World Health Organization
Viet Nam

BỘ Y TẾ
MINISTRY OF HEALTH

National survey on the risk factors of noncommunicable diseases in Viet Nam, 2021

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FOREWORD

In Viet Nam, noncommunicable diseases (NCDs) account for 73.7% of the national burden of disease — measured by disability-adjusted life years — and are the leading cause of death. An estimated 556 000 deaths occurred in 2019, of which 81.4% were due to NCDs. The rising prevalence of NCDs is caused by a rapid increase in preventable risk factors, such as smoking, alcohol consumption, unhealthy diet and insufficient physical activity, along with an increase in overweight and obesity, hypertension, hyperglycaemia and dyslipidemia.

To effectively control NCDs and protect and improve people's health, the Prime Minister approved a national strategy for the prevention and control of cardiovascular diseases, cancers, diabetes, chronic obstructive pulmonary disease, asthma and other NCDs for the period 2015–2025 through Decision No. 376/QD–TTg dated 20 March 2015 and the Viet Nam Health Programme 2018–2030 through Decision No. 1092/QD–TTg dated 2 September 2018 of the Prime Minister. These include important directions and solutions with a comprehensive approach focused on controlling risk factors, disease prevention and early detection to effectively manage NCDs.

To provide the evidence needed for the implementation and evaluation of the objectives and targets of the National Strategy and the Viet Nam Health Programme, the Ministry of Health organized the National Survey on the Risk Factors of NCDs 2021, using the World Health Organization (WHO) STEPwise approach to NCD risk factor surveillance methodology. This second round of the survey in Viet Nam was designed with scientific standards, applying the standardized tools developed by WHO, and a national representative sample to study status and trends of the common risk factors of NCDs in Viet Nam. The survey data also help monitor and report on the progress of implementation of the global voluntary targets on NCDs that Viet Nam has adopted and committed to implementing.

Ministry of Health Viet Nam sincerely thanks WHO for providing technical and financial support for the survey. We also thank other agencies, units and individuals within and outside of the health sector who have contributed to the successful implementation of this survey.

Dr Nguyen Thi Lien Huong
Vice Minister of Health

MESSAGE FROM WHO

Globally, noncommunicable diseases (NCDs) are the leading cause of death and morbidity. The World Health Organization (WHO) estimates that NCDs now account for more than 71% of global mortality and 62.5% of the global burden of disease measured by disability-adjusted life years. Furthermore, more than one third of persons with NCD-related deaths — totalling 15 million people — die prematurely before the age of 70 years, and 85% of these deaths occur in developing countries.

In 2013, WHO developed the global NCD monitoring framework, which includes the nine global NCD voluntary targets to be achieved by 2025. To measure these indicators, WHO developed 25 indicators and specific guidance on how to measure these indicators. The WHO STEPwise approach to NCD risk factor surveillance (STEPS) is an essential part of the global monitoring framework, providing data on 12 key indicators.

The STEPS survey is a simple, standardized method for collecting, analysing and disseminating data on key NCD risk factors in countries. The survey instrument covers key behavioural risk factors, including: tobacco use; alcohol use; physical inactivity and unhealthy diets; as well as key biological risk factors, such as being overweight/obese, and having high blood pressure, high blood glucose levels and abnormal blood lipids. The survey can be conducted in a stepwise manner:

STEP 1: collect demographic and behavioural risk factor information

STEP 2: collect physical measurements such as height/weight/blood pressure

STEP 3: collect blood samples to test for glucose/cholesterol and urine samples to measure salt consumption.

In 2015, for the first time, Viet Nam conducted a national STEPS survey, in combination with the Global Adult Tobacco Survey (GATS).

STEPS 2021 is the second round of the survey conducted by the Ministry of Health of Viet Nam with the close participation and coordination of the General Statistics Office, Hanoi University of Public Health, Institute of Hygiene and Epidemiology/Public Health, Provincial Centers for Disease Control and technical support from WHO and Bloomberg Philanthropies Foundation. The survey provides critical data for Viet Nam to monitor progress in implementation of the nine global NCD voluntary targets, the National Strategy for Prevention and Control of NCDs 2015–2025 and the Healthy Viet Nam Programme 2018–2030.

Dr Angela Pratt
WHO Representative in Viet Nam

LIST OF CONTRIBUTORS

The *National Survey on the Risk Factors of Noncommunicable Diseases in Viet Nam, 2021* was conducted jointly by the Ministry of Health of Viet Nam (MOH) and the World Health Organization (WHO), with contribution from the following organizations and individuals:

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» Professor Hoang Van Minh, Hanoi University of Public Health

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Technical advice on the use of questionnaires, sampling and data cleaning, analysis and device support were provided by WHO staff: Mr Stefan Savin, Ms Lubna Bhatti, Dr Josaia Tiko and Mr Jean-Michel Pedroso.

Sampling and data collection were conducted by the following institutions:

» General Statistics Office of Viet Nam

» National Institute of Nutrition

» National Institute of Hygiene and Epidemiology

» Tay Nguyen Institute of Hygiene and Epidemiology

» Pasteur Institute of Nha Trang

» Pasteur Institute in Ho Chi Minh City

» Institute of Public Health in Ho Chi Minh City

» Centres for disease control and related medical facilities in provinces and cities

ABBREVIATIONS

BMI	body mass index
BP	blood pressure
CDC	centre for disease control
CHS	commune health station
CI	confidence interval
CVD	cardiovascular disease
DBP	diastolic blood pressure
EA	enumeration area
GATS	Global Adult Tobacco Survey
GSO	General Statistics Office
HDL	high-density lipoproteins
HED	heavy episodic drinking
MET	metabolic equivalents of task
MOH	Ministry of Health
NCD	noncommunicable disease
PPS	probability proportional to size
PSU	primary sampling unit
SBP	systolic blood pressure
SHS	second-hand smoke
STEPS	WHO STEPwise approach to noncommunicable diseases risk factor surveillance
WHO	World Health Organization

EXECUTIVE SUMMARY

The *National Survey on the Risk Factors of Noncommunicable Diseases in Viet Nam, 2021* was conducted in 2021 using the WHO STEPwise approach to noncommunicable diseases risk factor surveillance (STEPS) principles, methods and procedures. This population-based survey was the second round of the national STEPS survey in Viet Nam; the first survey was conducted in 2015. The study aimed to determine the nationally representative prevalence of major behavioural and biological risk factors for non-communicable diseases (NCDs) among the adult population aged 18–69 years in Viet Nam and selected indicators (such as tobacco use) for the age group 15 and above.

The survey used a standardized questionnaire to collect data on common behavioural risk factors such as tobacco use, alcohol consumption, unhealthy diet and insufficient physical activity. It also included a physical examination consisting of measurements to assess risk factors such as raised blood pressure; overweight and obesity; and biochemical indicators, including raised blood glucose and cholesterol (through blood tests) and high sodium intake (through urine tests).

Based on multi-stage cluster sampling, 5000 randomly selected households were approached, and 4738 participants agreed to take part in the survey and provided information. Data collection was undertaken from January 2021 to March 2021 and included data collected using handheld tablets with REDCap application. Data weighting and analysis were conducted using Epi-Infor and Stata 15.0.

The study revealed a high prevalence of NCD behavioural and metabolic risk factors in Viet Nam.

The main findings of the survey are as follows:

- One fifth (20.8%) of the population aged 15 and above were current smokers, including 41.1% of all men and 0.6% of all women. Every third respondent (37.3%) had been exposed to second-hand smoke (SHS) at home during the 30 days before the survey.

- Alcohol consumption was frequent and levels consumed were relatively high in Viet Nam. Nearly two thirds of men (64.2%), one tenth (9.8%) of women and more than one third (36.9%) of persons overall had consumed alcohol in the previous 30 days. Every seventh person (14.7%) consumed six or more drinks on at least one drinking occasion (heavy episodic drinking) in the past 30 days. Heavy episodic drinking was higher among men (28.5%) than women (1.0%). More than one fourth (27.3%) of current drinkers drove motorized vehicles within two hours of drinking, with a higher rate among men (28.1%) compared to women (22.7%).

- About 60% of the population did not consume a sufficient quantity of fruits and vegetables (five servings of fruit and/or vegetables daily).
- The prevalence of the population who always or often added salt or salty sauce to their food before or during eating was 78.2%. The average salt intake was 8.1 g per day.
- Nearly one fourth of the population (22.2%) did not meet the WHO recommendation on physical activity for health.
- One fourth of the population (26.2%) had raised blood pressure (BP), defined as levels of systolic blood pressure (SBP) ≥ 140 mmHg and/or diastolic blood pressure (DBP) ≥ 90 mmHg, or currently taking medication for raised BP.
- Almost one fifth of the population (19.5%) were overweight (body mass index [BMI] ≥ 25 kg/m^2), including 2.1% who were obese (BMI ≥ 30 kg/m^2).
- Prevalence of raised fasting blood glucose (≥ 7.0 mmol/L) or currently taking oral hypoglycaemic drugs or insulin was 7.1%.
- Of the study population, 44.1% had total blood cholesterol levels ≥ 5.0 mmol/L or were currently on medication for raised cholesterol.
- Overall, 15.8% of the population had from three to five risk factors for developing cardiovascular diseases (CVD), and 66.8% had from one to two risk factors, with the number of risk factors increasing with age.
- One in seven (15.3%) of the population aged 40–69 years had risk level ≥ 20% of developing a CVD event such as stroke or myocardial infarction in the next 10 years. However, only four in 10 (40.8%) of these high-risk individuals received medication and counselling for prevention.

Comparison with STEPS 2015 results yielded the following findings:

- The prevalence of current smoking in 2021 was slightly lower than that reported in the Global Adult Tobacco Survey (GATS) survey in 2015: 20.8% versus 22.5%, respectively (age group is 15 and above for tobacco indicator only). The adult male smoking rate fell from 45.3% in 2015 to 41.1% in 2021, while the respective rates for adult females decreased from 1.1% to 0.6%.

- The prevalence of alcohol use in the past 30 days decreased significantly from 43.8% in 2015 to 36.9% in 2021. A significant decrease was also shown for both males and females between the two surveys.

- Among current drinkers, prevalence of driving within two hours after drinking reduced significantly from 45.5% to 27.3% between 2015 and 2021.

- The proportion not consuming five servings of fruit and vegetables per day slightly increased from 57.2% in 2015 to 59.0% in 2021.

- There was a significant reduction in the percentage of the physically inactive population, from 28.1% to 22.2%. The improvement was shown for both males and females between the two surveys.

- The prevalence of overweight/obesity rose from 15.6% in 2015 to 19.5% in 2021.

- There was a significant increase in the prevalence of raised BP, from 18.9% in 2015 to 26.2% in 2021. A significant increase was also shown for both males and females between the two surveys.

- The percentage with raised blood glucose increased significantly from 4.1% to 7.1%. A significant increase was also shown for both males and females between the two surveys.

