age Group (years)	n	% high-end	95% CI	% inter-mediate	95% CI	% lower-end	95% CI
Men		**(≥60g)**		**(40–59.9g)**		**(<40g)**	
18–39	493	5.3	3.0–7.6	2.0	0.6–3.4	40.2	33.8–46.6
40–69	553	6.7	3.9–9.4	3.6	1.8–5.4	41.3	35.6–47.1
Total	**1046**	**5.8**	**3.9–7.7**	**2.5**	**1.4–3.6**	**40.6**	**36.0–45.2**
Women		**(≥40g)**		**(20–39.9g)**		**(<20g)**	
18–39	951	2.0	0.8–3.3	1.8	0.9–2.7	25.7	22.6–28.7
40–69	759	5.5	3.1–7.8	1.7	0.7–2.8	27.2	22.5–32.0
Total	**1710**	**3.2**	**1.9–4.5**	**1.8**	**1.1–2.5**	**26.2**	**23.4–29.0**
Both sexes							
18–39	1444	3.9	2.4–5.3	1.9	1.0–2.8	33.8	29.9–37.7
40–69	1312	6.1	4.1–8.2	2.8	1.6–3.9	35.1	31.2–39.0
Total	**2756**	**4.7**	**3.3–6.0**	**2.2**	**1.5–2.9**	**34.3**	**31.2–37.3**

Table 5.7: Percentage of current (past 30 days) drinkers with different drinking levels.

Age Group (years)	n	% high-end	95% CI	% inter-mediate	95% CI	% lower-end	95% CI
Men		**(≥60g)**		**(40–59.9g)**		**(<40g)**	
18–39	232	11.2	6.3–16.1	4.2	1.4–7.0	84.6	78.4–90.8
40–69	289	12.9	7.7–18.1	6.9	3.5–10.4	80.1	73.9–86.4
Total	**521**	**11.8**	**7.9–15.7**	**5.2**	**3.0–7.4**	**83.0**	**78.2–87.8**
Women		**(≥40g)**		**(20–39.9g)**		**(<20g)**	
18–39	299	6.9	2.8–11.1	6.2	3.3–9.1	86.9	81.5–92.2
40–69	254	15.9	9.3–22.5	5.0	2.1–7.8	79.2	72.2–86.1
Total	**553**	**10.3**	**6.4–14.2**	**5.7**	**3.6–7.8**	**83.9**	**79.1–88.8**
Both sexes							
18–39	531	9.8	6.1–13.5	4.9	2.6–7.1	85.3	80.6–90.1
40–69	543	13.9	9.6–18.3	6.3	3.8–8.7	79.8	74.8–84.8
Total	**1074**	**11.3**	**8.2–14.5**	**5.4**	**3.6–7.1**	**83.3**	**79.4–87.2**

Table 5.8: Mean maximum number of standard drinks consumed on one occasion in the past 30 days

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–39	233	9.1	7.7–10.6	290	5.3	4.4–6.3	523	7.9	6.9–9.0
40–69	283	9.3	7.7–10.9	251	7.3	6.0–8.6	534	8.6	7.3–9.9
Total	**516**	**9.2**	**8.0–10.4**	**541**	**6.1**	**5.2–7.0**	**1057**	**8.2**	**7.3–9.1**

Table 5.9: Six or more drinks on a single occasion at least once during the past 30 days among total population

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	28.2	22.9–33.6	969	11.0	8.3–13.7	1469	20.7	17.3–24.0
40–69	572	30.3	25.3–35.4	778	19.8	15.2–24.4	1350	25.7	21.8–29.6
Residence									
Rural	775	30.0	24.6–35.3	1176	16.2	12.6–19.8	1951	24.1	20.3–27.9
Urban	297	26.6	21.1–32.1	571	9.8	5.6–14.0	868	18.7	14.7–22.7
Total	**1072**	**29.0**	**24.9–33.1**	**1747**	**14.1**	**11.3–16.9**	**2819**	**22.4**	**19.5–25.3**

Table 5.10: Mean number of times with six or more drinks during a single occasion in the past 30 days among current drinkers

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–39	225	4.1	2.7–5.5	291	2.0	1.2–2.7	516	3.4	2.4–4.4
40–69	284	4.6	3.4–5.7	242	3.6	2.6–4.7	526	4.3	3.3–5.2
Total	**509**	**4.3**	**3.2–5.3**	**533**	**2.6**	**1.9–3.3**	**1042**	**3.7**	**2.9–4.5**

Table 5.11: Frequency of alcohol consumption in the past 7 days

Age Group (years)	n	% Daily	95% CI	% 5–6 days	95% CI	% 3–4 days	95% CI	% 1–2 days	95% CI	% 0 days	95% CI
Men											
18–39	218	16.5	9.7–23.3	5.8	2.6–9.1	19.3	13.6–25.1	44.4	37.1–51.6	14.0	8.7–19.2
40–69	271	37.3	30.3–44.4	13.9	8.6–19.2	11.5	7.8–15.2	28.4	21.0–35.8	8.9	4.6–13.1
Total	**489**	**23.9**	**18.2–29.7**	**8.7**	**5.8–11.6**	**16.5**	**12.5–20.5**	**38.7**	**33.1–44.3**	**12.2**	**8.3–16.0**
Women											
18–39	276	6.5	2.4–10.6	6.1	2.7–9.5	10.8	6.3–15.2	54.5	46.7–62.2	22.3	16.0–28.6
40–69	221	20.9	14.2–27.7	9.9	4.8–14.9	19.8	13.5–26.2	32.0	24.5–39.5	17.4	10.4–24.5
Total	**497**	**11.8**	**7.9–15.7**	**7.5**	**4.4–10.5**	**14.1**	**10.3–17.9**	**46.1**	**39.7–52.6**	**20.5**	**15.5–25.5**
Both Sexes											
18–39	494	13.3	8.5–18.0	5.9	3.4–8.4	16.5	12.5–20.5	47.6	42.4–52.9	16.7	12.7–20.7
40–69	492	31.8	26.1–37.4	12.6	8.4–16.7	14.3	10.8–17.8	29.6	23.7–35.5	11.8	7.8–15.7
Total	**986**	**19.9**	**15.7–24.1**	**8.3**	**6.0–10.6**	**15.7**	**12.9–18.6**	**41.1**	**36.7–45.6**	**14.9**	**11.8–18.0**

Table 5.12: Mean number of standard drinks and unrecorded alcohol consumed on average per day in the past 7 days among current drinkers

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Standard drinks consumed									
18–39	218	2.2	1.5–2.8	276	1.1	0.8–1.4	494	1.8	1.3–2.3
40–69	271	3.8	2.8–4.9	221	2.7	1.9–3.5	492	3.4	2.6–4.3
Total	**489**	**2.8**	**2.1–3.4**	**497**	**1.7**	**1.3–2.1**	**986**	**2.4**	**1.9–2.9**
standard drinks of unrecorded alcohol									
18–39	99	1.5	1.1–1.8	125	1.0	0.7–1.3	224	1.3	1.0–1.6
40–69	154	1.6	1.3–1.9	135	1.6	1.2–2.0	289	1.6	1.4–1.9
Total	**253**	**1.5**	**1.3–1.8**	**260**	**1.3**	**1.0–1.5**	**513**	**1.4**	**1.2–1.6**

Table 5.13: Consumption of unrecorded alcohol by sex, age and residence of respondents*

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	236	57.8	50.6–65.0	310	53.5	45.6–61.3	546	56.4	50.8–61.9
40–69	305	59.5	52.5–66.5	269	62.0	53.9–70.2	574	60.4	54.7–66.0
Residence									
Rural	405	64.6	58.4-70.7	404	63.5	55.9-71.2	809	64.2	59.1-69.4
Urban	136	42.6	33.1-52.2	175	42.1	31.6-52.6	311	42.4	35.2-49.7
Total	**541**	**58.4**	**53.0-63.9**	**579**	**56.8**	**50.4-63.2**	**1120**	**57.9**	**53.4-62.3**

*Percentage of respondents that consumed unrecorded alcohol (homebrewed alcohol, alcohol brought over the border, not intended for drinking or other untaxed alcohol) during the past 7 days among current (past 30 days) drinkers.

Table 5.14: Percentage of unrecorded alcohol from all alcohol consumed during past 7 days

Age Group (years)	Men		Women		Both Sexes	
	n	%	n	%	n	%
18–39	150	48.6	169	57.3	319	53.2
40–69	204	36.6	143	50.8	347	42.5
Total	**354**	**41.7**	**312**	**54.3**	**666**	**47.6**

Table 5.15: Unrecorded alcohol consumption during the past 7 days by type*

Age Group (years)	n	% home-brewed spirits	% home-brewed beer/ wine	% brought over border	% other
Men					
18–39	86	38.5	59.3	1.0	1.2
40–69	133	59.8	38	1.5	0.7
Total	**219**	**51.6**	**46.6**	**1.4**	**0.9**
Women					
18–39	98	48.6	43	7.1	1.3
40–69	100	48	39.3	12.4	0.3
Total	**198**	**48.5**	**40.9**	**9.6**	**0.5**
Both Sexes					
18–39	184	44	50.5	4.3	1.1
40–69	233	54.9	38.6	6.0	0.4
Total	**417**	**50.1**	**43.9**	**5.3**	**0.7**

*Percentage of each type of unrecorded alcohol of all unrecorded alcohol consumed in the past 7 days among current (past 30 days) drinkers.

Table 5.16: Frequency of not being able to stop drinking once started during the past 12 months among past 12 month drinkers

Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
Men							
18–39	285	25.6	19.5–31.7	15.3	9.9–20.8	59.1	51.9–66.3
40–69	333	30.6	24.9–36.4	15.1	10.7–19.5	54.3	47.2–61.3
Total	**618**	**27.3**	**22.4–32.2**	**15.2**	**11.2–19.3**	**57.4**	**51.7–63.1**
Women							
18–39	421	14.6	10.5–18.6	9.7	6.1–13.4	75.7	70.4–81.1
40–69	321	22.4	17.2–27.6	17.3	12.2–22.4	60.3	53.6–67.0
Total	**742**	**17.4**	**14.1–20.7**	**12.4**	**9.3–15.6**	**70.1**	**65.7–74.6**
Both Sexes							
18–39	706	21.7	17.2–26.1	13.3	9.2–17.5	65.0	59.4–70.5
40–69	654	27.6	23.0–32.1	15.9	12.3–19.5	56.5	51.1–62.0
Total	**1360**	**23.8**	**20.1–27.5**	**14.2**	**11.1–17.4**	**62.0**	**57.5–66.5**

Table 5.17: Frequency of failing to do what was normally expected from you during the past 12 months among past 12 month drinkers

Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
Men							
18–39	285	6.7	3.2–10.1	10.6	5.9–15.3	82.7	76.9–88.6
40–69	333	6.1	3.1–9.1	13.7	9.3–18.2	80.2	75.0–85.4
Total	**618**	**6.5**	**4.0–9.0**	**11.7**	**8.2–15.2**	**81.9**	**77.5–86.2**
Women							
18–39	421	2.9	1.1–4.6	7.4	4.3–10.6	89.7	86.1–93.3
40–69	321	5.3	2.5–8.1	7.7	4.2–11.2	87.0	82.4–91.6
Total	**742**	**3.8**	**2.2–5.3**	**7.5**	**5.2–9.9**	**88.7**	**85.8–91.6**
Both Sexes							
18–39	706	5.3	3.1–7.6	9.5	6.3–12.7	85.2	81.3–89.1
40–69	654	5.8	3.5–8.0	11.5	8.4–14.6	82.7	78.8–86.6
Total	**1360**	**5.5**	**3.8–7.2**	**10.2**	**7.8–12.6**	**84.3**	**81.3–87.3**

Table 5.18: Frequency of needing a first drink in the morning to get going during the past 12 months among past 12 month drinkers

Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
Men							
18–39	285	6.0	2.6–9.3	5.3	2.5–8.2	88.7	84.4–93.0
40–69	333	13.4	9.1–17.8	6.3	3.0–9.6	80.3	75.0–85.6
Total	**618**	**8.6**	**5.6–11.5**	**5.7**	**3.5–7.8**	**85.8**	**82.3–89.3**
Women							
18–39	421	2.8	0.2–5.5	4.5	1.4–7.5	92.7	88.9–96.5
40–69	321	4.7	2.3–7.0	5.0	1.7–8.4	90.3	85.7–95.0
Total	**742**	**3.5**	**1.3–5.7**	**4.7**	**2.4–6.9**	**91.8**	**88.8–94.9**
Both Sexes							
18–39	706	4.9	2.5–7.3	5.0	2.9–7.1	90.1	87.1–93.2
40–69	654	10.2	7.2–13.1	5.8	3.2–8.5	84.0	80.1–87.9
Total	**1360**	**6.7**	**4.6–8.8**	**5.3**	**3.6–7.0**	**87.9**	**85.3–90.6**

Table 5.19: Frequency of family/partner problems due to someone else's drinking during the past 12 months among all respondents

Age Group (years)	n	% monthly or more frequently	95% CI	% less than monthly	95% CI	% never	95% CI
Men							
18–39	500	0.6	0.0–1.3	5.8	3.6–8.1	93.6	91.2–96.0
40–69	572	0.1	0.0–0.3	6.6	4.0–9.2	93.3	90.6–95.9
Total	**1072**	**0.4**	**0.0–0.9**	**6.1**	**4.5–7.7**	**93.5**	**91.7–95.2**
Women							
18–39	969	1.2	0.4–2.1	7.1	4.0–10.1	91.7	88.6–94.8
40–69	778	0.8	0.1–1.4	3.9	1.9–5.9	95.4	93.3–97.4
Total	**1747**	**1.0**	**0.5–1.6**	**6.0**	**3.8–8.1**	**93.0**	**90.7–95.2**
Both Sexes							
18–39	1469	0.9	0.3–1.4	6.4	4.4–8.3	92.8	90.7–94.9
40–69	1350	0.4	0.1–0.7	5.4	3.8–7.1	94.2	92.5–95.9
Total	**2819**	**0.7**	**0.3–1.1**	**6.0**	**4.5–7.6**	**93.3**	**91.6–94.9**

Dietary habits

Table 6.1: Mean number of days fruit and vegetables consumed in a typical week

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Fruit									
18–39	487	1.7	1.4–2.0	942	2.0	1.8–2.3	1429	1.8	1.6–2.0
40–69	544	1.4	1.2–1.6	745	1.7	1.4–2.0	1289	1.5	1.3–1.7
Residence									
Rural	735	1.2	1.0–1.5	1117	1.6	1.3–1.8	1852	1.4	1.2–1.6
Urban	296	2.4	2.0–2.9	570	2.6	2.3–2.9	866	2.5	2.2–2.8
Total	**1031**	**1.6**	**1.4–1.8**	**1687**	**1.9**	**1.7–2.1**	**2718**	**1.7**	**1.5–1.9**
Vegetables									
18–39	500	5.7	5.4–5.9	969	5.5	5.3–5.7	1469	5.6	5.4–5.8
40–69	571	5.6	5.4–5.8	776	5.5	5.3–5.7	1347	5.6	5.4–5.7
Residence									
Rural	774	5.6	5.3–5.8	1174	5.3	5.1–5.5	1948	5.4	5.3–5.6
Urban	297	5.9	5.5–6.2	571	5.9	5.6–6.2	868	5.9	5.6–6.2
Total	**1071**	**5.6**	**5.5–5.8**	**1745**	**5.5**	**5.3–5.7**	**2816**	**5.6**	**5.4–5.7**