- The prevalence of respondents having blood total cholesterol > 5.0 mmol/L or currently on medication for raised cholesterol increased from 30.2% to 44.1%.

The STEPS survey collected a wealth of information on NCD risk factors, providing internationally comparable and nationally representative data in Viet Nam. These data should be used to set priorities and plan necessary policies, interventions and actions to protect people's health and ingrain healthy attitudes and behaviour over the coming years.

1. BACKGROUND

1.1 Introduction

Noncommunicable diseases (NCDs) are a global public health concern and one of the leading causes of death worldwide in both developing and developed countries. In addition, incidence and mortality from NCDs have been increasing in most countries around the world. NCDs were responsible for 73% of total deaths in 2018.[1] During the period 2010–2020, the mortality burden due to NCD increased by 15%, reaching a total of 44 million deaths each year. More significantly, deaths from NCDs in low-income countries will be eight times higher than those in developed countries by 2030.[2] NCD mortality varies by disease and region, but hypertension, cancer and diabetes remain the three leading causes of death from NCDs. Today, hypertension accounts for about 9.4 million deaths per year worldwide.[3]

Viet Nam has been in a stage of demographic and epidemiological transition, with increasing life expectancy and a growing prevalence of NCDs. In the World Health Organization (WHO) Western Pacific Region, seven out of every 10 deaths are currently due to NCDs, with Viet Nam being one of the most affected countries in the Region. The burden of the NCD epidemic in Viet Nam is accelerating in synchrony with economic development. Major NCDs kill many more Vietnamese citizens than any other causes.

It is estimated that in 2016, the country had 549 000 deaths, of which 77% were due to NCDs, mainly cardiovascular diseases (31%), cancers (19%), diabetes (4%) and chronic obstructive pulmonary disease (6%).[4]

With the high level of risk factors driven by a rising global economy and increasing population ageing, NCDs are expected to worsen in the future. For that reason, NCD prevention and control has been one of Viet Nam's health priorities and requires establishing an effective information system to monitor trends in NCDs and their risk factors to provide evidence for developing policies and related interventions.

In 2013, the World Health Assembly endorsed the *Global action plan for the prevention and control of NCDs, 2013–2020* and then extended the plan to 2030 together with nine global voluntary targets to be achieved by the year 2030. To help Member States monitor trends and assess progress made in national strategies and plans on NCDs, a comprehensive global monitoring framework, including 25 indicators, has been adopted. In the past few years, WHO has supported the

1. Viet Nam country profile. In: Noncommunicable diseases country profiles 2018. Geneva: World Health Organization; 2018: 218 (https://www.who.int/publications/i/item/9789241514620, accessed 30 October 2024).
2. Islam SMS, Purnat TD, Phuong NTA, Mwingira U, Schacht K, Fröschl G. Non-communicable diseases (NCDs) in developing countries: a symposium report. Global Health. 2014;10:81 (doi: 10.1186/s12992-014-0081-9).
3. Noncommunicable diseases. In: World Health Organization [website]. Geneva: World Health Organization; 16 September 2022 (https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases, accessed 30 October 2024).
4. Viet Nam country profile.

Government in strengthening capacity for NCD risk factors control and management at the primary care level.

In response, Viet Nam has issued a national strategy for the prevention and control of cancers, cardiovascular diseases, diabetes, chronic respiratory diseases and other NCDs for the period 2015–2025 (referred to as the National Strategy in this report) which tasks the Ministry of Health (MOH) to develop a national NCD surveillance system, with the STEPS survey as a core component.[5] The Government has also approved the Healthy Viet Nam Programme, which aims to reduce NCDs and other health risks among adults and youths.

The Viet Nam STEPS 2015 provided the needed baseline data for monitoring the implementation of the National Strategy as well as related action plans, and served as a capacity-building tool for the NCD surveillance network nationwide.[6]

The survey was coordinated by the MOH (with the General Department of Preventive Medicine as focal point) in collaboration with the General Statistics Office, with financial/technical support from WHO. Findings from STEPS 2015 showed that the prevalence of risk factors was high while the percentage of the affected population aware of their NCD condition, such as hypertension and diabetes, and diagnosed or being monitored and managed for their NCD at a health facility, was very low.[7] This second round of the STEPS survey was conducted in 2021 to update findings from the 2015 survey and assess the results of NCD prevention and control programmes in past years.

1.2 Objectives

The general objectives of the STEPS survey are to evaluate the current situation and trend of risk factors for NCDs among the population aged 18–69 and selected indicators for those aged 15 and above (such as tobacco use) in Viet Nam to provide information that helps assess the implementation of the national NCDs programme and the required evidence for formulation of policies and interventions. Specific objectives of the STEPS survey are to estimate in adults:

» Prevalence of behavioural risk factors and health history indicators, including smoking, alcohol consumption, unhealthy diet, physical inactivity and related parameters.

» Anthropometric measurements indicators, including weight, height and blood pressure; prevalence of overweight/obesity, raised blood pressure and related parameters.

» Biochemical measurement indicators, including blood glucose, blood cholesterol and urine salt; prevalence of raised blood glucose, raised cholesterol, average population salt consumption and related parameters.

» Prevalence of combined NCDs risk factor indicators and related parameters.

» Trend of key NCDs and risk factors over time.

5. National strategy for NCD prevention and control 2015–2025. Hanoi: Government of Viet Nam; 2015.

6. Ministry of Health, General Department of Preventive Medicine. National survey on the risk factors of non-communicable diseases (STEPS): Viet Nam 2015. Hanoi: Government of Viet Nam; 2016.

7. *Ibid*.

2. METHODOLOGY

2.1 Time, location and design of the study

The STEPS survey was conducted in all 63 provinces/cities of Viet Nam, with data collection from January to March 2021. This is a cross-sectional study applying WHO STEPS methods and tools with key components described in Fig. 1 below.

Note: all the data used in the tables and figures of this document come from this STEPS survey (unless otherwise specified) and when referred to, should be credited to WHO and the Ministry of Health of Viet Nam.

FIG. 1 • Description of the STEPS method in the study

STEP	Method of data collection	Tools used	Information collected
STEP 1			
	Interview	STEPS questionnaire, version 3.2	**Core and expanded:** » Sociodemographic » Smoking » Alcohol consumption » Vegetable, fruit consumption » Salt consumption » Physical activity » Health history » Others
STEP 2			
	Physical measurements	» Height measure » Tape measure » Digital scale » Blood pressure device	**Core and expanded:** » Height » Weight » Waist and hip circumference » Blood pressure
STEP 3			
	Biochemical tests	» Devices for testing blood glucose and cholesterol » Urine analyser (in a laboratory) » Cotinine test kit	**Core, expanded and optional:** » Blood glucose » Blood cholesterol » Creatinine and sodium concentration in urine » Cotinine in urine

2.2 Sampling

2.2.1 Sample size calculation

The survey aims to provide a reliable estimation of indicators for age group 18–69. At the same time, the sample size also needs to be sufficient for estimation of selected indicators covering the age group 15 and above (such as tobacco use) to enable a reliable comparison with the results of the last round of the STEPS/Global Adult Tobacco Survey (GATS) survey in 2015. Therefore, a sufficient sample size was calculated for the age group 18–69. The sample was then expanded for the estimation of age group 15 and above.

A. Calculation of sample for age group 18–69

A sample calculation was made using the sample calculator for STEPS provided by WHO. The samples were stratified by sex and three age groups (18–29, 30–49, 50–69 to form six age-sex groups.

The minimum sample size for each group was calculated using the following formula:

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

Where:

Z, level of confidence at 95%: 1.96

e, margin of error (absolute precision): 0.05

P, baseline levels of the key indicators (alcohol use): 0.44

Then design effect and response rate were added:

Design effect (DE): 1.5

Expected response rate (for all three STEPS): 0.8

Number of age/sex groups: 6

Therefore:

$$n = \frac{1.96 \times 1.96 \times \left[\frac{0.44(1-0.44)}{0.05 \times 0.05}\right] \times 1.5 \times 6}{0.8}$$

$$n = \frac{379 \times 1.5 \times 6}{0.8} = 4264$$

From the calculation, it was found that, for each of the six estimation groups, 569 respondents were needed, and a total of 4264 subjects would need to be sampled.

B. Calculation of sample for age group 15 and above

The above sample was expanded to ensure sufficient sample size for the estimation of the age group 15 and above.

From the population census, the total population aged 15 and above is about 16.5% bigger than the population aged 18–69.

Therefore, the sample size for age group 15 and above was expanded by the same factor. Thus, the total sample size needed was 4264 x 1.165 = 4969.5. To round up and simplify, 5000 respondents were selected.

For the 15 years and above sample, the age group was defined with four groups: 15–24; 25–44; 45–64; and 65 and above. This age group is in line with the GATS survey for comparison purposes.

2.2.2 Calculation of the number of enumeration areas (EA)

As in the 2015 survey, the STEPS 2021 sample was based on the National Sampling Master Frame developed by the General Statistics Office (GSO). The primary sampling unit (PSU) was enumeration areas (EAs).

From the 2019 census, the average number of households in each EA in urban areas was 133 and in the rural areas 120. Therefore, 13 households in each EA in urban areas and 12 households in each EA in rural areas were selected to ensure that the number of households selected was roughly 10% of the total number of households in the EA.

For the number of individuals interviewed in the urban areas to be the same as those interviewed in rural areas (2500 each), the number of EAs selected in the urban areas was 2500/13 = 192 EAs, and the number of EAs selected in the rural areas was 2500/12 = 208 EAs.

2.2.3 Selection of sample

A. Selection of EAs

The first stage of sampling was to select PSUs (EAs). The master sample frame of GSO was divided by two stratifications: urban and rural (1 = urban; 2 = rural). Each group was further divided into three subgroups: (1) urban districts, towns and cities, (2) coastal and lowland districts and (3) mountainous and island districts, for a total of six strata. In each stratum, sampling of PSUs applies the probability proportional to size (PPS) sampling method to select the needed number of EA in that stratum. The size measure of EA is the number of households of the EA.

B. Selection of households

At the second stage of sampling, 10% of households in each EA were selected. Thus, 13 households from the selected urban EAs and 12 households from the selected rural EAs were chosen using simple systematic random sampling.

C. Selection of individuals

One eligible person was then randomly selected from each selected household for the STEP 1 interview. The selection of individual was done automatically by the Android tablet programme after eligible household members were entered into the Android tablet.

In summary, a total of 5000 people were selected from 400 EAs distributed in 63 provinces/cities. Depending on the size of the population, each province/city surveyed from two to 25 EAs, the equivalent of 25 to 325 people.

2.2.4 Response rate

Of 5000 people selected, 4738 people agreed to participate in STEP 1 (a response rate of 94.7%). For STEPS 2 and 3, of the 4435 eligible subjects (aged 18–69), only 3748 respondents participated, producing a response rate of 84.5%.

2.2.5 Weighting

Weights were calculated for STEPS 1, 2 and 3 separately. A base weight was first calculated based on the inverse of the probability of selection, then a non-response adjustment was made at household and individual levels. Finally, the population adjustment using 2020 estimated population number and structure was made for 12 subgroups obtained from males/females, urban/rural, and three age groups for STEPS: 18–29, 30–49 and 50–69.

For age group 15 and above, a separate weight was calculated for smoking and alcohol prevalence.

2.3 Methods for data collection and survey tools

2.3.1 Pilot electronic form, showcard and protocol to collect data

The pilot was carried out in Hanoi with different settings that included both urban and rural areas to ensure that most types of survey subjects were included. For this, the urban area of Cau Giay district and the rural area of Soc Son district were selected. During the field trip, the following were piloted:

» the content of the updated questionnaire;
» the implementation of Android tablets and the REDcap application to collect electronic data in the field;
» the use of the showcard; and
» the feasibility of the protocol to collect data in all three rounds of the STEPS survey, from interviews to physical and biochemical measurements.

2.3.2 Method for data collection

STEP 1 — This step was conducted at households by part-time data collectors from the GSO who interviewed subjects to obtain data on risk behaviours and socioeconomic and demographic status.

STEPS 2 and 3 — These were conducted by regional public health institutes, the provincial centres for disease control (CDC) and commune health stations (CHS).
STEP 2 involved the measurement of blood pressure (BP), height and weight, waist and

hip circumference to assess overweight and obesity, and related information.

STEP 3 involved collecting and testing blood samples to obtain data on raised blood glucose, total cholesterol and high-density lipoprotein (HDL) level. STEP 3 also included collecting urine samples to measure and estimate sodium and creatinine concentration, and for cotinine testing.

2.3.3 Data collection process

In each EA, data collection was carried out over two days.

The first day: *Interview at household*

Interviewers from the GSO:

» visited households in the provided list;
» followed instructions to select one person in the household;
» interviewed subjects using an Android tablet; and
» submitted interviewee list to personnel assigned by CHS for the STEPS 2–3 data collection team to contact the interviewee.

Assigned personnel by CHS:

» received interviewee list from STEP 1 team after the completion of STEP 1;
» visited participants on the list to provide guidance on collecting urine samples, provided one urine collecting tube, instructed each subject to collect the urine sample in the evening (after dinner and before going to bed) and how to preserve the sample; and
» instructed subjects on overnight fasting and visiting the CHS the next morning for physical measurements and blood tests.

The second day: *Physical measurements and blood tests at the CHS*

STEPS 2–3 data collection was coordinated by regional public health institutes, in collaboration with provincial CDCs, related local health facilities and CHS.

» The next morning, survey participants brought urine tubes to the CHS, participated in physical measurements and received blood tests. The data collection was conducted in the early morning after subjects had been fasting.
» Village health workers visited households to remind the subjects to go to the CHS in the early morning.
» At the CHS, there were three staff to collect data (one from a regional public health institute and two from the provincial CDC):
  – a technician conducted blood tests using handheld devices and collected urine tubes for storage;
  – a staff member took BP measurements following standard procedures; and
  – another measured height, weight, waist and hip circumference.
» Two staff from the CHS registered participants and provided consultation to those with abnormal results.

2.3.4 Tool for data collection

Questionnaire – The research team employed the Vietnamese version of STEPS 2015 questionnaires and the current version of the English questionnaire available on the WHO website to develop an appropriate questionnaire for STEPS 2021, using three components: core questions, core expanded questions and country-specific questions.

The core questions and core expanded questions are standardized STEPS questions, whereas country-specific questions were added to provide information for the specific goals of each country. All related stakeholders provided comments on the study and came to a consensus agreement on the revised version of the 2021 questionnaire.

Showcards — To support interviewers measuring and converting some behavioural indicators into standard units, a set of images was developed, including showcards, depicting tobacco, alcohol, vegetables, fruit and physical activity.

The team programmed the STEPS revised questionnaire and showcards into the REDCap mobile application to enable the collection of data in an offline environment using Android tablets.

2.3.5 Tools for physical measurement

» Digital automatic BP monitor recommended by WHO (BOSO brand device)

» Standard electronic scales recommended by WHO (Seca brand scales)

» Standard stadiometer and constant tension tape measure for measuring height and waist circumference.

2.3.6 Tools for biochemical measurement

» Devices for testing blood glucose and cholesterol (Cardio Check Plus)

» Cotinine test kit

» Urine analyser (in a laboratory)

2.4 Managing and analysing data

2.4.1 Data entry

All data were entered into Android tablets in the field and uploaded to the database of the research team. Urine samples were sent to a laboratory (National Institute of Nutrition) for analysis and manual data entry into Excel files.

2.4.2 Data analysis

The software EPI-Infor 3.54 was used to process and analyse data. Data analysis and report preparation were conducted by the Hanoi University of Public Health, in consultation with the MOH's General Department of Preventive Medicine and WHO. For simplicity, comparisons between two means or proportion were made using 95% confidence interval (CI).

2.5 Ethical considerations

» Ethical approval for the study was obtained from the Research Ethics Committee of Hanoi University of Public Health.

» All participants were informed about the general objectives of the survey and were provided with verbal and/or written informed consent forms. Participants were informed that they could refuse to answer any question or withdraw from the study without consequences.

» Strict confidentiality of information provided by the participants was guaranteed and data used only for research purposes.

» Types of testing, testing procedures (if any) are on the list of regulations and in accordance with the technical procedures issued by the MOH.

» Some measurements, such as BP, weight, height and blood tests results, were provided to participants.

2.6 Definitions used in the survey

Metabolic equivalents of task (MET) unit: for physical activity, MET expresses the intensity of activities. MET is the ratio of a person's working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1 kcal/kg/hour. Applying MET values to each activity calculates the total physical activity. For the analysis of the global physical activity questionnaire data, existing guidelines have been adopted. It is estimated that, when compared to sitting quietly, a person's caloric consumption is four times higher when they are moderately active, and eight times higher when they are vigorously active. This total activity is expressed as MET-hours or MET-minutes.

A person's level of physical activity is classified as low, moderate or high based on the following criteria:

» ***High:*** ≥ 3000 MET-minutes per week

» ***Moderate:*** 600–2999 MET-minutes per week

» ***Low:*** < 600 MET-minutes per week

A standard drink generally contains 10 g of ethanol. This is the equivalent of 285 mL of regular beer (5%), 30 mL of spirits (40%), 120 mL of wine (11%), or 60 mL of an aperitif (20%).

One serving is equal to 80 g of fruit or vegetables. For fruits, this is the equivalent of one medium-sized piece of fruit, such as banana, apple or kiwi; or a half-cup of cooked or canned fruit; or a half-cup of juice from fruit (not artificially flavoured). For vegetables, this is the equivalent of one cup of raw, leafy green vegetables, such as spinach or salad; a half-cup of other cooked vegetables, such as tomatoes, pumpkin or beans; or a half-cup of vegetable juice. The consumption of at least 400 g (five servings) of fruit and vegetables per day is recommended.

The classification of overweight and obesity was based on body mass index (BMI) cut-off points recommended by WHO. The categories are as follows:

» ***Underweight:*** BMI < 18.5 kg/m^2

» ***Normal weight:***
18.5 kg/m^2 ≤ BMI < 25.0 kg/m^2

» ***Overweight:*** 25.0 kg/m^2 ≤ BMI < 30.0 kg/m^2

» ***Obese:*** BMI ≥ 30.0 kg/m^2

Raised BP was defined as: systolic blood pressure ≥ 140 mmHg and/or diastolic ≥ 90 mmHg or currently on medication for raised BP.

Impaired fasting glycaemia is defined as 6.1 mmol/L ≤ plasma venous glucose < 7.0 mmol/L. Raised blood glucose is defined as plasma venous glucose ≥ 7 mmol/L or currently using medication for raised blood glucose. The measurement of finger capillary blood glucose was done using Cardio Check Plus devices which were calibrated to give results that are comparable with plasma venous glucose levels.

Raised total cholesterol was defined as total cholesterol ≥ 5.0 mmol/L.

3. RESULTS

3.1 Background characteristics

Table 1 presents the characteristics of the study sample age group 15 and above (which is for tobacco indicators in order to compare with older tobacco surveys).

TABLE 1 • Respondents aged 15 and above, by age group and sex (*n*, %)

Age group	MEN		WOMEN		BOTH SEXES	
	n	%	*n*	%	*n*	%
15–24	204	8.6	161	6.8	365	7.7
25–44	846	35.9	892	37.5	1738	36.7
45–64	1088	46.1	1013	42.6	2101	44.3
65 +	221	49.8	313	13.2	534	11.3
15 +	2359	49.8	2937	50.2	4738	100.0

Sources: WHO and MOH Viet Nam.

Tables 2, 3 and **4** present the characteristics of the study sample age group 18–69. The percentage of the population who completed high school, technical school, and university or post-graduate level were 19.2%, 7.6%, and 9.6%, respectively.

Overall, a higher percentage of men were employed and achieved a higher education level compared to women.

The prevalence of unpaid employment among men was 15.1% while it was 27.6% among women.

Viet Nam is interested in some indicators for the age group below 40 versus 40 and above. This is presented in **Table 2.** More information about the sociodemographic characteristics of the study population can be found in Annex 1.

TABLE 2 • Respondents aged 18–69, by age group and sex (*n*, %)

Age group	MEN		WOMEN		BOTH SEXES	
	n	%	*n*	%	*n*	%
18–29	275	12.4	268	12.1	543	12.2
30–49	980	44.2	953	42.9	1933	43.6
50–69	961	43.4	998	45.0	1959	44.2
18–69	2216	50.0	2219	50.0	4435	100.0
18–39	728	32.9	764	34.4	1492	33.6
40–69	1488	67.1	1455	65.6	2943	66.4

Sources: WHO and MOH Viet Nam.

TABLE 3 • Highest level of education of respondents, by age group and sex (*n*, %)

Age group	*n*	Less than primary school (%)	Primary school completed (%)	Secondary school completed (%)	High school completed (%)	Technical school/college completed (%)	University/ post-graduate completed (%)
MEN							
18–29	275	5.5	13.5	24.4	32.7	9.5	14.5
30–49	980	11.2	23.5	25.3	19.1	8.2	12.8
50–69	961	13.0	28.7	26.6	18.4	6.2	7.0
18–69	**2216**	**11.3**	**24.5**	**25.8**	**20.5**	**7.5**	**10.5**
WOMEN							
18–29	268	4.9	11.6	27.2	31.3	12.3	12.7
30–49	953	14.1	23.2	24.1	17.1	7.9	13.6
50–69	998	22.3	29.3	24.0	15.0	6.2	3.1
18–69	**219**	**16.7**	**24.5**	**24.5**	**17.9**	**7.7**	**8.8**
BOTH SEXES							
18–29	543	5.2	12.5	25.8	32.0	10.9	13.6
30–49	1933	12.6	23.3	24.7	18.1	8.0	13.2
50–69	1959	17.8	29.0	25.3	16.7	6.2	5.0
18–69	**4435**	**14.0**	**24.5**	**25.1**	**19.2**	**7.6**	**9.6**

Sources: WHO and MOH Viet Nam.