Table 6.2: Mean number of servings of fruit and/or vegetables on average per day by sex, age and residence of respondents

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Fruit									
18–39	487	0.7	0.5–0.9	940	0.8	0.7–1.0	1427	0.8	0.6–0.9
40–69	544	0.6	0.4–0.7	743	0.7	0.5–0.9	1287	0.6	0.5–0.8
Residence									
Rural	735	0.5	0.4–0.7	1114	0.6	0.5–0.8	1849	0.6	0.4–0.7
Urban	296	1.0	0.7–1.3	569	1.1	0.8–1.3	865	1.0	0.8–1.2
Total	**1031**	**0.7**	**0.5–0.8**	**1683**	**0.8**	**0.7–0.9**	**2714**	**0.7**	**0.6–0.8**
Vegetables									
18–39	774	4.2	3.7–4.8	1173	3.3	2.9–3.7	1947	3.9	3.4–4.3
40–69	297	3.4	2.9–4.0	571	3.7	3.1–4.4	868	3.6	3.0–4.1

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Residence									
Rural	774	4.2	3.7–4.8	1173	3.3	2.9–3.7	1947	3.9	3.4–4.3
Urban	297	3.4	2.9–4.0	571	3.7	3.1–4.4	868	3.6	3.0–4.1
Total	**1071**	**4.0**	**3.5–4.4**	**1744**	**3.5**	**3.1–3.8**	**2815**	**3.8**	**3.4–4.1**
Fruit and/or vegetables									
18–39	500	4.6	4.0–5.1	969	4.3	3.9–4.7	1469	4.5	4.0–4.9
40–69	571	4.7	4.2–5.3	777	4.1	3.6–4.5	1348	4.4	4.0–4.9
Total	**1071**	**4.6**	**4.1–5.1**	**1746**	**4.2**	**3.8–4.6**	**2817**	**4.5**	**4.1–4.8**
Residence – Fruit and/or vegetables									
Rural	774	4.7	4.1–5.3	1175	4.0	3.5–4.4	1949	4.4	3.9–4.9
Urban	297	4.4	3.7–5.1	571	4.8	4.0–5.5	868	4.6	4.0–5.2
Total	**1071**	**4.6**	**4.1–5.1**	**1746**	**4.2**	**3.8–4.6**	**2817**	**4.5**	**4.1–4.8**

Table 6.3: Number of servings of fruit and/or vegetables on average per day

Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1–2 servings	95% CI	% 3–4 servings	95% CI	% ≥5 servings	95% CI
Men									
18–39	500	7.2	4.2–10.2	25.9	19.4–32.4	32.0	25.4–38.5	35.0	27.7–42.3
40–69	571	5.7	3.4–8.0	30.3	24.2–36.5	28.2	23.2–33.3	35.7	28.9–42.6
Total	**1071**	**6.7**	**4.4–8.9**	**27.4**	**21.8–33.1**	**30.7**	**25.4–35.9**	**35.2**	**28.8–41.7**
Women									
18–39	969	5.9	3.6–8.3	30.9	25.7–36.1	32.0	28.0–36.0	31.2	25.3–37.1
40–69	777	10.7	7.3–14.1	34.4	29.3–39.5	25.8	22.1–29.6	29.1	23.5–34.7
Total	**1746**	**7.6**	**5.4–9.7**	**32.1**	**27.8–36.5**	**29.9**	**26.5–33.2**	**30.4**	**25.3–35.6**
Both Sexes									
18–39	1469	6.6	4.7–8.6	28.1	23.1–33.1	32.0	27.9–36.1	33.3	27.6–39.0
40–69	1348	7.9	5.6–10.2	32.1	27.2–37.0	27.2	23.7–30.7	32.8	27.3–38.3
Total	**2817**	**7.1**	**5.3–8.9**	**29.5**	**25.0–34.0**	**30.3**	**26.8–33.8**	**33.1**	**28.0–38.3**

Table 6.4: Less than five servings of fruit and/or vegetables on average per day

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	65.0	57.7–72.3	969	68.8	62.9–74.7	1469	66.7	61.0–72.4
40–69	571	64.3	57.4–71.1	777	70.9	65.3–76.5	1348	67.2	61.7–72.7
Residence									
Rural	774	63.1	54.8–71.3	1175	71.3	65.3–77.3	1949	66.6	59.9–73.2
Urban	297	68.8	59.8–77.7	571	66.1	56.6–75.7	868	67.5	59.8–75.3
Total	**1071**	**64.8**	**58.3–71.2**	**1746**	**69.6**	**64.4–74.7**	**2817**	**66.9**	**61.7–72.0**

Dietary salt

Table 7.1: Salt consumption habits

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Add salt always or often before eating or when eating									
18–39	499	7.9	3.3–12.4	967	9.0	6.3–11.7	1466	8.4	4.9–11.8
40–69	567	6.6	4.0–9.2	7h72	6.9	4.5–9.3	1339	6.7	4.8–8.7
Residence									
Rural	769	8.2	4.2–12.2	1169	7.8	5.2–10.4	1938	8.0	4.9–11.2
Urban	297	5.5	1.9–9.1	570	9.2	5.7–12.7	867	7.2	4.2–10.3
Total	**1066**	**7.4**	**4.4–10.5**	**1739**	**8.3**	**6.2–10.4**	**2805**	**7.8**	**5.4–10.2**
Add salt always or often when cooking or preparing food at home									
18–39	499	40.8	34.6–47.0	965	43.9	38.1–49.8	1464	42.2	37.1–47.2
40–69	566	43.8	37.0–50.5	774	36.6	31.4–41.8	1340	40.6	35.6–45.6
Total	**1065**	**41.8**	**36.6–47.1**	**1739**	**41.4**	**36.6–46.2**	**2804**	**41.6**	**37.2–46.1**
Always or often consume processed food high in salt									
18–39	497	12.5	9.0–16.0	961	15.0	12.2–17.7	1458	13.6	11.2–16.0
40–69	567	8.1	5.4–10.9	771	4.1	2.0–6.2	1338	6.4	4.6–8.1
Always or often consume processed food high in salt by Residence									
Rural	769	7.2	4.7-9.6	1161	8.0	5.4-10.7	1930	7.5	5.6-9.5
Urban	295	20.1	14.2-26.0	571	17.4	14.1-20.7	866	18.8	15.1-22.6
Total	**1064**	**11.0**	**8.4-13.6**	**1732**	**11.2**	**9.1-13.3**	**2796**	**11.1**	**9.3-12.9**

Table 7.2: Percentage of people who think they consume far too much or too much salt

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	496	16.8	13.5–20.2	956	19.0	15.7–22.2	1452	17.8	15.4–20.1
40–69	565	17.6	13.6–21.5	764	10.9	7.9–13.9	1329	14.6	12.0–17.3
Total	**1061**	**17.1**	**14.5–19.7**	**1720**	**16.2**	**13.8–18.5**	**2781**	**16.7**	**14.9–18.5**

Table 7.3: Self-reported quantity of salt consumed

Age Group (years)	n	% Far too much	95% CI	% Too much	95% CI	% Just the right amount	95% CI	% Too little	95% CI	% Far too little	95% CI
Men											
18–39	496	0.6	0.0–1.3	16.2	12.8–19.6	71.9	67.6–76.2	10.9	7.6–14.2	0.4	0.0–0.9
40–69	565	0.6	0.0–1.4	16.9	13.1–20.7	67.2	61.8–72.7	14.5	11.0–17.9	0.8	0.0–1.5
Total	**1061**	**0.6**	**0.1–1.1**	**16.4**	**13.9–19.0**	**70.3**	**66.9–73.7**	**12.1**	**9.7–14.6**	**0.5**	**0.1–0.9**
Women											
18–39	956	0.8	0.3–1.4	18.2	15.0–21.4	69.4	65.1–73.7	10.9	8.6–13.2	0.8	0.2–1.3
40–69	764	0.4	0.0–1.1	10.4	7.7–13.2	69.4	64.8–73.9	18.6	14.9–22.3	1.2	0.3–2.2
Total	**1720**	**0.7**	**0.2–1.1**	**15.5**	**13.2–17.8**	**69.4**	**66.1–72.6**	**13.6**	**11.5–15.7**	**0.9**	**0.4–1.4**
Both Sexes											
18–39	1452	0.7	0.3–1.2	17.1	14.7–19.4	70.8	67.6–74.0	10.9	8.6–13.2	0.5	0.2–0.9
40–69	1329	0.6	0.0–1.1	14.1	11.5–16.6	68.2	64.3–72.0	16.3	13.6–18.9	1.0	0.3–1.6
Total	**2781**	**0.7**	**0.3–1.0**	**16.0**	**14.2–17.8**	**69.9**	**67.4–72.3**	**12.8**	**11.0–14.5**	**0.7**	**0.3–1.0**

Table 7.4: Percentage of respondents who agree with the importance of lowering salt in diet

Age Group (years)	n	% Very important	95% CI	% Somewhat important	95% CI	% Not at all important	95% CI
Men							
18–39	463	67.9	62.7–73.1	28.5	23.6–33.4	3.6	1.8–5.5
40–69	516	63.0	57.0–69.0	32.8	26.7–38.9	4.2	1.8–6.7
Total	**979**	**66.2**	**61.7–70.8**	**29.9**	**25.4–34.5**	**3.8**	**2.4–5.3**
Women							
18–39	881	63.0	58.5–67.5	32.3	28.1–36.5	4.7	2.9–6.4
40–69	710	62.7	56.9–68.4	33.2	28.1–38.4	4.1	2.1–6.1
Total	**1591**	**62.9**	**59.0–66.8**	**32.6**	**29.1–36.2**	**4.5**	**3.1–5.8**
Both Sexes							
18–39	1344	65.8	62.0–69.6	30.1	26.5–33.7	4.1	2.8–5.3
40–69	1226	62.9	58.1–67.6	33.0	28.5–37.5	4.2	2.4–5.9
Total	**2570**	**64.8**	**61.4–68.2**	**31.1**	**27.8–34.4**	**4.1**	**3.2–5.1**

Table 7.5: Percentage of respondents who think that consuming too much salt could cause serious health problems

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	455	91.6	88.5–94.7	890	93.6	91.3–95.9	1345	92.5	90.4–94.5
40–69	506	92.5	89.3–95.6	710	89.7	86.6–92.8	1216	91.2	88.8–93.7
Total	**961**	**91.9**	**89.6–94.2**	**1600**	**92.3**	**90.4–94.1**	**2561**	**92.1**	**90.4–93.7**

Table 7.6: Mean salt intake (g/day) by age, sex and residence

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–39	472	9.5	9.2–9.8	857	8.3	8.1–8.4	1329	9.0	8.8–9.2
40–69	546	9.9	9.7–10.1	743	7.6	7.4–7.8	1289	8.9	8.7–9.1
Residence									
Rural	736	9.6	9.3-9.8	1084	8.0	7.8-8.1	1820	8.9	8.7-9.1
Urban	282	9.8	9.5-10.1	516	8.2	8.0-8.3	798	9.0	8.8-9.3
Total	**1018**	**9.6**	**9.4-9.8**	**1600**	**8.0**	**7.9-8.2**	**2618**	**9.0**	**8.8-9.1**

Table 7.7: Techniques used on a regular basis to reduce salt intake

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Limit consumption of processed foods									
18–39	500	40.4	34.7–46.1	969	39.6	35.3–43.9	1469	40.1	36.1–44.0
40–69	572	39.9	34.6–45.1	778	41.9	36.4–47.4	1350	40.8	36.6–44.9
Total	**1072**	**40.2**	**35.6–44.8**	**1747**	**40.4**	**36.6–44.2**	**2819**	**40.3**	**36.9–43.7**
Look at the salt or sodium content on food labels									
18–39	500	12.5	8.5–16.4	969	9.0	6.6–11.4	1469	11.0	8.4–13.5
40–69	572	9.2	6.0–12.3	778	3.8	2.2–5.3	1350	6.8	4.7–8.8
Total	**1072**	**11.3**	**8.2–14.4**	**1747**	**7.2**	**5.5–8.9**	**2819**	**9.5**	**7.5–11.5**
Buy low salt/sodium alternatives									
18–39	500	8.1	4.4–11.8	969	8.4	5.7–11.2	1469	8.3	5.8–10.7
40–69	572	5.3	3.1–7.4	778	6.3	3.8–8.9	1350	5.7	3.9–7.6
Total	**1072**	**7.1**	**4.4–9.8**	**1747**	**7.7**	**5.6–9.8**	**2819**	**7.4**	**5.4–9.4**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Use spices other than salt when cooking									
18–39	500	13.2	8.8–17.7	969	14.2	10.7–17.7	1469	13.6	10.1–17.2
40–69	572	10.9	7.4–14.4	778	9.5	6.5–12.5	1350	10.3	7.6–13.0
Total	**1072**	**12.4**	**8.9–16.0**	**1747**	**12.6**	**9.8–15.3**	**2819**	**12.5**	**9.6–15.3**
Avoid eating foods prepared outside of a home									
18–39	500	28.0	22.2–33.9	969	30.4	25.8–35.0	1469	29.1	24.9–33.3
40–69	572	26.2	21.8–30.7	778	26.4	22.0–30.8	1350	26.3	22.8–29.9
Total	**1072**	**27.4**	**23.0–31.8**	**1747**	**29.0**	**25.1–32.9**	**2819**	**28.1**	**24.7–31.6**
Do other things specifically to control your salt intake									
18–39	500	8.9	5.1–12.8	969	9.6	6.6–12.5	1469	9.2	6.5–12.0
40–69	572	12.7	8.7–16.8	778	10.5	7.5–13.6	1350	11.7	8.8–14.6
Total	**1072**	**10.3**	**7.1–13.4**	**1747**	**9.9**	**7.6–12.2**	**2819**	**10.1**	**7.7–12.5**

Table 7.8: Type of oil or fat most often used for meal preparation in household

n (house-holds)	% Vege-table oil	95% CI	% Lard	95% CI	% Butter	95% CI	% Other	95% CI	% none in parti-cular	95% CI
2819	**97.1**	**95.9–98.3**	**0.0**	**0.0–0.1**	**2.3**	**1.2–3.4**	**0.1**	**0.0–0.3**	**0.4**	**0.0–0.9**

Table 7.9: 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
18–39	494	1.0	0.9–1.2	950	0.6	0.5–0.8	1444	0.9	0.8–1.0
40–69	555	1.0	0.7–1.2	752	0.7	0.5–0.9	1307	0.8	0.7–1.0
Total	**1049**	**1.0**	**0.9–1.1**	**1702**	**0.7**	**0.5–0.8**	**2751**	**0.9**	**0.8–1.0**

Physical inactivity

Table 8.1: Metabolic equivalent (MET)

Domain	MET value
Work	Moderate MET value = 4.0 Vigorous MET value = 8.0
Transport	Cycling and walking MET value = 4.0
Recreation	Moderate MET value = 4.0 Vigorous MET value = 8.0

Table 8.2: Not meeting WHO recommendations on physical activity for health

	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Age Group (years)									
18–39	486	3.5	2.0–5.0	938	10.1	7.0–13.1	1424	6.4	4.6–8.1
40–69	538	4.5	2.6–6.5	750	8.7	5.4–11.9	1288	6.4	4.4–8.3
Residence									
Rural	737	1.9	0.9-2.9	1127	4.9	2.8-7.0	1864	3.2	2.2-4.2
Urban	287	8.4	5.0-11.8	561	18.6	12.4-24.8	848	13.2	9.0-17.4
Total	**1024**	**3.8**	**2.5-5.0**	**1688**	**9.6**	**6.8-12.4**	**2712**	**6.4**	**4.7-8.0**