TABLE 4 • Employment status of respondents, by age group and sex (*n*, %)

Age group	*n*	Government employee (%)	Nongovernment employee (%)	Self-employed (%)	Unpaid (%)
MEN					
18–29	275	4.4	9.8	69.5	16.4
30–49	980	11.8	7.8	78.4	2.0
50–69	961	4.3	1.9	65.8	28.1
18–69	**2216**	**7.6**	**5.5**	**71.8**	**15.1**
WOMEN					
18–29	268	7.5	11.9	52.2	28.4
30–49	952	13.9	8.7	65.7	11.8
50–69	997	1.7	0.6	55.2	42.5
18–69	**2217**	**7.6**	**5.5**	**59.3**	**27.6**
BOTH SEXES					
18–29	543	5.9	10.9	61.0	22.3
30–49	1932	12.8	8.2	72.1	6.8
50–69	1958	3.0	1.2	60.4	35.4
18–69	**4433**	**7.6**	**5.5**	**65.6**	**21.4**

Sources: WHO and MOH Viet Nam.

3.2 Objective 1

Behavioural risk factors and health history

Tobacco use

The participants' tobacco smoking status was categorized as either "current tobacco smoker" or "non-smoker". Current tobacco smokers included "daily smokers" and "occasional smokers". The non-smoker group had "former daily smokers" and "never daily smokers".

Table 5 presents the percentage of adults 15 years or older by detailed smoking status and sex. The overall prevalence of current smokers was 20.8%.

That prevalence was higher among men than women (41.1% and 0.6%, respectively).

Table 6 shows the pattern of exposure to second-hand smoke (SHS) at home among respondents in the previous 30 days: 37.3% of adults aged 15 or older said they were exposed to SHS at home.

Overall, males and females had equal prevalence of exposure to SHS at home (37.4% and 37.1%, respectively).

TABLE 5 • Respondents who currently smoke tobacco, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Current smoker (%)	95% CI	*n*	Current smoker (%)	95% CI	*n*	Current smoker (%)	95% CI
15–24	204	18.4	12.4–26.4	161	0.0	–	365	9.1	6.2–13.3
25–44	846	43.9	39.8–48.1	892	0.1	0.03–0.5	1738	21.9	19.7–24.4
45–64	1088	55.0	50.9–59.0	1013	1.3	0.8–2.3	2101	28.1	25.6–30.7
65 +	221	30.4	23.4–38.4	313	1.6	0.6–4.1	534	15.9	12.1–20.7
15 +	**2359**	**41.1**	**38.3–44.0**	**2379**	**0.6**	**0.4–1.0**	**4738**	**20.8**	**19.2–22.4**

Sources: WHO and MOH Viet Nam.

TABLE 6 • Respondents exposed to SHS at home in the past 30 days, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Exposed to SHS (%)	95% CI	*n*	Exposed to SHS (%)	95% CI	*n*	Exposed to SHS (%)	95% CI
15–24	204	49.1	41.2–57.0	161	46.8	36.9–56.9	365	47.9	41.5–54.4
25–44	846	35.5	31.7–39.6	892	35.1	30.7–39.8	1738	35.3	32.1–38.6
45–64	1088	37.8	33.7–42.0	1013	39.6	35.5–43.9	2101	38.7	35.7–41.7
65 +	221	23.8	17.6–31.4	313	21.6	16.3–28.2	534	22.7	18.5–27.6
15 +	**2359**	**37.4**	**34.6–40.4**	**2379**	**37.1**	**34.1–40.3**	**4738**	**37.3**	**35.0–39.6**

Sources: WHO and MOH Viet Nam.

Alcohol consumption

Participants were asked about their alcohol consumption status. If they had never consumed alcohol, they were defined as lifetime abstainers. Participants who reported alcohol consumption in the past 30 days were classified as current drinkers.

Table 7 presents alcohol consumption status. As shown in this table, 36.9% of participants are current drinkers. The prevalence of lifetime abstainers is 41.1%, with most of these being women.

Table 8 presents the average number of occasions with at least one drink among current drinkers in the past 30 days. For both sexes, the age group 50–69 was the group with the highest number of occasions drinking at least one standard drink (i.e. 9.76 occasions). For male participants, the average number of occasions during the last 30 days was 7.5 times, while this figure was 1.96 times for female participants.

Table 9 presents the average number of standard drinks consumed on drinking occasions among current drinkers. On average, current female drinkers drank about 2.33 standard drinks per occasion and males drank about 4.58 standard drinks per occasion. The group aged 18–29 or 30–49 years old had the highest number of standard drinks per occasion compared with those 50–69 years old.

TABLE 7 • Alcohol consumption status of all respondents, by age group and sex (*n*, %)

Age group	*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									
18–29	274	53.4	44.5–62.2	21.6	14.7–28.6	2.2	0.5–4.0	22.8	15.9–29.6
30–49	972	70.8	66.3–75.3	15.9	11.5–20.2	2.9	1.7–4.0	10.5	8.0–12.9
50–69	955	64.3	60.2–68.3	14.8	11.7–17.9	8.1	5.9–10.2	12.8	9.8–15.8
18–69	**2201**	**64.2**	**60.5–67.9**	**17.2**	**13.9–20.5**	**4.1**	**3.2–5.1**	**14.5**	**11.9–17.2**
WOMEN									
18–29	266	11.7	6.1–17.3	18.9	13.8–24.9	8.9	4.9–12.8	60.6	52.8–68.3
30–49	939	10.7	8.0–13.3	13.3	10.7–15.9	9.6	7.3–12.0	66.4	61.9–70.8
50–69	990	6.4	4.7–8.1	7.2	4.7–9.7	9.5	6.4–12.6	76.9	72.9–80.9
18–69	**2195**	**9.8**	**7.8–11.8**	**13.2**	**11.0–15.4**	**9.4**	**7.6–11.2**	**67.6**	**64.1–71.1**
BOTH SEXES									
18–29	540	32.5	27.5–37.4	20.3	15.6–24.9	5.6	3.3–7.8	41.7	36.6–46.9
30–49	1911	40.7	37.6–43.8	14.6	12.2–17.0	6.3	4.9–7.6	38.4	35.5–41.3
50–69	1945	35.3	32.6–37.9	11.0	9.1–12.9	8.8	6.9–10.6	44.9	42.2–47.6
18–69	**4396**	**36.9**	**34.7–39.2**	**15.2**	**13.3–17.1**	**6.8**	**5.7–7.8**	**41.1**	**38.8–43.4**

Sources: WHO and MOH Viet Nam.

TABLE 8 • Mean number of occasions with at least one drink in the past 30 days among current drinkers, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean number	95% CI	*n*	Mean number	95% CI	*n*	Mean number	95% CI
18–29	162	4.96	3.97–5.95	34	1.60	1.13–2.07	196	4.35	3.49–5.22
30–49	675	7.07	6.26–7.87	118	1.92	1.55–2.29	793	6.38	5.66–7.11
50–69	617	10.44	9.35–11.53	73	2.73	1.99–3.48	690	9.76	8.74–10.78
18–69	**1454**	**7.50**	**6.89–8.11**	**225**	**1.96**	**1.68–2.24**	**1679**	**6.76**	**6.20–7.33**

Sources: WHO and MOH Viet Nam.

TABLE 9 • Average number of standard drinks consumed on a drinking occasion in the past 30 days among current drinkers, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Average number	95% CI	*n*	Average number	95% CI	*n*	Average number	95% CI
18–29	162	5.11	4.29–5.94	34	1.85	1.31–2.38	196	4.51	3.78–5.25
30–49	687	4.73	4.38–5.08	119	2.84	2.21–3.48	806	4.48	4.15–4.81
50–69	621	3.87	3.60–4.15	74	1.85	1.40–2.29	695	3.69	3.42–3.95
18–69	**1470**	**4.58**	**4.31–4.85**	**227**	**2.33**	**1.96–2.72**	**1697**	**4.28**	**4.02–4.54**

Sources: WHO and MOH Viet Nam.

Table 10 shows the percentage of respondents, among all respondents, who had six or more drinks. The percentage of drinking six or more on any occasion during the last 30 days per single occasion was 28.5% among male respondents and only 1.0% among female respondents. About 14.7% among all respondents had six or more standard drinks per single occasion.

TABLE 10 • Respondents who had six or more drinks on any occasion in the past 30 days, during a single occasion, among the total population, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	≥ 6 drinks (%)	95% CI	*n*	≥ 6 drinks (%)	95% CI	*n*	≥ 6 drinks (%)	95% CI
18–29	272	24.9	18.2–31.5	266	0.9	0.0–1.8	538	12.8	9.4–16.2
30–49	961	33.8	29.5–38.2	939	1.4	0.6–2.3	1900	17.6	15.3–19.8
50–69	951	23.4	19.8–26.9	990	0.5	0.0–1.1	1941	11.9	10.0–13.8
18–69	**2184**	**28.5**	**25.4–31.5**	**2195**	**1.0**	**0.5–1.5**	**4379**	**14.7**	**13.1–16.3**

Sources: WHO and MOH Viet Nam.

Table 11 presents the percentage of drinkers who, in the past 30 days, drove within two hours after drinking.

The table shows that about one quarter of drinkers drove within two hours after drinking, with a higher rate among men (28.1%) compared to women (22.7%).

TABLE 11 • Drinkers, among current drinkers, who drove within two hours of drinking during the past 30 days, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Drink–driving (past 30 days) (%)	95% CI	*n*	Drink–driving (past 30 days) (%)	95% CI	*n*	Drink–driving (past 30 days) (%)	95% CI
18–29	165	32.9	24.1–41.7	34	26.1	6.9–45.2	199	31.7	23.7–39.7
30–49	698	27.5	23.5–31.6	122	18.6	9.1–28.1	820	26.4	22.6–30.1
50–69	629	24.9	20.8–29.0	74	27.7	13.6–41.8	703	25.1	21.2–29.1
18–69	**1492**	**28.1**	**25.1–31.1**	**230**	**22.7**	**14.6–30.8**	**1722**	**27.3**	**24.5–30.2**

Sources: WHO and MOH Viet Nam.

Fruit and vegetable consumption (in a typical week) and other diet

The consumption of fruit/vegetables was checked by asking about the frequency and quantity of fruit and vegetables consumed in a typical week.

Table 12 presents the average number of days the respondents reported consuming fruit/vegetables. On average, the study population reported eating fruit 4.51 days per week and vegetables almost every day (6.55 days per week).

Table 13 presents the average servings of fruit/vegetables per day consumed by the population aged 18–69 years in Viet Nam. The mean of fruit consumption per day was 1.98 servings among women and 1.70 among men. The average number of servings of both fruits and vegetables per day was 4.54 among men and 4.87 among women.

TABLE 12 • Mean number of days fruit and vegetables were consumed in a typical week, by age group and sex (*n*)

Age group	Men			Women			Both sexes		
	n	Mean no. of days	95% CI	*n*	Mean no. of days	95% CI	*n*	Mean no. of days	95% CI
FRUIT									
18–29	270	4.43	3.96–4.91	266	4.56	4.24–4.89	536	4.50	4.21–4.79
30–49	960	4.31	4.12–4.50	942	4.74	4.52–4.96	1902	4.53	4.37–4.69
50–69	945	4.30	4.09–4.51	988	4.68	4.46–4.89	1933	4.49	4.32–4.66
18–69	**2175**	**4.34**	**4.17–4.51**	**2196**	**4.68**	**4.52–4.83**	**4371**	**4.51**	**4.38–4.64**
VEGETABLES									
18–29	274	6.48	6.29–6.66	267	6.50	6.30–6.70	541	6.49	6.34–6.64
30–49	978	6.49	6.38–6.59	950	6.67	6.58–6.77	1928	6.58	6.50–6.66
50–69	957	6.54	6.44–6.64	995	6.49	6.49–6.71	1952	6.57	6.49–6.65
18–69	**2209**	**6.50**	**6.42–6.58**	**2212**	**6.60**	**6.52–6.69**	**4421**	**6.55**	**6.49–6.62**

Sources: WHO and MOH Viet Nam.

TABLE 13 • Average number of fruit, vegetable and combined fruit and/or vegetable servings per day, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Average number	95% CI	*n*	Average number	95% CI	*n*	Average number	95% CI
FRUIT									
18–29	269	1.93	1.62–2.23	266	1.99	1.71–2.27	535	1.96	1.75–2.17
30–49	957	1.63	1.49–1.78	936	2.02	1.85–2.19	1893	1.83	1.70–1.96
50–69	943	1.59	1.46–1.72	983	1.90	1.74–2.06	1926	1.75	1.63–1.87
18–69	**2169**	**1.70**	**1.58–1.83**	**2185**	**1.98**	**1.85–2.11**	**4354**	**1.84**	**1.74–1.94**
VEGETABLES									
18–29	274	2.90	2.54–3.26	267	3.01	2.72–3.29	541	2.95	2.72–3.19
30–49	975	2.86	2.67–3.04	947	2.95	2.79–3.11	1922	2.90	2.76–3.04
50–69	956	2.89	2.70–3.08	995	2.80	2.63–2.96	1951	2.84	2.7–2.99
18–69	**2205**	**2.88**	**2.70–3.05**	**2209**	**2.93**	**2.79–3.07**	**4414**	**2.90**	**2.77–3.03**
FRUITS and/or VEGETABLES									
18–29	274	4.78	4.24–5.31	268	4.97	4.50–5.44	542	4.87	4.51–5.23
30–49	977	4.46	4.21–4.70	951	4.93	4.66–5.20	1928	4.69	4.48–4.91
50–69	958	4.44	4.18–4.71	995	4.68	4.42–4.94	1953	4.56	4.35–4.78
18–69	**2209**	**4.54**	**4.31–4.78**	**2214**	**4.87**	**4.65–5.10**	**4423**	**4.71**	**4.52–4.90**

Sources: WHO and MOH Viet Nam.

WHO currently recommends consumption of at least five servings of fruit/vegetable per day to reduce the risk of NCDs; however, the study showed that 59% of the study population did not meet this recommendation (**Table 14**). This figure was 61.5% among males and 56.6% among female respondents.

Tables 15, 16 and **17** provide a situational analysis regarding salt consumption among the population aged 18–69 years in Viet Nam.

The proportion of people reporting that they always, or often, add salt or salty sauce to their food before/while eating was 78.2%. Processed food high in salt is not a healthy choice for daily food; however, the proportion of male respondents who reported always/often consuming this type of food was 10.4% (higher than that of female respondents, which was only 7.1%).

TABLE 14 • Respondents eating less than five servings of fruit and/or vegetables on average per day, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	≤ 5 servings per day (%)	95% CI	*n*	≤ 5 servings per day (%)	95% CI	*n*	≤ 5 servings per day (%)	95% CI
18–29	274	57.7	50.0–65.5	268	55.7	47.5–63.8	542	56.7	50.8–62.6
30–49	977	63.4	59.4–67.4	951	57.2	52.3–62.0	1928	60.3	56.7–63.9
50–69	958	62.3	57.9–66.6	995	56.4	51.7–61.1	1953	59.3	55.8–62.8
18–69	**2209**	**61.5**	**58.1–64.9**	**2214**	**56.6**	**52.5–60.6**	**4423**	**59.0**	**55.9–62.1**

Sources: WHO and MOH Viet Nam.

TABLE 15 • Respondents who always, or often, add salt or salty sauce to their food before eating or as they are eating, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Add salt (%)	95% CI	*n*	Add salt (%)	95% CI	*n*	Add salt (%)	95% CI
18–29	275	79.3	69.6–88.9	268	74.2	67.0–81.3	543	76.7	70.6–82.8
30–49	980	81.4	78.0–84.8	953	78.4	74.6–82.1	1933	79.9	77.3–82.4
50–69	961	78.2	75.2–81.3	998	75.9	72.2–79.7	1959	77.1	74.6–79.6
18–69	**2216**	**80.0**	**76.6–83.3**	**2219**	**76.5**	**73.8–79.3**	**4435**	**78.2**	**75.7–80.8**

Sources: WHO and MOH Viet Nam.

TABLE 16 • Respondents who always, or often, eat processed foods high in salt, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
18–29	275	13.8	8.1–19.4	268	9.0	2.3–4.3	543	11.3	7.8–14.9
30–49	980	10.7	8.3–13.1	952	7.4	5.0–9.8	1932	9.0	7.3–10.7
50–69	960	6.5	4.8–8.1	998	4.6	2.7–6.5	1958	5.5	4.3–6.8
18–69	**2215**	**10.4**	**8.4–12.4**	**2218**	**7.1**	**5.3–8.8**	**4433**	**8.7**	**7.3–10.1**

Sources: WHO and MOH Viet Nam.

TABLE 17 • Self-reported quantity of salt consumed, by age group and sex (*n*, %)

Age group	*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											
18–29	274	0.0	–	20.0	14.2–25.9	67.7	60.4–75.0	12.3	6.7–17.8	0.0	–
30–49	977	0.7	0.01–1.5	19.4	16.2–22.5	65.9	62.0–69.7	14.0	11.1–17.0	0.0	–
50–69	960	0.6	0.05–1.2	21.7	18.6–24.8	60.5	56.4–64.6	16.7	13.9–19.4	0.5	0.0–1.1
18–69	**2211**	**0.5**	**0.1–0.9**	**20.2**	**17.7–22.6**	**64.9**	**62.0–67.8**	**14.3**	**12.2–16.3**	**0.1**	**0.0–0.3**
WOMEN											
18–29	267	0.0	–	19.1	13.2–24.9	64.7	57.2–72.3	16.2	10.6–21.8	0.0	–
30–49	949	0.2	0.0–0.4	14.5	11.5–17.5	70.8	67.0–74.7	14.5	11.3–17.6	0.03	0.0–0.08
50–69	998	0.06	0.0–0.2	14.6	11.8–17.5	64.0	60.1–67.9	20.5	17.4–23.6	0.8	0.2–1.5
18–69	**2214**	**0.1**	**0.0–0.2**	**15.8**	**13.5–18.1**	**67.3**	**64.3–70.3**	**16.6**	**14.3–18.9**	**0.2**	**0.1–0.4**
BOTH SEXES											
18–29	541	0.0	–	19.6	15.3–23.8	66.2	60.5–72.0	14.2	9.9–18.6	0.0	–
30–49	1926	0.5	0.1–0.8	16.9	14.6–19.3	68.3	65.6–71.1	14.2	12.2–16.3	0.01	0.0–0.04
50–69	1958	0.3	0.04–0.6	18.1	15.9–20.4	62.3	59.2–65.3	18.6	16.4–20.7	0.7	0.2–1.1
18–69	**4425**	**0.3**	**0.1–0.5**	**18.0**	**16.2–19.8**	**66.1**	**63.9–68.3**	**15.4**	**13.8–17.1**	**0.2**	**0.1–0.3**

Sources: WHO and MOH Viet Nam.

Physical activity

To measure the level of physical activity, two inputs were used: the total time spent in physical activity during a typical week and the intensity of the physical activity. According to WHO current recommendations, throughout a week — including activity for work, during transport, and leisure time — adults should do at least 150 minutes of moderate-intensity physical activity or 75 minutes of vigorous-intensity physical activity, or an equivalent combination of moderate- and vigorous-intensity physical activity achieving at least 600 MET-minutes.

Table 18 presents the percentage of the study population not meeting WHO recommendations on physical activity. This figure was 22.2% overall for both sexes and lower among males (16.1%) compared to females (28.3%).

Table 19 presents the classification of physical activity following the former recommendations; that is, three levels: low, moderate and high. Overall, male respondents of all age groups seem to be more active than female respondents of the same age group. The percentage of the population achieving a high level of physical activity was 55.7%.

Table 20 presents the mean minutes of total physical activity per day (including activity for work, during transport, and leisure time) together with 95% CI. On average, a Vietnamese person aged 18–69 would spend 248.2 minutes on physical activities per day (95% CI: 235.4–260.9).

The older age group, 50–69, spent the lowest average minute per day in physical activity.

TABLE 18 • Respondents* not meeting WHO recommendations on physical activity for health, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Not meeting recs** (%)	95% CI	*n*	Not meeting recs** (%)	95% CI	*n*	Not meeting recs** (%)	95% CI
18–29	271	14.5	9.6–19.5	261	38.1	30.7–45.5	532	26.2	21.3–31.2
30–49	943	14.2	11–17.4	929	25.1	21.2–29	1872	19.7	17.1–22.2
50–69	928	21.0	17.4–24.5	968	23.9	19.5–28.2	1896	22.4	19.5–25.4
18–69	**2142**	**16.1**	**13.7–18.5**	**2158**	**28.3**	**25.2–31.5**	**4300**	**22.2**	**20.1–24.4**

* Respondents doing < 150 minutes of moderate-intensity physical activity per week, or equivalent.

** WHO recommendations.

Sources: WHO and MOH Viet Nam.