Table 8.3: Level of total physical activity according to former recommendations

Age Group (years)	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
Men							
18–39	486	7.3	4.5–10.0	7.6	4.9–10.4	85.1	81.3–88.9
40–69	538	8.7	5.7–11.6	11.8	8.3–15.4	79.5	74.5–84.5
Residence							
Rural	737	5.5	3.1–7.8	5.6	3.6–7.6	89.0	85.5–92.4
Urban	287	13.1	8.0–18.1	17.1	11.7–22.5	69.8	62.4–77.3
Total	**1024**	**7.7**	**5.4–10.0**	**9.0**	**6.7–11.4**	**83.2**	**79.6–86.8**
Women							
18–39	938	16.8	13.1–20.5	13.9	11.0–16.8	69.3	64.3–74.3
40–69	750	16.3	12.4–20.1	9.7	7.0–12.5	74.0	68.8–79.1
Residence							
Rural	1127	12.8	9.8–15.8	9.9	7.5–12.4	77.3	72.9–81.7
Urban	561	24.1	17.2–31.0	17.3	13.3–21.4	58.6	50.0–67.1
Total	**1688**	**16.6**	**13.4–19.9**	**12.4**	**10.2–14.7**	**70.9**	**66.5–75.4**

Age Group (years)	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
Both Sexes							
18–39	1424	11.5	8.9–14.0	10.4	8.2–12.5	78.2	74.9–81.5
40–69	1288	12.1	9.6–14.5	10.9	8.5–13.3	77.0	73.1–81.0
Residence							
Rural	1864	8.6	6.5–10.7	7.4	5.9–9.0	84.0	81.0–87.0
Urban	848	18.3	13.1–23.4	17.2	13.2–21.2	64.5	57.7–71.3
Total	**2712**	**11.7**	**9.4–13.9**	**10.5**	**8.7–12.4**	**77.8**	**74.5–81.1**

Table 8.4: Mean and median minutes of total physical activity on average per day

Age Group (years)	n	Mean	95% CI	Median	Inter-quartile range (P25-P75)
Men					
18–39	486	387.8	355.0–420.6	368.6	360.0
40–69	538	375.8	346.2–405.3	360.0	378.6
Residence					
Rural	737	–	–	445.7	327.1
Urban	287	–	–	197.1	307.9
Total	**1024**	**383.7**	**357.3–410.2**	**367.1**	**362.1**
Women					
18–39	938	294.4	265.9–323.0	250.7	360
40–69	750	334.8	306.0–363.6	317.1	361.4
Residence					
Rural	1127	–	–	347	360
Urban	561	–	–	180	325.7
Total	**1688**	**308.3**	**283.9–332.8**	**274.3**	**377.1**
Both Sexes					
18–39	1424	346.9	322.0–371.8	312.9	377.1
40–69	1288	357.5	335.5–379.4	351.4	374.3
Residence					
Rural	1864	–	–	390	344.3
Urban	848	–	–	180	312.9
Total	**2712**	**350.5**	**330.0–371.0**	**330.0**	**377.1**

Table 8.5: Mean minutes spent in work-, transport- and recreation-related physical activity on average per day.

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Work-related									
18–39	486	287.7	255.1–320.2	938	237.4	214.1–260.7	1424	265.7	242.1–289.2
40–69	538	304.6	275.2–334.1	750	275.6	251.4–299.7	1288	291.7	270.5–312.8
Total	**1024**	**293.4**	**266.7–320.1**	**1688**	**250.6**	**230.4–270.7**	**2712**	**274.5**	**255.0–294.1**
Transport-related									
18–39	486	63.1	51.2–74.9	938	48.4	37.3–59.4	1424	56.6	47.4–65.8
40–69	538	59.4	41.8–77.0	750	54.7	42.9–66.5	1288	57.3	45.2–69.4
Total	**1024**	**61.8**	**49.9–73.7**	**1688**	**50.6**	**41.1–60.0**	**2712**	**56.9**	**47.8–65.9**
Recreation-related									
18–39	486	37.1	29.6–44.5	938	8.7	5.5–11.9	1424	24.6	20.0–29.2
40–69	538	11.7	7.7–15.7	750	4.5	1.8–7.3	1288	8.5	5.7–11.3
Total	**1024**	**28.5**	**22.9–34.1**	**1688**	**7.2**	**5.0–9.5**	**2712**	**19.1**	**15.6–22.7**

Table 8.6: Median minutes spent on average per day in work-, transport- and recreation-related physical activity

Age Group (years)	Men			Women			Both Sexes		
	n	Median	Inter-quartile range (P25-P75)	n	Median	Inter-quartile range (P25-P75)	n	Median	Inter-quartile range (P25-P75)
Work-related									
18–39	486	257.1	394.3	938	180.0	347.1	1424	231.4	368.6
40–69	538	300.0	394.3	750	257.1	347.1	1288	278.6	394.3
Total	**1024**	**274.3**	**411.4**	**1688**	**210**	**351.4**	**2712**	**240.0**	**385.7**
Transport-related									
18–39	486	25.7	85.7	938	17.1	60.0	1424	20.0	60.0
40–69	538	20.0	68.6	750	17.1	64.3	1288	17.1	64.3
Total	**1024**	**25.7**	**77.1**	**1688**	**17.1**	**60.0**	**2712**	**20.0**	**60.0**
Recreation-related									
18–39	486	0.0	51.4	938	0.0	0.0	1424	0.0	25.7
40–69	538	0.0	0.0	750	0.0	0.0	1288	0.0	0.0
Total	**1024**	**0.0**	**39.3**	**1688**	**0.0**	**0.0**	**2712**	**0.0**	**8.6**

Table 8.7: Percentage of respondents classified as doing no work-, transport- or recreational-related physical activity.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
No work-related physical activity									
18–39	486	12.4	8.5–16.3	938	16.9	12.9–20.8	1424	14.4	11.6–17.1
40–69	538	11.4	7.1–15.6	750	14.5	10.4–18.5	1288	12.7	9.7–15.8
Total	**1024**	**12.1**	**9.0–15.2**	**1688**	**16.0**	**12.7–19.4**	**2712**	**13.8**	**11.5–16.1**
No transport-related physical activity									
18–39	486	35.7	28.6–42.7	938	39.8	33.9–45.7	1424	37.5	31.9–43.1
40–69	538	38.6	31.8–45.3	750	41.2	35.1–47.4	1288	39.8	34.1–45.4
Total	**1024**	**36.6**	**30.5–42.7**	**1688**	**40.3**	**35.2–45.4**	**2712**	**38.3**	**33.2–43.4**
No recreation-related physical activity									
18–39	486	52.7	45.2–60.2	938	86.3	82.9–89.7	1424	67.4	62.6–72.3
40–69	538	78.7	73.0–84.4	750	94.1	91.8–96.4	1288	85.6	81.9–89.2
Total	**1024**	**61.5**	**55.1–67.8**	**1688**	**89.0**	**86.5–91.5**	**2712**	**73.6**	**69.5–77.7**

Table 8.8: Percentage of work, transport and recreational activity contributing to total activity.

Age Group (years)	n	% Activity from work	95% CI	% Activity for transport	95% CI	% Activity during leisure time	95% CI
Men							
18–39	478	65.2	60.5–69.9	18.9	15.6–22.1	16.0	12.3–19.7
40–69	521	74.2	69.2–79.2	18.3	14.3–22.3	7.5	4.9–10.1
Total	**999**	**68.2**	**63.9–72.5**	**18.7**	**15.7–21.6**	**13.1**	**10.1–16.2**
Women							
18–39	877	72.8	68.7–76.8	23.2	19.3–27.1	4.1	2.8–5.3
40–69	710	77.3	73.8–80.7	21.3	17.8–24.7	1.4	0.6–2.3
Total	**1587**	**74.3**	**71.1–77.6**	**22.5**	**19.4–25.6**	**3.2**	**2.3–4.0**
Both Sexes							
18–39	1355	68.4	64.7–72.1	20.7	17.8–23.6	10.9	8.5–13.3
40–69	1231	75.5	71.9–79.2	19.6	16.5–22.7	4.9	3.3–6.5
Total	**2586**	**70.8**	**67.6–74.1**	**20.3**	**17.9–22.8**	**8.9**	**6.9–10.8**

Table 8.9: Percentage of respondents not engaging in vigorous physical activity.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	486	31.2	25.8–36.6	938	68.1	63.3–73.0	1424	47.4	42.9–51.9
40–69	538	43.3	36.8–49.8	750	62.0	56.7–67.3	1288	51.6	46.9–56.3
Residence									
Rural	737	27.9	22.4–33.4	1127	54.5	49.0–60.1	1864	39.2	34.8–43.7
Urban	287	52.4	44.6–60.3	561	88.5	84.0–92.9	848	69.4	63.2–75.6
Total	**1024**	**35.2**	**30.3–40.2**	**1688**	**66.0**	**61.2–70.9**	**2712**	**48.8**	**44.6–53.1**

Table 8.10: Minutes spent in sedentary activities on average per day

Age Group (years)	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
Men					
18–39	500	138.4	127.0–149.9	120.0	120.0
40–69	572	134.4	123.4–145.4	120.0	120.0
Total	**1072**	**137.0**	**127.8–146.3**	**120.0**	**120.0**
Women					
18–39	969	173.5	158.2–188.9	120.0	140.0
40–69	778	140.0	130.8–149.3	120.0	120.0
Total	**1747**	**161.9**	**150.3–173.5**	**120.0**	**120.0**
Both Sexes					
18–39	1469	153.9	142.8–165.0	120.0	120.0
40–69	1350	136.9	128.9–144.8	120.0	120.0
Total	**2819**	**148.0**	**139.3–156.6**	**120.0**	**120.0**

Blood pressure

Table 9.1: Blood pressure measurement and diagnosis

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
Men									
18–39	500	39.9	33.3–46.5	51.8	45.1–58.4	2.5	1.0–4.1	5.9	3.4–8.4
40–69	572	32.2	26.7–37.6	45.9	40.4–51.5	6.6	3.9–9.3	15.3	11.5–19.1
Total	**1072**	**37.2**	**32.0–42.4**	**49.7**	**44.5–55.0**	**3.9**	**2.4–5.5**	**9.1**	**7.1–11.2**
Women									
18–39	969	23.7	19.6–27.9	61.6	57.3–65.8	5.6	4.0–7.3	9.1	6.7–11.4
40–69	778	23.7	19.2–28.3	43.5	38.8–48.2	7.0	3.9–10.1	25.8	21.5–30.0
Total	**1747**	**23.7**	**20.6–26.9**	**55.3**	**51.8–58.8**	**6.1**	**4.6–7.6**	**14.9**	**12.7–17.1**
Both sexes									
18–39	1469	32.8	28.2–37.3	56.1	51.7–60.4	3.9	2.8–5.0	7.3	5.6–9.0
40–69	1350	28.5	24.4–32.5	44.9	40.9–48.8	6.8	4.7–8.8	19.9	16.9–22.9
Total	**2819**	**31.3**	**27.7–34.8**	**52.2**	**48.6–55.7**	**4.9**	**3.8–6.0**	**11.7**	**10.1–13.3**

Table 9.2: Currently taking drugs (medication) for raised blood pressure prescribed by doctor or health worker among those diagnosed

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	52	13.5	2.1–24.9	152	8.8	4.4–13.3	204	10.8	5.3–16.2
40–69	122	38.0	26.7–49.3	240	46.5	38.0–55.0	362	42.6	35.5–49.7
Total	**174**	**27.8**	**18.8–36.8**	**392**	**29.3**	**23.7–34.9**	**566**	**28.6**	**23.5–33.8**

Table 9.3: Percentage of previously diagnosed hypertensive respondents who have visited or received treatment from a traditional healer

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Seen a traditional healer									
18–39	52	2.5	0.0–6.0	152	3.6	0.4–6.8	204	3.2	0.9–5.5
40–69	122	12.9	6.1–19.7	240	15.4	7.3–23.5	362	14.3	9.1–19.4
Total	**174**	**8.6**	**4.3–12.8**	**392**	**10.0**	**5.2–14.9**	**566**	**9.4**	**6.3–12.5**
Currently taking herbal or traditional remedy for raised blood pressure									
18–39	52	0.3	0.0–1.0	152	1.3	0.0–3.3	204	0.9	0.0–2.1
40–69	122	8.6	1.8–15.4	240	4.8	1.4–8.2	362	6.5	2.6–10.4
Total	**174**	**5.1**	**1.0–9.3**	**392**	**3.2**	**1.1–5.3**	**566**	**4.1**	**1.7–6.4**

Physical Measurements

Table 9.4: Mean blood pressure among all respondents, including those currently on medication for raised blood pressure.

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Mean systolic blood pressure (mmHg)									
18–39	499	125.1	123.7–126.5	968	117.9	116.8–118.9	1467	121.9	120.9–122.9
40–69	572	133.4	131.1–135.6	777	135.0	132.8–137.2	1349	134.1	132.4–135.8
Residence									
Rural	774	128.1	126.5–129.8	1176	125.5	123.8–127.1	1950	127.0	125.6–128.4
Urban	297	127.7	125.0–130.3	569	120.6	118.6–122.5	866	124.3	122.9–125.8
Total	**1071**	**128.0**	**126.6–129.4**	**1745**	**123.8**	**122.5–125.1**	**2816**	**126.2**	**125.1–127.2**
Mean diastolic blood pressure (mmHg)									
18–39	499	82.5	81.1–83.9	968	82.3	81.4–83.2	1467	82.4	81.5–83.4
40–69	572	88.7	87.2–90.2	777	91.2	89.8–92.5	1349	89.8	88.6–90.9
Residence									
Rural	774	84.8	83.3–86.3	1176	86.3	85.1–87.4	1950	85.4	84.2–86.6
Urban	297	84.2	82.0–86.3	569	83.7	82.3–85.1	866	84.0	82.7–85.2
Total	**1071**	**84.6**	**83.4–85.9**	**1745**	**85.4**	**84.5–86.3**	**2816**	**85.0**	**84.0–85.9**

Table 9.5: Percentage of respondents with raised blood pressure.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
SBP ≥140 and/or DBP ≥ 90 mmHg, excluding those on medication for raised blood pressure									
18–39	494	28.3	23.5–33.0	952	22.3	18.7–25.9	1446	25.6	22.3–29.0
40–69	539	44.2	39.0–49.4	675	53.0	47.9–58.1	1214	47.9	44.0–51.7
Residence									
Rural	747	31.5	27.0–35.9	1096	35.4	31.0–39.9	1843	33.1	29.6–36.7
Urban	286	38.4	29.9–47.0	531	25.0	20.7–29.2	817	32.2	27.2–37.3
Total	**1033**	**33.6**	**29.5–37.6**	**1627**	**32.0**	**28.6–35.4**	**2660**	**32.9**	**30.0–35.8**
SBP ≥140 and/or DBP ≥ 90 mmHg or currently on medication for raised blood pressure									
18–39	499	28.8	24.1–33.6	968	23.2	19.5–26.8	1467	26.3	23.0–29.7
40–69	572	48.1	43.1–53.2	777	59.8	55.1–64.5	1349	53.3	49.6–56.9
Residence									
Rural	774	33.5	29.0–37.9	1176	39.1	34.5–43.6	1950	35.9	32.2–39.5
Urban	297	40.4	32.0–48.9	569	29.7	25.2–34.2	866	35.4	30.7–40.0
Total	**1071**	**35.5**	**31.5–39.6**	**1745**	**35.9**	**32.5–39.4**	**2816**	**35.7**	**32.8–38.6**
SBP ≥160 and/or DBP ≥ 100 mmHg, excluding those on medication for raised blood pressure									
18–39	494	7.2	4.0–10.3	952	5.8	4.2–7.4	1446	6.6	4.6–8.6
40–69	539	17.5	13.6–21.5	675	20.8	16.7–24.9	1214	18.9	15.9–21.9
Residence									
Rural	747	11.2	7.9–14.4	1096	11.8	9.2–14.4	1843	11.4	9.0–13.8
Urban	286	9.4	5.0–13.7	531	8.0	5.1–10.9	817	8.7	6.1–11.4
Total	**1033**	**10.6**	**8.0–13.3**	**1627**	**10.5**	**8.5–12.5**	**2660**	**10.6**	**8.7–12.4**
SBP ≥160 and/or DBP ≥ 100 mmHg or currently on medication for raised blood pressure									
18–39	499	7.9	4.6–11.2	968	6.9	5.2–8.7	1467	7.5	5.4–9.6
40–69	572	23.4	19.2–27.5	777	32.3	27.7–37.0	1349	27.3	24.1–30.5
Residence									
Rural	774	13.7	10.1–17.3	1176	16.8	13.8–19.7	1950	15.0	12.3–17.8
Urban	297	12.3	7.7–16.8	569	13.8	9.7–17.8	866	13.0	10.1–15.8
Total	**1071**	**13.3**	**10.4–16.2**	**1745**	**15.8**	**13.4–18.2**	**2816**	**14.4**	**12.3–16.5**

Table 9.6: Percentage of respondents with treated and/or controlled of raised blood pressure among those with raised blood pressure(SBP ≥140 and/or DBP ≥ 90 mmHg) or currently on medication for raised blood pressure.