TABLE 19 • Respondents classified into three levels (low, moderate, high) of total physical activity according to former WHO recommendations, by age group and sex (*n*, %)

Age group	*n*	Low (%)	95% CI	Moderate (%)	95% CI	High (%)	95% CI
MEN							
18–29	271	21.0	14.8–27.2	13.6	8.1–19.0	65.4	56.3–74.6
30–49	943	18.9	15.2–22.5	15.8	12.7–18.8	65.4	61.2–69.5
50–69	928	24.6	20.9–28.3	19.9	16.6–23.1	55.6	51.3–59.8
18–69	**2142**	**21.0**	**18.4–23.7**	**16.2**	**14.1–18.4**	**62.7**	**59.5–66.0**
WOMEN							
18–29	261	41.2	33.6–48.7	18.9	13.1–24.7	40	32.1–47.8
30–49	929	28.4	24.4–32.3	17.9	14.8–21.0	53.7	49.3–58.1
50–69	968	25.7	21.3–30.1	25.1	21.6–28.7	49.1	44.3–54.0
18–69	**2158**	**31.2**	**28–34.3**	**20.1**	**17.6–22.6**	**48.7**	**45.3–52.1**
BOTH SEXES							
18–29	532	31.0	25.8–36.2	16.2	12.1–20.3	52.8	46.4–59.2
30–49	1872	23.7	20.9–26.4	16.8	14.6–19.1	59.5	56.3–62.7
50–69	1896	25.2	22.0–28.3	22.5	20.0–25.0	52.3	48.8–55.8
18–69	**4300**	**26.1**	**23.9–28.3**	**18.2**	**16.5–19.9**	**55.7**	**53.2–58.2**

Sources: WHO and MOH Viet Nam.

TABLE 20 • Mean and median minutes of total physical activity on average per day, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Minutes	95% CI	*n*	Minutes	95% CI	*n*	Minutes	95% CI
Mean minutes									
18–29	271	283.1	238.4–327.9	261	38.1	30.7–45.5	532	26.2	21.3–31.2
30–49	943	304.2	283.5–325.0	929	25.1	21.2–29	1872	19.7	17.1–22.2
50–69	928	215.1	198.6–231.5	968	23.9	19.5–28.2	1896	22.4	19.5–25.4
18–69	**2142**	**274.3**	**257.3–291.3**	**2158**	**28.3**	**25.2–31.5**	**4300**	**22.2**	**20.1–24.4**
	n	Minutes	Interquartile range (P25–P75)	*n*	Minutes	Interquartile range (P25–P75)	*n*	Minutes	Interquartile range (P25–P75)
Median minutes									
18–29	271	300.0	51.4–480.0	261	60.0	0.0–411.4	532	180.0	17.1–420
30–49	943	334.3	60.0–480.0	929	180.0	20.0–462.9	1872	260.0	34.3–480
50–69	928	154.3	30.0–362.9	968	110.0	21.4–360	1896	120.0	30.0–360
18–69	**2142**	**257.1**	**51.4–471.4**	**2158**	**120.0**	**14.3–411.4**	**4300**	**188.6**	**30.0–428.6**

Sources: WHO and MOH Viet Nam.

Vigorous-intensity exercise, sometimes called high-intensity exercise, is physical activity done with a large amount of effort, resulting in a substantially higher heart rate and rapid breathing. Vigorous-intensity activities are defined as activities ≥ 6 METS. Vigorous activities require the highest amount of oxygen consumption to complete the activity. Vigorous activities are important because they are shown to have a significant impact on lowering weight, abdomen fat and cholesterol.

Table 21 indicates that the percentage of respondents not engaging in vigorous physical activities was still high: 70.2% of both sexes did not participate in any vigorous activity, with a much higher rate among females (83.6%) compared to males (56.7%).

Further analysis about the percentage of the study population doing no work-, transportation- or recreational-related physical activity is presented in **Table 22**. The percentage of no work-related physical activity among women was higher than that among men (41.2% compared to 27.5%). The same pattern was observed for no recreation-related physical activity (78.9% women and 68.7% men). The pattern for transportation-related physical activity, however, was different. The percentage of no transportation-related physical activity was higher among men (64.3%) compared to women (54.8%).

The overall mean and median time spent in sedentary activities among the study population (both sexes), as presented in **Table 23**, were 179.5 minutes and 120 minutes, respectively.

TABLE 21 • Respondents not engaging in vigorous physical activity, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	No vigorous activity (%)	95% CI	*n*	No vigorous activity (%)	95% CI	*n*	No vigorous activity (%)	95% CI
18–29	271	52.8	43.9–61.7	261	88.0	82.5–93.6	532	70.3	65.0–75.5
30–49	943	51.0	46.7–55.3	929	80.5	77.2–83.8	1872	65.9	63.2–68.7
50–69	928	70.5	66.7–74.2	968	84.3	80.8–87.7	1896	77.4	74.8–80.1
18–69	**2142**	**56.7**	**53.5–60.0**	**2158**	**83.6**	**81.0–86.2**	**4300**	**70.2**	**68.1–72.3**

Sources: WHO and MOH Viet Nam.

TABLE 22 • Respondents classified as doing no physical activity related to work, transport or recreation (leisure), by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Physical activity related to work									
18–29	271	26.2	19.5–33.0	261	44.1	36.4–51.8	532	35.1	29.7–40.5
30–49	943	23.5	19.3–27.6	929	37.0	32.7–41.4	1872	30.3	27.3–33.4
50–69	928	35.7	31.5–39.9	968	45.4	40.4–50.4	1896	40.6	37.2–43.9
18–69	**2142**	**27.5**	**24.6–30.5**	**2158**	**41.2**	**37.9–44.6**	**4300**	**34.4**	**32.0–36.9**
Physical activity related to transport									
18–29	271	62.7	55.2–70.2	261	66.9	59.6–74.2	532	64.8	59.7–69.9
30–49	943	67.7	63.6–71.8	929	56.7	51.7–61.7	1872	62.2	58.4–66.0
50–69	928	60.1	56.1–64.2	968	39.2	34.5–43.8	1896	49.6	46.1–53.0
18–69	**2142**	**64.3**	**61.3–67.3**	**2158**	**54.8**	**51.1–58.4**	**4300**	**59.5**	**56.9–62.1**
Physical activity related to recreation (leisure)									
18–29	271	59.5	52.2–66.7	261	86.5	81.7–91.2	532	72.8	68.3–77.4
30–49	943	73.9	70.2–77.6	929	77.2	72.7–81.6	1872	75.5	72.6–78.5
50–69	928	69.9	65.7–74.1	968	74.1	70.4–77.8	1896	72.0	69.0–75.0
18–69	**2142**	**68.7**	**65.8–71.7**	**2158**	**78.9**	**76.3–81.4**	**4300**	**73.8**	**71.7–76.0**

Sources: WHO and MOH Viet Nam.

TABLE 23 • Average mean and median minutes spent in sedentary activities on a typical day, by age group and sex (*n*)

Age group	*n*	Mean minutes	95% CI	Median minutes	Interquartile range (P25–P75)
MEN					
18–29	270	171.8	150.6–193.1	120.0	60.0–240.0
30–49	954	165.2	152.7–177.6	120.0	60.0–180.0
50–69	930	179.2	167.8–190.7	120.0	60.0–240.0
18–69	**2154**	**170.8**	**161.6–180.0**	**120.0**	**60.0–240.0**
WOMEN					
18–29	262	210.4	184.9–235.8	180.0	120.0–300.0
30–49	918	178.8	162.0–195.6	120.0	60.0–240.0
50–69	976	180.6	168.0–193.3	120.0	60.0–240.0
18–69	**2156**	**188.1**	**176.6–199.5**	**120.0**	**60.0–240.0**
BOTH SEXES					
18–29	532	191.1	173.7–208.4	180.0	60.0–240.0
30–49	1872	172.0	161.0–183.0	120.0	60.0–180.0
50–69	1906	179.9	170.3–189.6	120.0	60.0–240.0
18–69	**4310**	**179.5**	**171.4–187.5**	**120.0**	**60.0–240.0**

Sources: WHO and MOH Viet Nam.

Health history

Table 24 presents information about the history of BP and treatment among all respondents. The proportion of respondents who had never had their BP measured by a doctor or any other health worker was 34.9%. This proportion was higher among men compared to women (38.9% and 30.9%, respectively). The percentage of respondents diagnosed with raised BP during the past 12 months was 7.2% and this figure was highest among age group 50 and over (17.7% for all; 18.0% for women and 17.5% for men).

Table 25 presents the percentage of respondents ever having had BP measured and measured within the last 12 months. Overall, 65.1% of respondents had ever had blood pressure checked and 48.6% had it checked within the last 12 months. This table also presents the percentages for age groups above and below 40 years.

Table 26 presents the history of blood glucose measurement and diagnosis among all respondents. Of the study population, 65.2% had never had their blood glucose measured by a doctor or any other health worker. This proportion was higher among male compared to female respondents (68.5% and 61.9%, respectively). The proportion of respondents diagnosed with raised blood glucose within the past 12 months was 2.5% and this proportion was the highest among the older group aged 50–69.

TABLE 24 • History of BP measurement and diagnosis among all respondents, by age group and sex (*n*, %)

Age group	*n*	Never measured (%)	95% CI	Measured, but not diagnosed (%)	95% CI	Diagnosed, but not within past 12 months (%)	95% CI	Diagnosed, within past 12 months (%)	95% CI
MEN									
18–29	275	44.1	35–53.2	54.3	45.2–63.3	0.5	0.0–1.2	1.1	0.0–2.8
30–49	973	42.7	38.4–46.9	48.9	44.6–53.2	3.1	1.8–4.4	5.3	3.7–6.9
50–69	948	27.2	23.5–30.8	43.6	39.2–47.9	11.8	9.3–14.3	17.5	14.3–20.7
18–69	**2196**	**38.9**	**35.1–42.7**	**49.0**	**45.3–52.6**	**4.7**	**3.8–5.7**	**7.4**	**6.2–8.7**
WOMEN									
18–29	266	38.8	31.2–46.4	58.8	51.2–66.4	1.3	0.0–2.8	1.1	0.2–2.0
30–49	948	31.0	27.1–35.0	62.4	58.3–66.5	2.4	1.1–3.6	4.2	2.5–5.9
50–69	988	22.7	18.7–26.6	47.8	43.2–52.4	11.6	9.2–14.0	18.0	14.7–21.2
18–69	**2202**	**30.9**	**27.9–33.9**	**57.4**	**54.3–60.6**	**4.6**	**3.6–5.6**	**7.1**	**5.7–8.4**
BOTH SEXES									
18–29	541	41.4	35.1–47.8	56.5	50.2–62.8	0.9	0.1–1.7	1.1	0.2–2.1
30–49	1921	36.8	33.6–40.0	55.7	52.3–59.1	2.7	1.8–3.7	4.8	3.6–5.9
50–69	1936	24.9	22.1–27.7	45.7	42.4–49.0	11.7	9.9–13.4	17.7	15.4–20.1
18–69	**4398**	**34.9**	**32.3–37.5**	**53.2**	**50.6–55.8**	**4.6**	**3.9–5.4**	**7.2**	**6.3–8.2**

Sources: WHO and MOH Viet Nam.

TABLE 25 • Respondents having had BP measured, ever and within the past 12 months, for the specific age groups 18–39 and 40–69, by sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Ever had BP measured									
18–39	723	55.0	48.7–61.1	760	64.7	59.8–69.4	1483	60.0	55.7–64.1
40–69	1473	66.9	63.4–70.2	1442	73.4	70.4–76.3	2915	70.1	67.7–72.5
18–69	**2196**	**61.1**	**57.3–64.8**	**2202**	**69.1**	**66.0–72.0**	**4398**	**65.1**	**62.4–67.7**
Had BP measured within the last 12 months									
18–39	723	38.6	32.5–45.0	760	48.5	43.6–53.3	1483	43.6	39.4–48.0
40–69	1473	49.8	46.3–53.3	1442	57.1	53.3–60.8	2915	53.4	50.7–56.0
18–69	**2196**	**44.4**	**40.7–48.1**	**2202**	**52.7**	**49.5–55.9**	**4398**	**48.6**	**46.0–51.2**

Sources: WHO and MOH Viet Nam.

TABLE 26 • History of blood glucose measurement and diagnosis among all respondents, by age group and sex (*n*, %)

Age group	*n*	Never measured (%)	95% CI	Measured, but not diagnosed (%)	95% CI	Diagnosed, but not within past 12 months (%)	95% CI	Diagnosed, within past 12 months (%)	95% CI
MEN									
18–29	274	74.8	67.1–82.5	25.2	17.5–32.9	–	–	–	–
30–49	973	70.5	66.4–74.5	27.5	23.3–31.7	0.9	0.2–1.5	1.2	0.2–2.2
50–69	952	58.8	54.6–63.0	33.9	30.1–37.8	1.9	1.1–2.6	5.4	3.6–7.3
18–69	**2199**	**68.5**	**64.8–72.2**	**28.6**	**24.9–32.4**	**0.9**	**0.5–1.3**	**2.0**	**1.3–2.7**
WOMEN									
18–29	267	64.9	57.5–72.4	32.8	25.6–40.0	–	–	2.3	0.0–5.0
30–49	941	62.0	57.0–66.9	35.9	31.1–40.8	0.4	0.1–0.8	1.7	0.5–2.9
50–69	982	58.7	54.6–62.8	31.8	28.1–35.5	3.9	2.4–5.4	5.6	4.0–7.1
18–69	**2190**	**61.9**	**58.7–65.1**	**34.0**	**30.9–37.0**	**1.2**	**0.8–1.7**	**2.9**	**1.9–3.9**
BOTH SEXES									
18–29	541	69.8	64.1–75.6	29.0	23.4–34.7	–	–	1.2	0.0–2.5
30–49	1914	66.2	62.5–69.9	31.7	28.0–35.5	0.6	0.3–1.0	1.4	0.7–2.2
50–69	1934	58.8	55.6–61.9	32.9	30.0–35.8	2.9	2.0–3.7	5.5	4.2–6.8
18–69	**4389**	**65.2**	**62.4–68.0**	**31.3**	**28.5–34.1**	**1.1**	**0.8–1.3**	**2.5**	**1.8–3.1**

Sources: WHO and MOH Viet Nam.

Table 27 presents the percentage of respondents ever having had blood glucose measured (34.8%) and also the percentage that had had it checked within the last 12 months (24.4%). The table also presents the percentages for the age groups below and above 40 years.

Table 28 presents history of cholesterol measurement and diagnosis among the study population. The proportion of the study population that never had their total cholesterol measured by a doctor or any other health worker was 70.6%. During the past 12 months, the percentage of respondents diagnosed with raised cholesterol was 4.8% (4.4% among female versus 5.2% among male respondents).

Table 29 shows that the proportion of the study population reporting ever having had a heart attack or chest pain from heart disease or a stroke was 9.1% (10.4% among women and 7.7% among men). Among the population aged 50–69, 15.0% reported having this history of cardiovascular disease (CVD) (16.0% among women and 14.1% among men).

TABLE 27 • Respondents having had blood glucose measured, ever and within the past 12 months, for the specific age groups 18–39 and 40–69, by sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Ever had blood glucose measured									
18–39	723	26.8	21.0–33.6	754	38.4	33.7–43.4	1477	32.7	28.4–37.4
40–69	1476	35.9	32.5–39.5	1436	37.7	34.0–41.6	2912	36.8	34.1–39.6
18–69	**2199**	**31.5**	**27.9–35.3**	**2190**	**38.1**	**34.9–41.3**	**4389**	**34.8**	**32.0–37.7**
Had blood glucose measured within 12 months									
18–39	723	18.7	13.3–25.7	754	26.0	21.6–30.9	1477	22.4	18.2–27.4
40–69	1476	26.2	23.3–29.3	1436	26.5	23.1–30.2	2912	26.3	24.1–28.7
18–69	**2199**	**22.6**	**19.2–26.3**	**2190**	**26.2**	**23.2–29.6**	**4389**	**24.4**	**21.7–27.3**

Sources: WHO and MOH Viet Nam.

TABLE 28 • History of total cholesterol measurement and diagnosis among all respondents, by age group and sex (*n*, %)

Age group	*n*	Never measured (%)	95% CI	Measured, but not diagnosed (%)	95% CI	Diagnosed, but not within past 12 months (%)	95% CI	Diagnosed, within past 12 months (%)	95% CI
MEN									
18–29	273	79.8	73.1–86.5	15.9	9.7–22.1	–	–	4.3	0.0–9.4
30–49	965	74.9	71.5–78.4	19.8	16.7–22.8	1.4	0.6–2.1	3.9	2.3–5.5
50–69	951	63.2	59.0–67.4	25.5	21.6–29.5	3.0	1.9–4.1	8.3	5.9–10.7
18–69	**2189**	**73.1**	**70.5–75.7**	**20.2**	**17.6–22.9**	**1.4**	**1.0–1.9**	**5.2**	**3.6–6.9**
WOMEN									
18–29	266	73.0	65.7–80.3	25.7	18.5–32.8	1.3	0.0–2.8	–	–
30–49	938	68.5	64.1–72.9	26.0	21.7–30.3	2.7	1.1–4.3	2.8	1.4–4.1
50–69	985	62.7	58.5–66.9	20.0	16.5–23.4	5.8	4.1–7.4	11.6	9.2–14.0
18–69	**2189**	**68.2**	**65.0–71.4**	**24.3**	**21.1–27.4**	**3.1**	**2.2–4.1**	**4.4**	**3.4–5.4**
BOTH SEXES									
18–29	539	76.4	71.1–81.8	20.8	15.4–26.1	0.7	0.0–1.4	2.1	0.0–4.8
30–49	1903	71.7	69.0–74.4	22.9	20.3–25.5	2.0	1.1–2.9	3.4	2.3–4.5
50–69	1936	62.9	60.1–65.8	22.7	20.1–25.4	4.4	3.4–5.4	9.9	8.2–11.7
18–69	**4378**	**70.6**	**68.4–72.8**	**22.3**	**20.1–24.4**	**2.3**	**1.7–2.9**	**4.8**	**3.9–5.8**

Sources: WHO and MOH Viet Nam.

TABLE 29 • Respondents ever having had a heart attack, chest pain from heart disease (angina) or a stroke, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	CVD history (%)	95% CI	*n*	CVD history (%)	95% CI	*n*	CVD history (%)	95% CI
18–29	275	3.3	1.2–5.3	268	5.6	2.3–8.9	543	4.4	2.4–6.5
30–49	977	6.7	4.8–8.5	952	10.1	7.6–12.5	1929	8.4	6.8–10.0
50–69	960	14.1	11.3–16.8	996	16.0	13.1–18.8	1956	15.0	13.1–17.0
18–69	**2212**	**7.7**	**6.4–9.1**	**2216**	**10.4**	**8.6–12.2**	**4428**	**9.1**	**7.9–10.3**

Sources: WHO and MOH Viet Nam.

Lifestyle advice by health workers

Table 30 represents the proportion of respondents who received lifestyle advice from a doctor or health worker during the last 12 months. The types of health promotion advice examined in STEPS 2021 included: quit smoking, reduce salt intake, eat enough vegetables/fruits, reduce fat intake, reduce body weight and increase physical activity. The lifestyle advice respondents received most frequently was to start or do more physical activity (60.2%).

TABLE 30 • Respondents who attended a health facility for health examination in the past 12 months and received lifestyle advice from a doctor/health worker, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Advised by a doctor/health worker to quit using tobacco or not to start									
18–29	101	31.6	19.3–43.9	127	27.5	16.7–38.2	228	29.4	20.8–38
30–49	356	48.1	41.4–54.9	444	22.1	16.9–27.2	800	33.6	29.1–38
50–69	464	57.1	51.6–62.7	547	21.0	16.7–25.2	1011	37.3	33.6–41
18–69	**921**	**46.2**	**40.9–51.5**	**1118**	**23.2**	**19.3–27.2**	**2039**	**33.5**	**30–37.1**
Advised by a doctor/health worker to reduce salt in the diet									
18–29	101	47.4	34.1–60.7	127	45.4	33.6–57.2	228	46.3	36.7–55.9
30–49	355	53.4	46.8–60.1	444	44.6	38.3–51.0	799	48.5	44.1–52.9
50–69	465	62.7	57.3–68.2	547	61.5	56.0–66.9	1012	62.0	58.1–66.0
18–69	**921**	**54.6**	**49.5–59.6**	**1118**	**49.9**	**45.4–54.4**	**2039**	**52**	**48.3–55.6**
Advised by a doctor/health worker to eat at least five servings of fruit and/or vegetables each day									
18–29	101	48.5	35.4–61.6	127	58.2	47.8–68.7	228	53.8	45.1–62.5
30–49	356	59.6	52.6–66.6	444	54.0	48.1–59.9	800	56.5	52.0–61.0
50–69	462	61.4	56.5–66.3	546	65.2	59.3–71.1	1008	63.5	59.3–67.6
18–69	**919**	**57.0**	**51.8–62.2**	**1117**	**58.5**	**54.4–62.6**	**2036**	**57.8**	**54.6–61.1**
Advised by a doctor/health worker to reduce fat in the diet									
18–29	101	50.3	36.8–63.8	127	49.6	38.5–60.7	228	49.9	41.1–58.7
30–49	356	53.8	46.5–61.2	443	47.3	41.5–53.2	799	50.2	45.6–54.8
50–69	464	58.8	53.7–64.0	545	61.8	55.8–67.9	1009	60.5	56.3–64.7
18–69	**921**	**54.3**	**49.1–59.6**	**1115**	**52.3**	**48.1–56.5**	**2036**	**53.2**	**49.8–56.6**
Advised by a doctor or health worker to start or do more physical activity									
18–29	101	63.0	52.0–74.1	127	58.0	47.3–68.7	228	60.3	52.4–68.2
30–49	356	59.5	52.2–66.7	445	54.5	48.6–60.5	801	56.7	52.4–61.0
50–69	465	64.0	58.5–69.5	546	65.6	59.9–71.3	1011	64.9	60.7–69.1
18–69	**922**	**61.8**	**57.0–66.6**	**1118**	**58.8**	**54.7–62.8**	**2040**	**60.2**	**56.8–63.5**

TABLE 30 • Respondents who attended a health facility for health examination in the past 12 months and received lifestyle advice from a doctor/health worker (*n*, %) *(continued)*

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Advised by doctor or health worker to maintain a healthy body weight or to lose weight									
18–29	101	59.8	48.7–70.9	127	46.7	35.4–58.0	228	52.7	44.4–61.0
30–49	355	51.1	44.7–57.6	445	45.8	39.8–51.8	800	48.1	43.9–52.4
50–69	462	44.0	38.7–49.3	546	51.3	45.5–57.1	1008	48.0	43.7–52.2
18–69	**918**	**51.4**	**46.4–56.5**	**1118**	**47.7**	**43.6–51.8**	**2036**	**49.3**	**45.8–52.9**

Sources: WHO and MOH Viet Nam.