Age Group (years)	n	% On medication and SBP<140 and DBP<90	95% CI	% On medication and SBP≥140 and/or DBP≥90	95% CI	% Not on medication and SBP≥140 and/or DBP≥90	95% CI
Men							
18–39	147	1.5	0.0–3.5	1.3	0.0–3.0	97.2	94.6–99.9
40–69	276	3.3	1.2–5.4	11.4	6.5–16.4	85.3	79.9–90.7
Total	**423**	**2.3**	**0.9–3.8**	**6.1**	**3.5–8.6**	**91.6**	**88.7–94.5**
Women							
18–39	234	0.5	0.0–1.3	4.5	1.8–7.2	94.9	92.2–97.7
40–69	444	4.8	2.3–7.3	19.6	14.9–24.3	75.6	69.8–81.4
Total	**678**	**3.0**	**1.5–4.5**	**13.3**	**10.2–16.3**	**83.7**	**80.0–87.5**
Both Sexes							
18–39	381	1.1	0.0–2.4	2.5	1.1–4.0	96.3	94.4–98.3
40–69	720	4.0	2.5–5.6	15.5	12.1–18.8	80.5	76.6–84.4
Total	**1101**	**2.6**	**1.6–3.7**	**9.2**	**7.4–11.1**	**88.1**	**85.9–90.4**

Table 9.7: Mean heart rate (beats per minute) of respondents by sex and age

Age Group (years)	Men			Women			Both Sexes		
	n	mean	95% CI	n	mean	95% CI	n	mean	95% CI
18–39	499	71.4	70.1–72.6	968	76.8	75.9–77.8	1467	73.8	72.9–74.6
40–69	572	72.5	71.3–73.8	777	75.4	74.2–76.6	1349	73.8	72.8–74.8
Total	**1071**	**71.8**	**70.8–72.7**	**1745**	**76.4**	**75.5–77.2**	**2816**	**73.8**	**73.1–74.5**

Blood glucose

Table 10.1: Blood sugar measurement and diagnosis

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
Men									
18–39	500	89.3	86.1–92.4	10.4	7.3–13.5	0.0	0.0–0.0	0.3	0.0–1.0
40–69	572	80.5	76.8–84.2	16.0	12.6–19.4	0.9	0.1–1.6	2.6	1.1–4.2
Total	**1072**	**86.2**	**83.7–88.8**	**12.3**	**9.8–14.9**	**0.3**	**0.0–0.6**	**1.1**	**0.4–1.8**
Women									
18–39	969	85.6	82.5–88.6	13.7	10.7–16.8	0.1	0.0–0.4	0.6	0.0–1.2
40–69	778	76.6	72.2–81.0	19.1	15.2–22.9	1.1	0.0–2.3	3.2	1.5–4.9
Total	**1747**	**82.4**	**79.9–85.0**	**15.6**	**13.1–18.1**	**0.5**	**0.0–0.9**	**1.5**	**0.8–2.2**
Both sexes									
18–39	1469	87.6	85.5–89.8	11.9	9.7–14.0	0.1	0.0–0.2	0.4	0.0–0.9
40–69	1350	78.8	75.7–81.8	17.4	14.7–20.0	1.0	0.3–1.6	2.9	1.7–4.0
Total	**2819**	**84.6**	**82.7–86.4**	**13.8**	**12.0–15.6**	**0.4**	**0.1–0.6**	**1.3**	**0.8–1.8**

Table 10.2: Percentage of respondents currently taking oral medication and insulin prescribed for diabetes among those previously diagnosed: Both Sexes

Age Group (years)	Both Sexes		
	n	%	95% CI
Taking oral drugs			
18–69	**59**	**35.0**	**18.6–51.5**
Taking insulin			
18–69	**59**	**4.8**	**0.0–10.4**

Table 10.3: Percentage of respondents who have sought advise or treatment from a traditional healer for diabetes among those previously diagnosed: Both Sexes

Age Group (years)	Both Sexes				
	n	% seen trad. healer	95% CI	% taking trad. meds	95% CI
18–69	**59**	**11.5**	**0.6–22.5**	**2.4**	**0.0–7.2**

Table 10.4: Mean fasting blood glucose results including those currently on medication for diabetes (non–fasting recipients excluded) by sex, age and residence

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Mean fasting blood glucose (mmol/L)									
18–39	484	4.8	4.7–4.9	935	4.8	4.7–4.9	1419	4.8	4.7–4.9
40–69	553	5.1	5.0–5.3	752	5.1	5.0–5.3	1305	5.1	5.0–5.3
Total	**1037**	**4.9**	**4.8–5.0**	**1687**	**4.9**	**4.9–5.0**	**2724**	**4.9**	**4.9–5.0**
Mean fasting blood glucose (mg/dl)									
18–39	484	86.7	84.5–88.8	935	87.0	85.4–88.5	1419	86.8	85.3–88.3
40–69	553	92.5	89.6–95.4	752	92.5	90.0–95.0	1305	92.5	90.3–94.7
Mean fasting blood glucose (mg/dl), by residence									
Rural	752	88.4	86.2-90.6	1135	88.7	87.1-90.4	1887	88.6	86.8-90.3
Urban	285	89.3	86.4-92.2	552	89.2	86.1-92.3	837	89.3	86.7-91.8
Total	**1037**	**88.7**	**86.9-90.5**	**1687**	**88.9**	**87.4-90.4**	**2724**	**88.8**	**87.4-90.2**

Table 10.5: Categorization of respondents into blood glucose level categories and percentage of respondents currently on medication for raised blood glucose (non–fasting recipients excluded) by sex and age

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Impaired Fasting Glycaemia*									
18–39	484	10.2	6.7–13.7	935	8.5	6.1–10.8	1419	9.4	7.1–11.8
40–69	553	13.5	9.3–17.8	752	12.7	9.7–15.8	1305	13.2	10.3–16.1
Residence									
Rural	752	11.3	7.4–15.3	1135	9.7	7.3–12.1	1887	10.6	8.0–13.3
Urban	285	11.4	6.4–16.4	552	10.5	6.7–14.4	837	11.0	7.7–14.3
Total	**1037**	**11.4**	**8.2–14.5**	**1687**	**10.0**	**7.9–12.0**	**2724**	**10.7**	**8.6–12.9**
Raised blood glucose or currently on medication for diabetes**									
18–39	484	4.9	2.5–7.3	935	3.4	2.0–4.8	1419	4.3	2.7–5.8
40–69	553	9.6	6.2–13.0	752	11.7	8.1–15.4	1305	10.5	7.9–13.1
Residence									
Rural	752	5.3	3.1–7.6	1135	5.7	4.0–7.4	1887	5.5	3.9–7.1
Urban	285	9.5	5.7–13.3	552	7.5	4.1–11.0	837	8.5	5.8–11.3
Total	**1037**	**6.5**	**4.6–8.5**	**1687**	**6.3**	**4.7–7.9**	**2724**	**6.4**	**5.0–7.8**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Currently on medication for diabetes									
18–39	500	0.0	0.0–0.0	969	0.1	0.0–0.2	1469	0.0	0.0–0.1
40–69	574	1.1	0.0–2.2	779	2.3	1.0–3.7	1353	1.6	0.7–2.5
Residence									
Rural	775	0.1	0.0–0.4	1177	0.5	0.0–0.9	1952	0.3	0.0–0.5
Urban	299	0.9	0.0–2.2	571	1.7	0.4–2.9	870	1.3	0.4–2.2
Total	**1074**	**0.4**	**0.0–0.8**	**1748**	**0.9**	**0.4–1.3**	**2822**	**0.6**	**0.3–0.9**

* Impaired fasting glycaemia is defined as either

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

Abnormal lipids

Table 11.1: Mean total cholesterol among respondents including those currently on medication for raised cholesterol

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Mean total cholesterol (mmol/L)									
18–39	489	3.6	3.5–3.7	945	3.7	3.6–3.8	1434	3.6	3.6–3.7
40–69	560	3.9	3.8–4.1	767	4.2	4.1–4.3	1327	4.0	4.0–4.1
Total	**1049**	**3.7**	**3.6–3.8**	**1712**	**3.8**	**3.8–3.9**	**2761**	**3.8**	**3.7–3.8**
Mean total cholesterol (mg/dl)									
18–39	489	139.8	135.3–144.2	945	142.1	138.6–145.6	1434	140.8	137.6–144.0
40–69	560	152.2	147.8–156.7	767	161.0	157.3–164.8	1327	156.1	152.9–159.4
Residence									
Rural	762	143.8	139.3–148.2	1153	147.8	144.5–151.2	1915	145.5	142.1–148.9
Urban	287	144.9	137.8–152.1	559	150.5	146.1–154.8	846	147.6	143.2–151.9
Total	**1049**	**144.1**	**140.3–147.9**	**1712**	**148.7**	**146.0–151.4**	**2761**	**146.1**	**143.4–148.9**

Table 11.2: Percentage of respondents with raised total cholesterol or on medication for raised cholesterol by sex and age

Age Group (years)	Men			Women			Both Sexes		
	N	%	95% CI	n	%	95% CI	n	%	95% CI
Total cholesterol ≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol									
18–39	489	9.2	6.0–12.4	945	9.0	6.8–11.3	1434	9.1	6.9–11.3
40–69	560	16.9	13.2–20.6	767	21.2	17.4–25.0	1327	18.8	16.0–21.6
Residence									
Rural	762	11.8	8.5–15.1	1153	13.2	10.7–15.7	1915	12.4	10.0–14.8
Urban	287	12.0	6.9–17.2	559	13.5	10.3–16.7	846	12.7	9.6–15.9
Total	**1049**	**11.9**	**9.1–14.7**	**1712**	**13.3**	**11.3–15.3**	**2761**	**12.5**	**10.6–14.4**
Total cholesterol ≥ 6.2 mmol/L or ≥ 240 mg/dl or currently on medication									
18–39	489	0.9	0.1–1.7	945	2.3	0.9–3.7	1434	1.5	0.8–2.3
40–69	560	2.6	0.9–4.3	767	3.6	1.9–5.3	1327	3.0	1.8–4.2
Residence									
Rural	762	1.3	0.5–2.1	1153	2.5	1.1–3.9	1915	1.8	1.0–2.6
Urban	287	1.9	0.1–3.7	559	3.2	1.7–4.8	846	2.5	1.4–3.7
Total	**1049**	**1.5**	**0.7–2.3**	**1712**	**2.8**	**1.7–3.8**	**2761**	**2.0**	**1.4–2.7**

Table 11.3: Total cholesterol measurement and diagnosis among respondents in last 12 month by sex and age.

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
Men									
18–39	500	96.3	93.9–98.7	3.5	1.2–5.9	0.0	0.0–0.0	0.1	0.0–0.4
40–69	572	96.4	94.8–98.0	2.2	0.9–3.4	0.2	0.0–0.7	1.2	0.2–2.2
Total	**1072**	**96.3**	**94.7–98.0**	**3.1**	**1.5–4.7**	**0.1**	**0.0–0.3**	**0.5**	**0.1–0.9**
Women									
18–39	969	98.0	96.9–99.1	1.6	0.6–2.7	0.1	0.0–0.2	0.3	0.0–0.7
40–69	778	96.2	94.6–97.9	2.1	0.9–3.2	0.6	0.0–1.5	1.1	0.1–2.1
Total	**1747**	**97.4**	**96.5–98.3**	**1.8**	**1.0–2.6**	**0.2**	**0.0–0.6**	**0.6**	**0.1–1.0**
Both sexes									
18–39	1469	97.1	95.7–98.5	2.7	1.3–4.1	0.0	0.0–0.1	0.2	0.0–0.4
40–69	1350	96.3	95.0–97.7	2.1	1.2–3.0	0.4	0.0–0.9	1.2	0.5–1.9
Total	**2819**	**96.8**	**95.8–97.8**	**2.5**	**1.5–3.5**	**0.2**	**0.0–0.3**	**0.5**	**0.3–0.8**

Combined risk factors and cardiovascular disease risk prediction

Table 12.1: Summary of Combined Risk Factors

Age Group (years)	n	% with 0 risk factors	95% CI	% with 1–2 risk factors	95% CI	% with 3–5 risk factors	95% CI
Men							
18–39	484	16.6	11.5–21.8	73.8	68.7–79.0	9.5	6.6–12.5
40–69	535	12.7	9.4–15.9	72.9	69.0–76.8	14.4	10.7–18.1
Residence							
Rural	733	18.0	13.0–23.0	75.5	70.9–80.2	6.5	4.2–8.7
Urban	286	9.0	4.7–13.3	68.8	63.6–74.1	22.2	17.6–26.7
Total	**1019**	**15.3**	**11.4–19.2**	**73.5**	**69.9–77.1**	**11.2**	**8.6–13.7**
Women							
18–39	874	11.9	9.1–14.7	75.8	72.1–79.5	12.3	9.6–15.0
40–69	741	4.6	2.5–6.7	70.8	66.0–75.6	24.6	19.9–29.3
Residence							
Rural	1086	8.8	6.3–11.3	77.5	74.3–80.8	13.7	11.0–16.4
Urban	529	10.3	7.1–13.5	67.0	61.7–72.4	22.7	17.9–27.5
Total	**1615**	**9.3**	**7.3–11.3**	**74.0**	**71.0–77.0**	**16.7**	**14.1–19.2**
Both Sexes							
18–39	1358	14.6	11.4–17.9	74.7	71.2–78.1	10.7	8.6–12.8
40–69	1276	9.1	6.9–11.3	72.0	68.8–75.1	18.9	15.7–22.2
Residence							
Rural	1819	14.2	10.8–17.5	76.4	73.2–79.5	9.5	7.7–11.2
Urban	815	9.6	6.8–12.4	68.0	64.6–71.4	22.4	18.9–25.8
Total	**2634**	**12.7**	**10.2–15.2**	**73.7**	**71.3–76.1**	**13.5**	**11.8–15.3**

Table 12.2: Percentage of respondents having ever had a heart attack or chest pain from heart disease or a stroke, by age and sex

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	0.8	0.0–2.2	969	0.9	0.0–1.9	1469	0.8	0.0–1.8
40–69	572	0.8	0.0–1.7	778	0.8	0.0–1.7	1350	0.8	0.2–1.4
Total	**1072**	**0.8**	**0.0–1.8**	**1747**	**0.9**	**0.2–1.6**	**2819**	**0.8**	**0.2–1.5**

Table 12.3: Percentage of respondents currently taking asprin/statins regularly to prevent or treat heart disease

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Taking aspirin									
18–39	500	0.0	0.0–0.0	969	0.0	0.0–0.0	1469	0.0	0.0–0.0
40–69	572	0.4	0.0–0.9	778	0.1	0.0–0.2	1350	0.2	0.0–0.6
Total	**1072**	**0.1**	**0.0–0.3**	**1747**	**0.0**	**0.0–0.1**	**2819**	**0.1**	**0.0–0.2**
Taking statins									
18–39	500	0.0	0.0–0.0	778	0.0	0.0–0.0	1469	0.0	0.0–0.0
40–69	572	0.1	0.0–0.3	1747	0.5	0.0–1.0	1350	0.3	0.0–0.5
Total	**1072**	**0.0**	**0.0–0.1**	**1742**	**0.2**	**0.0–0.4**	**2819**	**0.1**	**0.0–0.2**

Table 12.4: Percentage of respondents aged 40–69 years with a 10–year cardiovascular disease (CVD) risk ≥30% or with existing CVD

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
40–54	354	0.6	0.0–1.5	509	1.6	0.2–3.1	863	1.1	0.2–1.9
55–69	197	3.2	0.4–6.0	240	3.1	0.9–5.3	437	3.2	1.4–5.0
Residence									
Rural	438	1.1	0.0–2.2	580	1.8	0.5–3.1	1018	1.4	0.6–2.2
Urban	113	3.2	0.0–6.7	169	3.3	0.6–6.1	282	3.3	1.1–5.5
Total	**551**	**1.5**	**0.4–2.7**	**749**	**2.2**	**1.0–3.4**	**1300**	**1.8**	**1.0–2.6**

Lifestyle advice by health care provider

Table 13.1: Percentage of respondents who received lifestyle advice from a doctor or health worker during the past three months among all respondents.

Age Group (years)	Men			Women			Both Sexes		
	n	% advised	95% CI	n	% advised	95% CI	n	% advised	95% CI
Advised by doctor or health worker to quit using tobacco or don't start									
18–39	500	42.9	37.0–48.7	969	34.8	30.3–39.3	1469	39.3	35.2–43.4
40–69	572	49.8	43.5–56.1	778	44.0	39.3–48.8	1350	47.3	42.9–51.7
Total	**1072**	**45.3**	**40.2–50.3**	**1747**	**38.0**	**34.3–41.8**	**2819**	**42.1**	**38.5–45.6**
Advised by doctor or health worker to reduce salt in the diet									
18–39	500	43.1	37.3–49.0	969	46.5	42.1–51.0	1469	44.6	40.4–48.9
40–69	572	59.1	53.5–64.8	778	60.3	54.6–66.0	1350	59.6	55.2–64.0
Total	**1072**	**48.7**	**44.0–53.4**	**1747**	**51.3**	**47.4–55.3**	**2819**	**49.8**	**46.4–53.3**
Advised by doctor or health worker to eat at least five servings of fruit and/or vegetables each day									
18–39	500	52.4	45.7–59.0	969	57.7	53.0–62.4	1469	54.7	49.7–59.7
40–69	572	61.8	56.1–67.4	778	55.3	50.3–60.3	1350	58.9	54.7–63.2
Total	**1072**	**55.6**	**50.1–61.2**	**1747**	**56.9**	**53.0–60.7**	**2819**	**56.2**	**52.0–60.4**
Advised by doctor or health worker to reduce fat in the diet									
18–39	500	48.8	42.8–54.8	969	49.0	44.4–53.7	1469	48.9	44.4–53.5
40–69	572	61.5	55.7–67.3	778	58.9	53.6–64.2	1350	60.3	55.8–64.9
Total	**1072**	**53.2**	**48.0–58.4**	**1747**	**52.5**	**48.5–56.4**	**2819**	**52.9**	**48.9–56.8**
Advised by doctor or health worker to start or do more physical activity									
18–39	500	43.8	36.9–50.7	969	36.1	31.7–40.6	1469	40.4	35.5–45.3
40–69	572	46.3	40.3–52.4	778	38.3	33.4–43.2	1350	42.8	38.3–47.3
Total	**1072**	**44.7**	**38.9–50.5**	**1747**	**36.9**	**33.3–40.5**	**2819**	**41.3**	**37.1–45.4**
Advised by doctor or health worker to maintain a healthy body weight or to lose weight									
18–39	500	32.9	25.7–40.2	969	27.6	23.9–31.3	1469	30.6	25.8–35.4
40–69	572	35.2	29.3–41.1	778	30.7	25.8–35.5	1350	33.2	29.0–37.4
Total	**1072**	**33.7**	**27.7–39.8**	**1747**	**28.7**	**25.4–32.0**	**2819**	**31.5**	**27.5–35.6**

Table 13.2: Percentage of female respondents who have ever had a screening test for cervical cancer among all female respondents.

Age Group (years)	Women		
	n	% ever tested	95% CI
18–39	956	51.5	47.0–56.0
40–69	757	49.2	43.5–54.8
Residence			
Rural	1146	48.3	43.8–52.9
Urban	567	55.4	49.3–61.5
Total	**1713**	**50.7**	**47.0–54.4**
Residence (30–49)			
Rural	602	59.5	52.8–66.2
Urban	291	73.2	65.6–80.7
Total	**893**	**64.1**	**59.0–69.2**

Mental health

Table 14.1: Percentage of respondents who seriously considered attempting suicide in the last 12 months among all respondents.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	1.0	0.1–1.9	968	5.0	2.5–7.5	1468	2.7	1.5–4.0
40–69	571	0.9	0.0–1.9	778	2.7	1.3–4.1	1349	1.7	0.9–2.5
Total	**1071**	**0.9**	**0.3–1.6**	**1746**	**4.2**	**2.5–5.9**	**2817**	**2.4**	**1.5–3.2**

Table 14.2: Percentage of respondents who sought professional help among those who considered attempting suicide in the past 12 months.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	6	35.7	0.0–96.9	35	21.4	0.0–44.1	41	24.3	4.5–44.0
40–69	4	0.0	0.0–0.0	18	2.9	0.0–8.8	22	2.0	0.0–6.1
Total	**10**	**24.0**	**0.0–69.0**	**53**	**17.5**	**0.0–36.6**	**63**	**18.9**	**2.7–35.1**

Table 14.3: Percentage of respondents who made a plan about how to attempt suicide in the past 12 months.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	0.2	0.0–0.6	968	3.5	1.2–5.9	1468	1.7	0.6–2.8
40–69	571	0.1	0.0–0.4	777	1.1	0.2–1.9	1348	0.5	0.1–0.9
Total	**1071**	**0.2**	**0.0–0.4**	**1745**	**2.7**	**1.1–4.2**	**2816**	**1.3**	**0.6–2.0**

Table 14.4: Percentage of respondents who have ever attempted suicide among all respondents.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	499	0.0	0.0–0.0	968	2.1	0.9–3.3	1467	0.9	0.4–1.5
40–69	571	0.0	0.0–0.0	778	0.0	0.0–0.0	1349	0.0	0.0–0.0
Total	**1070**	**0.0**	**0.0–0.0**	**1746**	**1.4**	**0.6–2.2**	**2816**	**0.6**	**0.3–1.0**

Table 14.5: Percentage of respondents who have attempted suicide in the past 12 months among those who have ever attempted suicide.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–29	–	–	–	22	37.7	10.2–65.2	22	37.7	10.2–65.2
60–69	–	–	–	–	–	–	–	–	–
Total	**–**	**–**	**–**	**22**	**37.7**	**10.2–65.2**	**22**	**37.7**	**10.2–65.2**

Table 14.6: Percentage of different methods used the last time suicide was attempted among those respondents who have ever attempted suicide:Women.

Age Group (years)	n	% razor, knife or other sharp instrument	95% CI	% overdose of medication	95% CI	% poisoning with pesticides	95% CI	% other poisoning	95% CI	% other	95% CI
18–39	21	9.1	0.0–19.9	27.3	4.4–50.2	28.1	0.0–58.6	5.9	0.0–17.1	29.7	3.5–56.0
40–69	–	–	–	–	–	–	–	–	–	–	–
Total	**21**	**9.1**	**0.0–19.9**	**27.3**	**4.4–50.2**	**28.1**	**0.0–58.6**	**5.9**	**0.0–17.1**	**29.7**	**3.5–56.0**

Table 14.7: Percentage of respondents who sought medical care the last time they attempted suicide among those who have ever attempted suicide.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	–	–	–	22	26.7	1.5–51.9	22	26.7	1.5–51.9
40–69	–	–	–	–	–	–	–	–	–
Total	**–**	**–**	**–**	**22**	**26.7**	**1.5–51.9**	**22**	**26.7**	**1.5–51.9**

Table 14.8: Percentage of respondents who were admitted to the hospital due to the last time they attempted suicide among those who sought medical care for having ever attempted suicide.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	–	–	–	4	91.4	76.7–100.0	4	91.4	76.7–100.0
40–69	–	–	–	–	–	–	–	–	–
Total	**–**	**–**	**–**	**4**	**91.4**	**76.7–100.0**	**4**	**91.4**	**76.7–100.0**

Table 14.9: Percentage of respondents who have ever had anyone in their close family attempt suicide.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	1.3	0.2–2.4	968	2.3	1.2–3.3	1468	1.7	1.0–2.5
40–69	571	0.7	0.0–1.5	778	1.4	0.4–2.4	1349	1.0	0.4–1.6
Total	**1071**	**1.1**	**0.3–1.8**	**1746**	**2.0**	**1.2–2.7**	**2817**	**1.5**	**1.0–2.0**

Table 14.10: Percentage of respondents who have ever had anyone in their close family die from suicide.

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	500	1.2	0.1–2.4	968	2.7	1.2–4.2	1468	1.9	1.0–2.8
40–69	571	1.6	0.4–2.9	778	1.6	0.3–2.8	1349	1.6	0.7–2.5
Total	**1071**	**1.4**	**0.5–2.2**	**1746**	**2.3**	**1.2–3.4**	**2817**	**1.8**	**1.1–2.5**

Family history of chronic disease conditions

Table 15.1: Percentage with a family member who has been diagnosed with a chronic disease condition

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Diabetes or high blood sugar									
18–39	500	11.6	8.0–15.1	969	13.6	10.9–16.2	1469	12.4	10.1–14.8
40–69	572	10.9	7.7–14.2	778	11.1	8.1–14.0	1350	11.0	8.6–13.4
Total	**1072**	**11.3**	**8.7–14.0**	**1747**	**12.7**	**10.6–14.8**	**2819**	**11.9**	**10.1–13.7**
Raised blood pressure									
18–39	500	37.6	32.2–43.0	969	36.0	32.3–39.8	1469	36.9	33.4–40.5
40–69	572	26.3	21.4–31.3	778	32.8	28.5–37.2	1350	29.2	25.6–32.8
Total	**1072**	**33.7**	**29.3–38.1**	**1747**	**34.9**	**31.8–38.1**	**2819**	**34.2**	**31.2–37.2**
Stroke									
18–39	500	2.4	1.0–3.7	969	2.3	1.3–3.3	1469	2.4	1.4–3.3
40–69	572	2.9	1.1–4.8	778	3.3	1.6–4.9	1350	3.1	1.8–4.4
Total	**1072**	**2.6**	**1.5–3.6**	**1747**	**2.7**	**1.8–3.5**	**2819**	**2.6**	**1.9–3.3**
Cancer or malignant tumor									
18–39	500	3.8	1.8–5.9	969	5.6	3.8–7.4	1469	4.6	3.2–6.0
40–69	572	4.3	2.6–6.1	778	4.2	2.8–5.7	1350	4.3	3.1–5.5
Total	**1072**	**4.0**	**2.5–5.5**	**1747**	**5.1**	**3.8–6.4**	**2819**	**4.5**	**3.5–5.5**
Raised cholesterol									
18–39	500	2.8	1.2–4.4	969	2.1	1.0–3.3	1469	2.5	1.5–3.5
40–69	572	2.1	0.6–3.6	778	0.9	0.3–1.6	1350	1.6	0.7–2.5
Total	**1072**	**2.5**	**1.4–3.7**	**1747**	**1.7**	**1.0–2.5**	**2819**	**2.2**	**1.5–2.9**
Early myocardial infarction									
18–39	500	1.0	0.1–1.8	969	1.1	0.3–1.9	1469	1.0	0.4–1.6
40–69	572	1.4	0.1–2.7	778	1.9	0.7–3.1	1350	1.6	0.6–2.6
Total	**1072**	**1.1**	**0.4–1.8**	**1747**	**1.4**	**0.7–2.0**	**2819**	**1.2**	**0.7–1.7**

Overweight and obesity

Table 16.1: Mean height (cm) of respondents by sex and age

Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
18–39	499	164.6	163.8–165.4	906	153.2	152.6–153.9
40–69	572	162.5	161.4–163.6	772	153.1	152.1–154.1
Total	**1071**	**163.9**	**163.1–164.6**	**1678**	**153.2**	**152.6–153.8**

Table 16.2: Mean weight (kg) of respondents by sex and age

Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
18–39	498	62.9	61.7–64.2	906	56.9	56.1–57.6
40–69	572	63.6	62.4–64.9	772	58.3	57.0–59.6
Total	**1070**	**63.2**	**62.1–64.2**	**1678**	**57.4**	**56.6–58.1**

Table 16.3: Mean BMI (kg/m^2) of respondents by sex and age

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18–39	497	23.2	22.8–23.5	903	24.3	24.0–24.6	1400	23.6	23.4–23.9
40–69	570	24.2	23.7–24.7	769	25.0	24.5–25.5	1339	24.6	24.2–24.9
Residence									
Rural	771	23.1	22.7–23.5	1134	24.1	23.7–24.5	1905	23.5	23.2–23.9
Urban	296	24.5	24.0–25.0	538	25.3	24.9–25.7	834	24.9	24.6–25.2
Total	**1067**	**23.5**	**23.2–23.9**	**1672**	**24.5**	**24.2–24.8**	**2739**	**24.0**	**23.7–24.2**

Table 16.4: BMI classifications of respondents by sex and age*

Age Group (years)	n	% Under–weight (<18.5)	95% CI	% Normal weight (18.5–24.9)	95% CI	% Over-weight (25.0–29.9)	95% CI	% Obese (≥30.0)	95% CI
Men									
18–39	497	3.8	1.3–6.3	73.3	68.3–78.2	19.7	15.5–23.9	3.2	1.1–5.3
40–69	570	4.0	1.9–6.1	60.4	54.5–66.3	28.7	23.5–33.9	6.9	4.2–9.6
Residence									
Rural	771	4.2	2.0–6.5	73.9	69.1–78.6	18.4	14.4–22.4	3.5	1.6–5.3
Urban	296	3.0	0.5–5.4	56.8	49.7–63.9	33.3	26.0–40.6	6.9	4.2–9.6
Total	**1067**	**3.9**	**2.1–5.6**	**68.8**	**64.5–73.1**	**22.8**	**19.0–26.7**	**4.5**	**2.9–6.0**
Women									
18–39	903	3.6	2.0–5.1	59.0	54.7–63.3	30.9	26.5–35.3	6.5	4.9–8.1
40–69	769	1.4	0.5–2.3	52.8	47.4–58.2	33.7	28.7–38.8	12.1	8.7–15.4
Residence									
Rural	1134	2.9	1.6–4.2	61.8	57.3–66.3	28.6	24.1–33.1	6.7	4.8–8.6
Urban	538	2.6	0.7–4.5	46.6	41.6–51.6	38.6	33.6–43.6	12.2	8.9–15.4
Total	**1672**	**2.8**	**1.7–3.9**	**56.8**	**53.1–60.4**	**31.9**	**28.4–35.5**	**8.5**	**6.8–10.2**
Both Sexes									
18–39	1400	3.7	2.1–5.3	67.2	63.5–70.9	24.5	21.2–27.8	4.6	3.2–6.0
40–69	1339	2.9	1.5–4.2	57.1	52.9–61.2	30.9	27.2–34.6	9.2	7.0–11.3
Residence									
Rural	1905	3.7	2.2–5.1	68.8	65.1–72.6	22.7	19.3–26.1	4.8	3.5–6.2
Urban	834	2.8	1.2–4.4	52.2	48.0–56.4	35.7	31.3–40.2	9.3	7.4–11.2
Total	**2739**	**3.4**	**2.3–4.5**	**63.6**	**60.5–66.8**	**26.7**	**23.8–29.6**	**6.2**	**5.1–7.4**

*excluding pregnant women

Table 16.5: Percentage of respondents (excluding pregnant women) classified as overweight (BMI≥25).

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18–39	497	22.9	18.3–27.5	903	37.4	33.0–41.8	1400	29.1	25.6–32.6
40–69	570	35.6	29.9–41.3	769	45.8	40.2–51.3	1339	40.1	35.8–44.3
Residence									
Rural	771	21.9	17.4–26.4	1134	35.3	30.5–40.1	1905	27.5	23.7–31.2
Urban	296	40.2	32.7–47.7	538	50.8	45.6–56.0	834	45.1	40.7–49.4
Total	**1067**	**27.3**	**23.1–31.6**	**1672**	**40.4**	**36.6–44.3**	**2739**	**33.0**	**29.7–36.2**

Table 16.6: Mean waist circumference (cm) of respondents by sex and age

Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
18–39	499	80.5	79.5–81.6	906	78.3	77.3–79.2
40–69	572	84.6	83.3–85.9	772	81.8	80.4–83.1
Residence						
Rural	774	80.8	79.8–81.9	1140	78.5	77.3–79.6
Urban	297	84.6	82.9–86.2	538	81.7	80.7–82.8
Total	**1071**	**81.9**	**81.0–82.9**	**1678**	**79.5**	**78.7–80.4**

Table 16.7: Mean Hip circumference (cm) of respondents by sex and age*

Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
18–39	499	92.0	91.3–92.7	906	93.1	92.3–93.8
40–69	572	93.5	92.7–94.4	772	95.7	94.6–96.7
Total	**1071**	**92.5**	**91.9–93.1**	**1678**	**94.0**	**93.4–94.7**

*excluding pregnant women.

Table 16.8: Mean waist / hip ratio among respondents by age and sex

Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
18–39	499	0.9	0.9–0.9	906	0.8	0.8–0.8
40–69	572	0.9	0.9–0.9	772	0.9	0.8–0.9
Total	**1071**	**0.9**	**0.9–0.9**	**1678**	**0.8**	**0.8–0.9**

Annex 2: Survey instruments

Survey Information

Location and Date	Response	Code
Gewog/EA ID	⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌋	I1
Gewog/EA name		I2
Interviewer ID	⌊_⌊_⌊_⌋	I3
Date of completion of the survey	⌊_⌊_⌋ ⌊_⌊_⌋ ⌊_⌊_⌋ dd mm year	I4

Consent, Interview Language and Name	Response	Code
Consent has been read and obtained	Yes 1 No 2 If NO, END	I5
Interview Language *[Insert language]*	English 1 Dzongkha 2 Tshanglakha 3 Lhotshamkha 4	I6
Time of interview (24 hour clock)	⌊_⌊_⌋ : ⌊_⌊_⌋ hrs mins	I7
Family Surname		I8
First Name		I9

Step 1 Demographic Information

Demographic Information		
Question	Response	Code
Sex *(Record Male / Female as observed)*	Male 1 Female 2	C1
What is your date of birth? Don't Know 77 77 7777	⌊_⌊_⌋ ⌊_⌊_⌋ ⌊_⌊_⌊_⌊_⌋ dd mm year *If known, Go to C4*	C2
How old are you?	Years ⌊_⌊_⌋	C3
In total, how many years have you spent at school and in full-time study (excluding pre-school)?	Years ⌊_⌊_⌋	C4

What is the highest level of education you have completed?	No formal schooling	1	C5
	Less than primary school	2	
	Primary school completed	3	
	Class 10 completed	4	
	Class 12 completed	5	
	College/University completed	6	
	Post graduate degree	7	
	Refused	88	
What is your marital status?	Never married	1	C7
	Currently married	2	
	Separated	3	
	Divorced	4	
	Widowed	5	
	Cohabitating	6	
	Refused	88	
Which of the following best describes your main work status over the past 12 months? *(USE SHOWCARD)*	Government employee	1	C8
	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	
How many people older than 18 years, including yourself, live in your household?	Number of people	⌊_⌋	C9
Taking the past year, can you tell me what the average earnings of the household have been? *(RECORD ONLY ONE, NOT ALL 3)*	Per week	⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Go to T1	C10a
	OR per month	⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Go to T1	C10b
	OR per year	⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Go to T1	C10c
	Refused	88	C10d

Step 1 Behavioural Measurements

Tobacco Use			
Now I am going to ask you some questions about tobacco use.			
Question	Response		Code
Do you currently smoke any tobacco products, such as cigarettes, cigars or bidis? *(USE SHOWCARD)*	Yes	1	T1
	No	2 *If No, go to T8*	
Do you currently smoke tobacco products daily?	Yes	1	T2
	No	2	
How old were you when you first started smoking?	Age (years)		T3
	Don't know 77	⌊_⌋ *If Known, go to T5a/T5aw*	

Do you remember how long ago it was? *(RECORD ONLY 1, NOT ALL 3)* Don't know 77	In Years	└┴┘ *If Known, go to T5a/T5aw*	T4a
	OR in Months	└┴┘ *If Known, go to T5a/T5aw*	T4b
	OR in Weeks	└┴┘	T4c
On average, how many of the following products do you smoke each day/week? *(IF LESS THAN DAILY, RECORD WEEKLY)* *(RECORD FOR EACH TYPE, USE SHOWCARD)* Don't Know 7777		DAILY↓ WEEKLY↓	
	Manufactured cigarettes	└┴┴┴┘ └┴┴┴┘	T5a/T5aw
	Hand-rolled cigarette	└┴┴┴┘ └┴┴┴┘	T5b/T5bw
	Bidis	└┴┴┴┘ └┴┴┴┘	T5c/T5cw
	Cigar, cheroots, cigarillos	└┴┴┴┘ └┴┴┴┘	T5d/T5dw
	Other	└┴┴┴┘ └┴┴┴┘ If Other, go to T5other, else go to T6	T5f/T5fw
	Other (please specify):	└┴┴┴┴┴┘	T5other/ T5otherw
During the past 12 months, have you tried to stop smoking?	Yes 1 No 2		T6
During any visit to a doctor or other health worker in the past 12 months, were you advised to quit smoking tobacco?	Yes 1 No 2 No visit during the past 12 months 3	*If T2=Yes, go to T12; if T2=No, go to T9* *If T2=Yes, go to T12; if T2=No, go to T9* *If T2=Yes, go to T12; if T2=No, go to T9*	T7
In the past, did you eversmoke any tobacco products? *(USE SHOWCARD)*	Yes 1 No 2	If No, go to T12	T8
In the past, did you ever smoke daily?	Yes 1 No 2	If T1=Yes, go to T12, else go to T10 If T1=Yes, go to T12, else go to T10	T9
How old were you when you stopped smoking?	Age (years) Don't Know 77	└┴┘ If Known, go to T12	T10
How long ago did you stop smoking? *RECORD ONLY 1, NOT ALL 3)* Don't Know 77	Years ago	└┴┘ If Known, go to T12	T11a
	OR Months ago	└┴┘ If Known, go to T12	T11b
	OR Weeks ago	└┴┘	T11c
Do you currently use any smokeless tobacco products such as snuff, chewing tobacco, betel? *(USE SHOWCARD)*	Yes 1 No 2	If No, go to T15	T12
Do you currently use smokeless tobacco products daily?	Yes 1 No 2	If No, go to T14aw	T13

On average, how many times a day/week do you use …. *(IF LESS THAN DAILY, RECORD WEEKLY)* *(RECORD FOR EACH TYPE, USE SHOWCARD)* Don't Know 7777		DAILY↓ WEEKLY↓	
	Snuff, by mouth	⌊_⌋⌊_⌋⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	T14a/T14aw
	Snuff, by nose	⌊_⌋⌊_⌋⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	T14b/T14bw
	Chewing tobacco	⌊_⌋⌊_⌋⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	T14c/T14cw
	Betel, quid	⌊_⌋⌊_⌋⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋⌊_⌋⌊_⌋	T14d/T14dw
	Chewing tobacco	⌊_⌋⌊_⌋⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ *If other, go to T14 other, if T13=No, go to T16, else go to T17*	T14e/T14ew
	Other (please specify):	⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋⌊_⌋ *If T13=No, go to T16, else go to T17*	T14other/ T14otherw
In the past, did you ever use smokeless tobacco products such as snuff, chewing tobacco, or betel?	Yes 1 No 2 If No, go to T17		T15
In the past, did you ever use smokeless tobacco products such snuff, chewing tobacco, or betel daily?	Yes 1 No 2		T16
During the past 30 days, did someone smoke in your home?	Yes 1 No 2		T17
During the past 30 days, did someone smoke in closed areas in your workplace *(in the building, in a work area or a specific office)?*	Yes 1 No 2 Don't work in a closed area 3		T18
The next questions ask about tobacco control policies. They include questions on your exposure to the media and advertisements, health warnings and cigarette purchase.			
During the past 30 days, have you noticed information about the dangers of smoking cigarettes or that encourages quitting through the following media? *(RECORD FOR EACH)*			
Newspapers or magazines	Yes 1 No 2 Don't know 77		TP1a
Television	Yes 1 No 2 Don't know 77		TP1b
Radio	Yes 1 No 2 Don't know 77		TP1c
Posters or Banners	Yes 1 No 2 Don't know 77		TP1d

The next questions TP4 - TP7 are administered to current smokers only.			
During the past 30 days, did you notice any health warnings on cigarette packages?	Yes No Did not see any cigarette packages Don't know	1 2 If no, go to TP6 3 If "did not see any cigarette packages", go to TP6 77 If Don't know, go to TP6	TP4
During the past 30 days, have warning labels on cigarette packages led you to think about quitting?	Yes No Don't know	1 2 77	TP5
The last time you bought manufactured cigarettes for yourself, how many cigarettes did you buy in total?	Number of cigarettes Don't know or Don't smoke or purchase manuf. cigarettes 7777	⌊_⌊_⌊_⌊_⌋ If "Don't know or don't smoke or purchase manuf. cig.", go to A1	TP6
In total, how much money did you pay for this purchase? *(DIGITS TO BE ADAPTED TO COUNTRY NEEDS)*	Amount Don't know Refused	⌊_⌊_⌊_⌊_⌋ 7777 8888	TP7

Alcohol Consumption			
The next questions ask about the consumption of alcohol.			
Have you ever consumed any alcohol such as beer, wine, hard drinks, ara, changkoe, or Bangchang? *(USE SHOWCARD OR SHOW EXAMPLES)*	Yes No	1 2 If No, go to A16	A1
Have you consumed any alcohol within the past 12 months?	Yes No	1 If Yes, go to A4 2	A2
Have you stopped drinking due to health reasons, such as a negative impact on your health or on the advice of your doctor or other health worker?	Yes No	1 If Yes, go to A16 2 If No, go to A16	A3
During the past 12 months, how frequently have you had at least one standard alcoholic drink? *(READ RESPONSES, USE SHOWCARD)*	Daily 5-6 days per week 3-4 days per week 1-2 days per week 1-3 days per month Less than once a month	1 2 3 4 5 6	A4
Have you consumed any alcohol within the past 30 days?	Yes No	1 2 If No, go to A13	A5
During the past 30 days, on how many occasions did you have at least one standard alcoholic drink?	Number Don't know 77	⌊_⌊_⌋	A6

During the past 30 days, when you drank alcohol, how many standard drinks on average did you have during one drinking occasion? *(USE SHOWCARD)*	Number Don't know 77 ⌊_⌋⌊_⌋	A7
During the past 30 days, what was the largest number of standard drinks you had on a single occasion, counting all types of alcoholic drinks together?	Largest number Don't Know 77 ⌊_⌋⌊_⌋	A8
During the past 30 days, how many times did you have six or more standard drinks in a single drinking occasion?	Number of times Don't Know 77 ⌊_⌋⌊_⌋	A9

During each of the past 7 days, how many standard drinks did you have each day? *(USE SHOWCARD)* Don't Know 77	Monday	⌊_⌋⌊_⌋	A10a
	Tuesday	⌊_⌋⌊_⌋	A10b
	Wednesday	⌊_⌋⌊_⌋	A10c
	Thursday	⌊_⌋⌊_⌋	A10d
	Friday	⌊_⌋⌊_⌋	A10e
	Saturday	⌊_⌋⌊_⌋	A10f
	Sunday	⌊_⌋⌊_⌋	A10g

I have just asked you about your consumption of alcohol during the past 7 days. The questions were about alcohol in general, while the next questions refer to your consumption of homebrewed alcohol, alcohol brought over the border/from another country, any alcohol not intended for drinking or other untaxed alcohol. Please only think about these types of alcohol when answering the next questions.

During the past 7 days, did you consume any homebrewed alcohol, any alcohol brought over the border/from another country, any alcohol not intended for drinking or other untaxed alcohol? *[AMEND ACCORDING TO LOCAL CONTEXT]* *(USE SHOWCARD)*	Yes	1		A11
	No	2	If No, go to A13	

On average, how many standard drinks of the following did you consume during the past 7 days? *[INSERT COUNTRY-SPECIFIC EXAMPLES]* *(USE SHOWCARD)* Don't Know 77	Homebrewed spirits, e.g. ara	⌊_⌋⌊_⌋	A12a
	Homebrewed beer or wine, e.g. beer, palm or fruit wine	⌊_⌋⌊_⌋	A12b
	Alcohol brought over the border/from another country	⌊_⌋⌊_⌋	A12c
	Alcohol not intended for drinking, e.g. alcohol-based medicines, perfumes, after shaves	⌊_⌋⌊_⌋	A12d
	Other untaxed alcohol in the country	⌊_⌋⌊_⌋	A12e

During the past 12 months, how often have you found that you were not able to stop drinking once you had started?	Daily or almost daily	1	A13
	Weekly	2	
	Monthly	3	
	Less than monthly	4	
	Never	5	

During the past 12 months, how often have you failed to do what was normally expected from you because of drinking?	Daily or almost daily Weekly Monthly Less than monthly Never	1 2 3 4 5	A14
During the past 12 months, how often have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Daily or almost daily Weekly Monthly Less than monthly Never	1 2 3 4 5	A15
During the past 12 months, have you had family problems or problems with your partner due to someone else's drinking?	Yes, more than monthly Yes, monthly Yes, several times but less than monthly Yes, once or twice No	1 2 3 4 5	A16

Diet

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

Question	Response	Code
In a typical week, on how many days do you eat fruit? *(USE SHOWCARD)*	Number of days Don't Know 77 ⌊_⌋⌊_⌋ If Zero days, go to D3	D1
How many servings of fruit do you eat on one of those days? *(USE SHOWCARD)*	Number of servings Don't Know 77 ⌊_⌋⌊_⌋	D2
In a typical week, on how many days do you eat vegetables? *(USE SHOWCARD)*	Number of days Don't Know 77 ⌊_⌋⌊_⌋ If Zero days, go to D5	D3
How many servings of vegetables do you eat on one of those days? *(USE SHOWCARD)*	Number of servings Don't know 77 ⌊_⌋⌊_⌋	D4

Dietary salt

With the next questions, we would like to learn more about salt in your diet. Dietary salt includes ordinary table salt, unrefined salt such as sea salt, iodized salt, salty stock cubes and powders, and salty sauces such as soya sauce or fish sauce (see showcard). The following questions are on adding salt to the food right before you eat it, on how food is prepared in your home, on eating processed foods and other foods that are high in salt such as Ezay and questions on controlling your salt intake. Please answer the questions even if you consider yourself to eat a diet low on salt.

How often do you add salt or a salty sauce such as soya sauce to your food right before you eat it or as you are eating it? *(SELECT ONLY ONE)* *(USE SHOWCARD)*	Always Often Sometimes Rarely Never Don't know	1 2 3 4 5 77	D5

How often is salt, salty seasoning or a salty sauce added in cooking or preparing foods in your household?	Always Often Sometimes Rarely Never Don't know	1 2 3 4 5 77	D6
How often do you eat processed food high in salt? By processed food high in salt, I mean foods that have been altered from their natural state, such as packaged salty snacks, canned salty food including pickles and preserves, salty foods prepared at a fast food restaurant, cheese, bacon and processed meat and dried fish. Other foods high in salt include Ezay, potato chips, *[INSERT EXAMPLES]* *(USE SHOWCARD)*	Always Often Sometimes Rarely Never Don't know	1 2 3 4 5 77	D7
How often do you drink Suja?	Always Often Sometimes Rarely Never Don't know	1 2 3 4 5 77	X1
How much salt or salty sauce do you think you consume?	Far too much Too much Just the right amount Too little Far too little Don't know	1 2 3 4 5 77	
How important to you is lowering the salt in your diet?	Very important Somewhat important Not at all important Don't know	1 2 3 77	D9
Do you think that too much salt or salty sauce in your diet could cause a health problem?	Yes No Don't know	1 2 77	D8 D10
Do you do anything of the following on a regular basis to control your salt intake? *(RECORD FOR EACH)*			
Limit consumption of processed foods and other salty foods	Yes No	1 2	D11a
Look at the salt or sodium content on food labels	Yes No	1 2	D11b
Buy low salt/sodium alternatives	Yes No	1 2	D11c
Use spices other than salt when cooking	Yes No	1 2	D11d

Avoid eating foods prepared outside of a home	Yes 1 No 2	D11e
Do other things specifically to control your salt intake	Yes 1 If Yes, go to D11other No 2	D11f
Other *(please specify)*	⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌋	D11other

The next questions ask about the oil or fat that is most often used for meal preparation in your household, and about meals that you eat outside a home.		
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 If Other, go to D12 other None in particular 6 None used 7 Don't know 77	D12
	Other ⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌋	D12other
On average, how many meals per week do you eat that were not prepared at a home? By meal, I mean breakfast, lunch and dinner.	Number Don't know 77 ⌊_⌊_⌋	D13

Physical Activity		
Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. [Insert other examples if needed]. 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.		
Work		
Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like carrying or lifting heavy loads, digging or construction work for at least 10 minutes continuously? *(USE SHOWCARD)*	Yes 1 No 2 If No, go to P 4	P1
In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days ⌊_⌋	P2
How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes ⌊_⌊_⌋ : ⌊_⌊_⌋ hrs mins	P3 (a-b)
Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking, [or carrying light loads] for at least 10 minutes continuously? [INSERT EXAMPLES] *(USE SHOWCARD)*	Yes 1 No 2 If No, go to P 7	P4
In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days ⌊_⌋	P5
How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes ⌊_⌊_⌋ : ⌊_⌊_⌋ hrs mins	P6 (a-b)

Travel to and from places		
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship. [Insert other examples if needed]		
Do you walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 If No, go to P 10	P7
In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days ⌊__⌋	P8
How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes ⌊__⌋ : ⌊__⌋ 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), [Insert relevant terms].		
Do you do any vigorous-intensity sports, fitness or recreational (leisure) activities that cause large increases in breathing or heart rate like running or football, martial arts, badminton, basketball for at least 10 minutes continuously? *(USE SHOWCARD)*	Yes 1 No 2 If No, go to P 13	P10
In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (leisure) activities?	Number of days ⌊__⌋	P11
How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes ⌊__⌋ : ⌊__⌋ hrs mins	P12 (a-b)
Do you do any moderate-intensity sports, fitness or recreational activities that cause a small increase in breathing or heart rate such as dancing, brisk walking, cycling, swimming, khuru, or degor or archery for at least 10 minutes continuously? *(USE SHOWCARD)*	Yes 1 No 2 If No, go to P16	P13
In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (leisure) activities?	Number of days ⌊__⌋	P14
How much time do you spend doing moderate-intensity sports, fitness or recreational (leisure) activities on a typical day?	Hours : minutes ⌊__⌋ : ⌊__⌋ hrs mins	P15 (a-b)
Sedentary Behaviour		
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in bus, reading, playing cards or watching television, but do not include time spent sleeping. (USE SHOWCARD)		
How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes ⌊__⌋ : ⌊__⌋ hrs mins	P16 (a-b)

History of Raised Blood Pressure			
Have you ever had your blood pressure measured by a doctor or other health worker?	Yes No	1 2 If No, go to H6	H1
Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?	Yes No	1 2 If No, go to H6	H2a
Have you been told in the past 12 months?	Yes No	1 2	H2b
In the past two weeks, have you taken any drugs (medication) for raised blood pressure prescribed by a doctor or other health worker?	Yes No	1 2	H3
Have you ever seen a local healer, drungdsho or sMenpa for raised blood pressure or hypertension?	Yes No	1 2	H4
Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes No	1 2	H5
History of Diabetes			
Have you ever had your blood sugar measured by a doctor or other health worker?	Yes No	1 2 If No, go to H12	H6
Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	Yes No	1 2 If No, go to H12	H7a
Have you been told in the past 12 months?	Yes No	1 2	H7b
In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker?	Yes No	1 2	H8
Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?	Yes No	1 2	H9
Have you ever seen a local healer, drungdsho or sMenpa for diabetes or raised blood sugar?	Yes No	1 2	H10
Are you currently taking any herbal or traditional remedy for your diabetes?	Yes No	1 2	H11
History of Raised Total Cholesterol			
Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?	Yes No	1 2 If No, go to H17	H12
Have you ever been told by a doctor or other health worker that you have raised cholesterol?	Yes No	1 2 If No, go to H17	H13a
Have you been told in the past 12 months?	Yes No	1 2	H13b

In the past two weeks, have you taken any oral treatment (medication) for raised total cholesterol prescribed by a doctor or other health worker?	Yes No	1 2		H14
Have you ever seen a local healer, drungsho, or sMenpa for raised cholesterol?	Yes No	1 2		H15
Are you currently taking any herbal or traditional remedy for your raised cholesterol?	Yes No	1 2		H16
History of Cardiovascular Diseases				
Have you ever had a heart attack or chest pain from heart disease (angina) or a stroke (cerebrovascular accident or incident)?	Yes No	1 2		H17
Are you currently taking aspirin regularly to prevent or treat heart disease?	Yes No	1 2		H18
Are you currently taking statins (Atorvastatin) or fibrates (Fenofibrate) regularly to prevent or treat heart disease? (if D/K, interviewer to check medication)	Yes No	1 2		H19
Lifestyle Advice				
During the past three years, has a doctor or other health worker advised you to do any of the following? *(RECORD FOR EACH)*				
Quit using tobacco or don't start	Yes No	1 2		H20a
Reduce salt in your diet	Yes No	1 2		H20b
Eat at least five servings of fruit and/or vegetables each day	Yes No	1 2		H20c
Reduce fat in your diet	Yes No	1 2		H20d
Start or do more physical activity	Yes No	1 2		H20e
Maintain a healthy body weight or lose weight	Yes No	1 2	If C1=1 go to M1	H20f
Cervical Cancer Screening (for women only):				
The next question asks about cervical cancer prevention. A screening test for cervical cancer prevention is done by a doctor or nurse taking a swab to wipe from inside your vagina. This is sent to a laboratory where they check for abnormal cell changes.				
Have you ever had a pap smear screening test for cervical cancer?	Yes No Don't know	1 2 77		CX1

Family history		
Have any of your blood family members (sibling, parent, grandparent, aunt or uncle) been diagnosed with the following diseases?		
Diabetes or raised blood sugar	Yes 1 No 2	F1a
Raised Blood pressure	Yes 1 No 2	F1b
Stroke	Yes 1 No 2	F1c
Cancer or malignant tumor	Yes 1 No 2	F1d
Raised Cholesterol	Yes 1 No 2	F1e
Early Heart attack (below age 50 for men and below age 55 for women)	Yes 1 No 2	F1f
Asthma or chronic lung disease (COPD)	Yes 1 No 2	X2
Kidney disease	Yes 1 If C1=1 go to M1 No 2 If C1=1 go to M1	X3

Mental health / Suicide			
The next questions ask about thoughts, plans, and attempts of suicide. Please answer the questions even if no one usually talks about these issues.			
During the past 12 months, have you seriously considered attempting suicide?	Yes	1	MH1
	No	2 If No, go to MH3	
	Refused	88	
Did you seek professional help for these thoughts?	Yes	1	MH2
	No	2	
	Refused	88	
During the past 12 months, have you made a plan about how you would attempt suicide?	Yes	1	MH3
	No	2	
	Refused	88	
Have you ever attempted suicide?	Yes	1	MH4
	No	2 If No, go to MH9	
	Refused	88	
During the past 12 months, have you attempted suicide?	Yes	1	MH5
	No	2	
	Refused	88	
What was the main method you used the last time you attempted suicide? (SELECT ONLY ONE)	Razor, knife or other sharp instrument	1	MH6
	Overdose of medication (e. g. prescribed, over-the-counter)	2	
	Overdose of other substance (e.g. heroin, crack, alcohol)	3	
	Poisoning with pesticides (e.g. rat poison, insecticide, weed-killer)	4	
	Other poisoning (e.g. plant/seed, household product)	5	
	Poisonous gases from charcoal	6	
	Other	7 If Other, go to MH6other	
	Refused	88	
	Other (specify)	|_|_|_|_|_|_|_|_|_|	MH6 other

Did you seek medical care for this attempt?	Yes	1	MH7
	No	2 If No, go to MH9	
	Refused	88	
Were you admitted to hospital overnight because of this attempt?	Yes	1	MH8
	No	2	
	Refused	88	
Has anyone in your close family (mother, father, brother, sister or children) ever attempted suicide?	Yes	1	MH9
	No	2	
	Refused	88	
Has anyone in your close family (mother, father, brother, sister or children) ever died from suicide?	Yes	1	MH10
	No	2	

Step 2 Physical Measurements

Blood Pressure and Heart Rate			
Interviewer ID		⌊_⌊_⌊_⌋	M1
Device ID for blood pressure		⌊_⌊_⌋	M2
Reading 1	Systolic (mmHg)	⌊_⌊_⌊_⌋	M4a
	Diastolic (mmHg)	⌊_⌊_⌊_⌋	M4b
Reading 2	Systolic (mmHg)	⌊_⌊_⌊_⌋	M5a
	Diastolic (mmHg)	⌊_⌊_⌊_⌋	M5b
Reading 3	Systolic (mmHg)	⌊_⌊_⌊_⌋	M6a
	Diastolic (mmHg)	⌊_⌊_⌊_⌋	M6b
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 No	1 2	M7
Height and Weight			
For women: Are you pregnant?	Yes No	1 If Yes, go to M 16 2	M8
Interviewer ID		⌊_⌊_⌊_⌋	M9
Device IDs for height and weight	Height Weight	⌊_⌊_⌋ ⌊_⌊_⌋	M10a M10b
Height	in Centimetres (cm)	⌊_⌊_⌊_⌋ . ⌊_⌋	M11
Weight If too large for scale 666.6	in Kilograms (kg)	⌊_⌊_⌊_⌋ . ⌊_⌋	M12

Waist and hip circumference			
Device ID for waist		⌊_⌋⌊_⌋	M13
Waist circumference	in Centimetres (cm)	⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	M14

Hip circumference	in Centimetres (cm)	⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	M15
Heart rate			
Reading 1	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16a
Reading 2	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16b
Reading 3	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16c

Step 3 Biochemical Measurements

Blood Glucose and Total Cholesterol			
During the past 10 hours have you had anything to eat or drink, other than water?	Yes No	1 2	B1
Technician ID		⌊_⌋⌊_⌋⌊_⌋	B2
Device ID		⌊_⌋⌊_⌋	B3
Time of day blood specimen taken (24 hour clock)	Hours : minutes	⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	B4
Fasting blood glucose	mg/dl	⌊_⌋⌊_⌋.⌊_⌋⌊_⌋	B5
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 No	1 2	B6
Total cholesterol	mg/dl	⌊_⌋⌊_⌋.⌊_⌋⌊_⌋	B8
During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker?	Yes No	1 2	B9

Urinary sodium and creatinine			
Had you been fasting prior to the urine collection?	Yes No	1 2	B10
Technician ID		⌊_⌋⌊_⌋⌊_⌋	B11
Time of day urine sample taken (24 hour clock)	Hours : minutes	⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	B13
Urinary sodium	mmol/l	⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	B14
Urinary creatinine	mmol/l	⌊_⌋⌊_⌋.⌊_⌋⌊_⌋	B15

Annex 3: Fact sheet – Risk factors

The STEPS survey of non-communicable disease (NCD) risk factors in Bhutan was carried out from April-June 2014. Bhutan carried out Step 1, Step 2 and Step 3. Socio demographic and behavioral information was collected in Step 1. Physical measurements such as height, weight and blood pressure were collected in Step 2. Biochemical measurements were collected to assess salt intake, blood glucose and cholesterol levels in Step 3.The survey was a population-based survey of adults aged 18-69. A multi-stage stratified cluster sampling design was used to produce representative data for that age range in Bhutan. Total of 2822 adults participated in the survey. The overall response rate was 96%.

Results for adults aged 18-69 years (incl. 95% CI)	**Both Sexes**	**Men**	**Women**
Step 1: Tobacco Use			
Percentage who currently smoke tobacco	**7.4%** (5.8–9.0)	**10.8%** (8.1–13.6)	**3.1%** (2.0–4.2)
Percentage who currently smoke tobacco daily	**4.3%** (3.2–5.4)	**6.0%** (4.3–7.7)	**2.1%** (1.3–3.0)
For those who smoke tobacco daily			
Average age started smoking (years)	**18.9** (17.5–20.3)	**19.0** (17.3–20.8)	#
Percentage of daily smokers smoking manufactured cigarettes	**84.1%** (76.3–92.0)	**90.1%** (82.2–98.0)	#
Smokeless tobacco user			
Percentage who currently use smokeless tobacco	**19.7%** (16.5–22.9)	**26.5%** (22.1–31.0)	**11.0 %** (8.6–13.5)
Percentage who currently use smokeless tobacco daily	**18.5%** (15.3–21.7)	**25.2%** (20.7–29.7)	**9.9%** (7.5–12.4)
For those who use smokeless tobacco daily			
Percentage of daily smokeless tobacco users using chewing tobacco/snuff by mouth	**95.5%** (93.2–97.8)	**96.4%** (93.8–99.0)	**92.7%** (87.9–97.4)
Mean times per day chewing tobacco/snuff by mouth (by user of chewing tobacco/snuff by mouth)	**12.4** (10.6–14.2)	**12.8** (10.6–14.9)	**11.3** (9.5–13.2)
Step 1: Alcohol Consumption			
Percentage who are lifetime abstainers	**39.0%** (35.7–42.3)	**30.6%** (26.2–35.0)	**49.8%** (45.9–53.7)
Percentage who are past 12 month abstainers	**10.8%** (8.8–12.8)	**12.1%** (9.2–14.9)	**9.3%** (7.0–11.6)
Percentage who currently drink (drank alcohol in the past 30 days)	**42.4%** (39.3–45.5)	**50.0%** (45.5–54.5)	**32.8%** (29.5–36.0)
Percentage who engage in heavy episodic drinking (6 or more drinks on any occasion in the past 30 days)	**22.4%** (19.5–25.3)	**29.0%** (24.9–33.1))	**14.1%** (11.3–16.9)
Step 1: Diet			
Mean number of days fruit consumed in a typical week	**1.7** (1.5–1.9)	**1.6** (1.4–1.8)	**1.9** (1.7–2.1)
Mean number of servings of fruit consumed on average per day	**0.7** (0.6–0.8)	**0.7** (0.5–0.8)	**0.8** (0.7–0.9)
Mean number of days vegetables consumed in a typical week	**5.6** (5.4–5.7)	**5.6** (5.5–5.8)	**5.5** (5.3–5.7)
Mean number of servings of vegetables consumed on average per day	**3.8** (3.4–4.1)	**4.0** (3.5–4.4)	**3.5** (3.1–3.8)
Percentage who ate less than 5 servings of fruit and/or vegetables on average per day	**66.9%** (61.7–72.0)	**64.8%** (58.3–71.2)	**69.6%** (64.4–74.7)
Percentage who always or often add salt or salty sauce to their food before eating or as they are eating	**7.8%** (5.4–10.2)	**7.4%** (4.4–10.5)	**8.3%** (6.2–10.4)
Percentage who always or often eat processed foods high in salt	**11.1%** (9.3–12.9)	**11.0%** (8.4–13.6)	**11.2%** (9.1–13.3)
Step 1: Physical Activity			
Percentage with insufficient physical activity (defined as < 150 minutes of moderate-intensity activity per week, or equivalent)*	**6.4%** (4.7–8.0)	**3.8%** (2.5–5.0)	**9.6%** (6.8–12.4)
Median time spent in physical activity on average per day (minutes) (presented with inter-quartile range)	**330** (377.1)	**367.1** (362.1)	**274.3** (377.1)
Percentage not engaging in vigorous activity	**48.8%** (44.6–53.1)	**35.2%** (30.3–40.2)	**66.0%** (61.2–70.9)

Results for adults aged 18-69 years (incl. 95% CI)	Both Sexes	Males	Females
Step 1: Cervical Cancer Screening			
Percentage of women aged 30-49 years who have ever had a screening test for cervical cancer			**64.1%** (59.0–69.2)
Step 2: Physical Measurements			
Mean body mass index - BMI (kg/m^2)	**24.0** (23.7–24.2)	**23.5** (23.2–23.9)	**24.5** (24.2–24.8)
Percentage who are overweight (BMI ≥ 25 kg/m^2)	**26.7%** (23.8–29.6)	**22.8%** (19.0–26.7)	**31.9%** (28.4–35.5)
Percentage who are obese (BMI ≥ 30 kg/m^2)	**6.2%** (5.1–7.3)	**4.5%** (2.9–6.0)	**8.5%** (6.8–10.2)
Average waist circumference (cm)		**81.9** (81.0–82.9)	**79.5** (78.7–80.4)
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP	**126.2** (125.1–127.2)	**128.0** (126.6–129.4)	**123.8** (122.5–125.1)
Mean diastolic blood pressure - DBP (mmHg), including those currently on medication for raised BP	**85.0** (84.0–85.9)	**84.6** (83.4–85.9)	**85.4** (84.5–86.3)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	**35.7%** (32.8–38.6)	**35.5%** (31.5–39.6)	**35.9%** (32.5–39.4)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) who are not currently on medication for raised BP	**32.9%** (30.0–35.8)	**33.6%** (29.5–37.6)	**32.0%** (28.6–35.3)
Step 3: Biochemical Measurement			
Mean fasting blood glucose, including those currently on medication for raised blood glucose (mg/dl)	**88.8** (87.4–90.2)	**88.7** (86.9–90.5)	**88.9** (87.4–90.4)
Percentage with impaired fasting glycaemia as defined below • capillary whole blood value ≥5.6 mmol/L (100 mg/dl) and <6.1 mmol/L (110 mg/dl)	**10.7%** (8.6–12.9)	**11.4%** (8.2–14.5)	**10.0%** (7.9–12.0)
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose • capillary whole blood value > 6.1 mmol/L (110 mg/dl)	**6.4%** (5.0–7.8)	**6.5%** (4.6–8.5)	**6.3%** (4.7–7.9)
Mean total blood cholesterol, including those currently on medication for raised cholesterol (mg/dl)	**146.1** (143.4–148.9)	**144.1** (140.3–147.9)	**148.7** (146.0–151.4)
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)	**12.5%** (10.6–14.4)	**11.9%** (9.1–14.7)	**13.3%** (11.3–15.3)
Mean intake of salt per day (in grams)	**9.0** (8.8–9.1)	**9.6** (9.4–9.8)	**8.0** (7.9–8.2)
Cardiovascular disease (CVD) risk			
Percentage aged 40-69 years with a 10-year CVD risk ≥ 30%, or with existing CVD**	**1.8%** (1.0–2.6)	**1.5%** (0.4–2.7)	**2.2%** (1.0–3.4)
Summary of combined risk factors			
• current daily smokers • less than 5 servings of fruits & vegetables per day • insufficient physical activity • overweight (BMI ≥ 25 kg/m2) • raised BP (SBP ≥140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)			
Percentage with none of the above risk factors	**12.7%** (10.2–15.2)	**15.3%** (11.4–19.2)	**9.3%** (7.3–11.3)
Percentage with three or more of the above risk factors, aged 18 to 39 years	**10.7%** (8.6–12.8)	**9.5%** (6.6–12.5)	**12.3%** (9.6–15.0)
Percentage with three or more of the above risk factors, aged 40 to 69 years	**18.9%** (15.7–22.2)	**14.4%** (10.7–18.1)	**24.6%** (19.9–29.3)
Percentage with three or more of the above risk factors, aged 18 to 69 years	**13.5%** (11.8–15.3)	**11.2%** (8.6–13.7)	**16.7%** (14.1–19.2)

The sample size "n" is less than 50

* For complete definitions of insufficient physical activity, refer to the GPAQ Analysis Guide (http://www.who.int/chp/steps/GPAQ/en/index.html) or to the WHO Global recommendations on physical activity for health (http://www.who.int/dietphysicalactivity/factsheet_recommendations/en/index.html)

** A 10-year CVD risk of ≥30% is defined according to age, sex, blood pressure, smoking status (current smokers OR those who quit smoking less than 1 year before the assessment), total cholesterol, and diabetes (previously diagnosed OR a fasting plasma glucose concentration >7.0 mmol/l (126 mg/dl).

Annex 4: Fact sheet – Tobacco

The WHO STEPwise approach to surveillance (STEPS) is a simple, standardized method for collecting, analysing and disseminating data on noncommunicable diseases (NCDs) and risk factors. Data are collected on the established risk factors and NCD conditions that determine the major NCD burden, including tobacco use, harmful use of alcohol, unhealthy diet, insufficient physical activity, overweight and obesity, raised blood pressure, raised blood glucose, and abnormal blood lipids. Data from STEPS surveys can be used by countries to help monitor progress in meeting the global voluntary targets related to specific risk factors such as tobacco, alcohol, diet and physical inactivity. The tobacco indicators from STEPS can be used to evaluate and monitor existing tobacco-control policies and programs.

The STEPS survey on NCD risk factors in Bhutan was carried out from April–June 2014. It was a population-based survey of adults aged 18–69. A multi-stage stratified cluster sampling design was used to produce representative data for that age range in Bhutan. Survey information was collected electronically using handheld devices. The survey was implemented by the Ministry of Health, Bhutan. A total of 2822 adults participated in the Bhutan STEPS survey. The overall response rate was 96%.

Highlights

Tobacco use

- Overall 24.8% of adults (33.6% of men and 13.6% of women) were current users of tobacco.
- Overall 7.4% of adults (10.8% of men and 3.1% of women) were current smokers of tobacco.
- Overall 19.7% of adults (26.5% of men and 11.0% of women) were current users of smokeless tobacco.

Cessation

- 7 in 10 current smokers tried to stop smoking in the last 12 months.
- 3 in 10 current smokers were advised by a health care provider to stop smoking in the last 12 months.

Secondhand smoke

- 1 in 4 adults were exposed to tobacco smoke at the workplace.
- 1 in 5 adults were exposed to tobacco smoke at home.

Media

- 3 in 5 adults noticed anti-cigarette smoking information on the television.
- 2 in 5 adults noticed anti-cigarette smoking information on the radio.

Economics

- Average amount spent on 20 manufactured cigarettes was 269.3 Bhutanese Ngultrum (Nu).

Results for adults aged 18-69 years	Overall %(95% CI)	Men %(95% CI)	Women %(95% CI)
Tobacco Use			
Current tobacco users(smoked and/or smokeless)[1]			
Current tobacco users	**24.8%** (21.4–28.3)	**33.6%** (28.8–38.5)	**13.6%** (10.9–16.4)
Current daily tobacco users	**22.0%** (18.7–25.3)	**30.0%** (25.4–34.6)	**11.8%** (9.2–14.4)
Current tobacco smokers			
Current tobacco smokers	**7.4%** (5.8–9.0)	**10.8%** (8.1–13.6)	**3.1%** (2.0–4.2)
Current cigarette smokers[2] (among current tobacco smokers)	**77.6%** (68.9–86.4)	**81.5%** (71.4–91.6)	**61.2%** (43.4–79.1)
Current daily tobacco smokers	**4.3%** (3.2–5.4)	**6.0%** (4.2–7.8)	**2.1%** (1.3–3.0)
Current daily cigarette smokers (among daily tobacco smokers)	**84.1%** (76.3–92.0)	**90.1%** (82.2–98.0)	#
Average age started tobacco smoking (years)	**18.9** (17.5–20.3)	**19.0** (17.3–20.8)	#
Average number of manufactured cigarettes smoked per day (among daily cigarette smokers)	**3.5** (2.6–4.3)	**3.7** (2.6–4.8)	#
Current smokeless tobacco users[3]			
Current smokeless tobacco users	**19.7%** (16.5–22.9)	**26.5%** (22.1–31.0)	**11.0%** (8.6–13.5)
Current daily smokeless tobacco users	**18.5%** (15.3–21.7)	**25.2%** (20.7–29.7)	**9.9%** (7.5–12.4)
Current tobacco non-users			
Former tobacco smokers[4]	**19.6%** (17.2–21.9)	**26.7%** (23.2–30.3)	**10.4%** (8.2–12.7)
Never Smokers	**73.0%** (69.9–76.1)	**62.5%** (58.0–66.9)	**86.4%** (83.8–89.1)
Former smokeless users[5]	**12.9%** (10.8–15.0)	**13.9%** (10.8–17.0)	**11.5%** (9.6–13.5)
Never smokeless users	**67.4%** (63.6–71.2)	**59.5%** (54.3–64.7)	**77.4%** (74.2–80.6)
Exposure to Second-hand smoke			
Adults exposed to second-hand smoke at home*	**20.7%** (18.0–23.4)	**20.7%** (17.0–24.4)	**20.7%** (17.8–23.6)
Adults exposed to second-hand smoke in the closed areas in their workplace*	**24.6%** (21.5–27.7)	**29.0%** (24.6–33.4)	**19.1%** (15.9–22.3)
Tobacco Cessation			
Current smokers who tried to stop smoking in past 12 months	**69.0%** (59.8–78.1)	**66.0%** (55.2–76.8)	**82.1%** (68.6–95.7)
Current smokers advised by a health care provider to stop smoking in past 12 months[6]	**31.8%** (22.6–41.0)	**33.2%** (22.2–44.3)	#
Health Warnings			
Current smokers who thought about quitting because of a warning label*	**84.3%** (76.1–92.6)	**83.1%** (73.1–93.1)	#
Adults who noticed anti-cigarette smoking information on the television*	**64.3%** (59.8–68.8)	**64.3%** (59.1–69.6)	**64.3%** (59.1–69.4)
Adults who noticed anti-cigarette smoking information on the radio*	**44.4%** (40.3–48.6)	**45.5%** (40.1–50.9)	**43.0%** (38.8–47.3)
Adults who noticed anti-cigarette smoking information in newspapers or magazines*	**21.0%** (18.2–23.7)	**25.2%** (21.2–29.2)	**15.4%** (12.5–18.2)
Economics		**Local Currency (Ngultrum)**	
Average amount spent on 20 manufactured cigarettes		**269.3** (162.9–375.7)	

1. Current use refers to daily and less than daily use. 2. Includes manufactured cigarettes and hand-rolled cigarettes. Adapted for other products as per country situation. 3. Current non-users. 4. Current non-smokers. 5. Current non smokeless users. 6. Among those who visited a health care provider in past 12 months. * During the past 30 days. # The sample size "n" is the less than 50.

Findings from the Bhutan STEPs Noncommunicable Disease Risk Factor Survey 2014 provide information on several key indicators in a nationally representative sample age group of 18–69 years for the first time in the country.

These indicators include tobacco use, alcohol consumption, dietary habits, physical inactivity, salt intake history, history of exposure to screening for cancer cervix, body mass index and blood pressure measurement, biochemical measurements of blood glucose and cholesterol.

This survey provides Bhutan an opportunity to obtain baseline information on NCD risk factors as well as to compare with other countries. In addition, the findings will help improve understanding of the effect of interventions and the formulation of nationwide strategies for better NCD control.

The rich data contained in this document will be useful to programme managers, researchers, NCD control advocates and other stakeholders. The data will generate credible evidence to promote NCD control and formulate strategies for NCD control in the country.

World Health Organization
Regional Office for South-East Asia
World Health House
Indraprastha Estate,
Mahatma Gandhi Marg,
New Delhi-110002, India
www.searo.who.int

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