Cervical cancer screening

Table 31 presents the history of cervical cancer screening among female respondents. Among all women ages 18–69, the percentage ever having been screened for cervical cancer was 16.4%.

Among the target group for a cervical cancer screening programme (women ages 30–49), the percentage of respondents who had ever received screening services for cervical cancer was 19.8%.

TABLE 31 • Female respondents, among all female respondents, who have ever had a screening test for cervical cancer, by age group and sex (*n*, %)

Age group	WOMEN		
	n	Ever tested (%)	95% CI
18–29	261	13.1	7.1–19.0
30–49	942	19.8	16.5–23.1
50–69	980	14.0	11.3–16.7
18–69	**2183**	**16.4**	**14.0–18.7**

Sources: WHO and MOH Viet Nam.

3.3 Objective 2

Anthropometric measurements

Overweight and obesity

BMI was calculated using respondents' weight and height, and was classified into four groups: underweight (BMI < 18.5), normal (BMI 18.5–24.9), overweight (BMI 25–29.9) and obese (BMI ≥ 30). As presented in **Table 32**, the proportion of the study sample with BMI in the normal range was 71.1%. About 17.4% of the population was overweight and 2.1% were obese; the proportions were similar among men and women (2.1% and 2.2%, respectively).

Table 33 presents the proportion of respondents with a BMI > 25. Overall, 19.5% of the study sample belong to this category. This proportion was highest (22.8%) among the population aged 50–69.

TABLE 32 • Respondents, excluding pregnant women, in each BMI category, by age group and sex (*n*, %)

Age group	*n*	Underweight < 18.5 (%)	95% CI	Normal weight 18.5–24.9 (%)	95% CI	Overweight 25.0–29.9 (%)	95% CI	Obese ≥ 30.0 (%)	95% CI
MEN									
18–29	206	11.6	6.4–16.8	73.1	66.0–80.3	11.6	6.3–16.9	3.7	0.0–8.3
30–49	779	6.9	5.0–8.9	72.1	68.1–76.1	19.2	15.5–22.8	1.8	0.8–2.9
50–69	850	10.3	7.7–12.8	69.0	65.1–72.9	19.8	16.3–23.2	1.0	0.2–1.7
18–69	**1835**	**9.1**	**7.3–11.0**	**71.5**	**68.9–74.2**	**17.2**	**14.9–19.6**	**2.1**	**0.7–3.5**
WOMEN									
18–29	199	20.8	13.1–28.5	62.3	53.6–71	14.3	7.0–21.7	2.6	0.2–5.0
30–49	805	5.3	3.4–7.2	76.6	72.5–80.7	16.2	12.9–19.5	1.9	0.7–3.1
50–69	878	6.3	4.3–8.2	68.9	64.7–73.0	22.7	18.9–26.5	2.2	0.9–3.4
18–69	**1882**	**9.7**	**7.4–12.1**	**70.6**	**67.3–73.9**	**17.5**	**14.6–20.4**	**2.2**	**1.3–3.0**
BOTH SEXES									
18–29	405	16.1	11.5–20.7	67.8	62.6–73.1	12.9	8.6–17.3	3.1	0.5–5.8
30–49	1584	6.1	4.8–7.5	74.3	71.6–77.1	17.7	15.3–20.1	1.9	1.1–2.7
50–69	1728	8.3	6.5–10.0	68.9	65.9–71.9	21.3	18.5–24.0	1.6	0.8–2.3
18–69	**3717**	**9.4**	**7.9–10.9**	**71.1**	**69.0–73.2**	**17.4**	**15.5–19.2**	**2.1**	**1.3–2.9**

Sources: WHO and MOH Viet Nam.

TABLE 33 • Respondents, excluding pregnant women, classified as overweight (BMI ≥ 25), by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
18–29	206	15.3	8.9–21.7	199	16.9	9.4–24.3	405	16.1	11.4–20.7
30–49	779	21.0	17.2–24.7	805	18.1	14.6–21.6	1584	19.6	17.0–22.1
50–69	850	20.7	17.3–24.2	878	24.9	20.9–28.9	1728	22.8	20.1–25.6
18–69	**1835**	**19.3**	**16.7–21.9**	**1882**	**19.7**	**16.6–22.8**	**3717**	**19.5**	**17.4–21.6**

Sources: WHO and MOH Viet Nam.

Blood pressure

In STEP 2, BP was measured three times in all participants and calculated as the average value of the three measurements. **Table 34** shows the proportion of the study population with raised BP. The prevalence of raised BP using the criteria of systolic BP (SBP) ≥ 140 or diastolic BP (DBP) ≥ 90 mmHg, regardless whether on medication or not, was 23.3% (31.3% among men and 15.3% among women). In the age group 50–69, this prevalence was 43.8% (53.5% among men and 34.1% among women). On the other hand, the prevalence of raised BP using the criteria of measurement plus being on medication for hypertension (SBP ≥ 140 or DBP ≥ 90 mmHg or on medication for hypertension) was 26.2% (33.3% men and 19.1% women).

TABLE 34 • Respondents with raised BP and those currently on medication, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Respondents with SBP ≥ 140 mmHg and/or DBP ≥ 90 mmHg									
18–29	205	10.9	5.7–16.1	211	0.7	0.0–1.8	416	5.8	3.2–8.5
30–49	773	30.9	25.9–35.9	809	13.3	10.3–16.3	1582	22.1	19–25.1
50–69	820	53.5	48.8–58.2	836	34.1	30.1–38.1	1656	43.8	40.7–46.9
18–69	**1798**	**31.3**	**28.4–34.2**	**1856**	**15.3**	**13.4–17.1**	**3654**	**23.3**	**21.5–25.1**
Respondents with SBP ≥ 140 mmHg and/or DBP ≥ 90 mmHg or currently on medication for raised BP									
18–29	205	11.0	5.8–16.2	211	0.7	0.0–1.8	416	5.9	3.2–8.5
30–49	773	32.3	27.3–37.2	809	15.2	12.0–18.4	1582	23.7	20.7–26.7
50–69	820	58.6	53.9–63.3	836	45.3	40.8–49.7	1656	51.9	48.7–55.2
18–69	**1798**	**33.3**	**30.4–36.2**	**1856**	**19.1**	**17.1–21.1**	**3654**	**26.2**	**24.4–28.0**

Sources: WHO and MOH Viet Nam.

Table 35 presents the percentage of respondents with raised BP using the cut-off of SBP ≥ 160 and/or DBP ≥ 100 mmHg. Overall, 8.4% of respondents' BP measured above this cut-off. If those taking medicine are also counted, the percentage rises to 13.9%. Overall, men and older age groups had higher rates than women and younger-age counterparts.

Table 36 describes mean BP among all respondents, including those currently on medication for raised BP. The average SBP was 124.6 while the average DBP was 80.3. Men and older age groups had higher mean BP compared to women and those of younger age.

Table 37 shows raised BP diagnosis, treatment and control among those with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) or on medication for raised BP. About six out of 10 people with raised BP had not been diagnosed before. Among those taking hypertension medicines (30.7% of all the people with raised BP), about one third (11.2%) had BP controlled while the rest (19.3%) did not.

TABLE 35 • Respondents with raised BP using the cut-off of SBP ≥ 160 and/or DBP ≥ 100 mmHg and those currently on medication, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Respondents with SBP ≥ 160 mmHg and/or DBP ≥ 100 mmHg									
18–29	205	2.0	0.0–4.2	211	0.0	–	416	1.0	0.0–2.1
30–49	773	10.8	8.0–13.7	809	4.1	2.4–5.9	1582	7.5	5.8–9.1
50–69	820	23.8	20.1–27.6	836	11.9	9.5–14.3	1656	17.8	15.5–20.2
18–69	**1798**	**11.8**	**10.2–13.4**	**1856**	**5.0**	**4–6.1**	**3654**	**8.4**	**7.4–9.4**
Respondents with SBP ≥ 160 mmHg and/or DBP ≥ 100 mmHg or currently on medication for raised BP									
18–29	205	2.1	0.0–4.4	211	0.0	–	416	1.0	0.0–2.2
30–49	773	14.1	11.0–17.2	809	6.7	4.3–9.0	1582	10.4	8.4–12.4
50–69	820	36.2	31.7–40.7	836	30.7	26.8–34.7	1656	33.5	30.4–36.6
18–69	**1798**	**16.6**	**14.7–18.5**	**1856**	**11.1**	**9.6–12.7**	**3654**	**13.9**	**12.6–15.2**

Sources: WHO and MOH Viet Nam.

TABLE 36 • Mean systolic and diastolic BP among all respondents, including those currently on medication for raised BP, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
Mean systolic blood pressure (mmHg)									
18–29	206	120.8	118.6–122.9	211	108.5	106.5–110.5	417	114.6	113.0–116.2
30–49	779	128.5	127.0–130.0	816	118.0	116.7–119.3	1595	123.2	122.2–124.2
50–69	852	141.0	139.0–142.9	882	133.0	131.3–134.8	1734	137.0	135.7–138.3
18–69	**1837**	**129.8**	**128.6–130.9**	**1909**	**119.4**	**118.4–120.5**	**3746**	**124.6**	**123.7–125.5**
Mean diastolic blood pressure (mmHg)									
18–29	206	77.4	75.8–79.1	211	72.2	70.4–74.0	417	74.8	73.4–76.2
30–49	779	84.3	83.2–85.3	816	78.1	77.2–79.0	1595	81.2	80.4–81.9
50–69	852	86.7	85.5–87.9	882	82.2	81.3–83.2	1734	84.5	83.7–85.3
18–69	**1837**	**83.0**	**82.2–83.9**	**1909**	**77.6**	**76.8–78.4**	**3746**	**80.3**	**79.7–81.0**

Sources: WHO and MOH Viet Nam.

TABLE 37 • Raised BP diagnosis, treatment and control among respondents with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) or on medication for raised BP, by age group and sex (*n*, %)

Age group	*n*	Raised BP, not previously diagnosed (%)	95% CI	Previously diagnosed raised BP, no medication (%)	95% CI	Previously diagnosed raised BP, on medication, no control (%)	95% CI	Previously diagnosed raised BP, control and medication (%)	95% CI
MEN									
18–29	28	85.7	66.8–104.7	13.3	0.0–32.2	0.0	–	0.9	0.0–2.8
30–49	248	78.8	72.4–85.2	7.4	4.1–10.6	9.6	5.1–14.2	4.2	1.1–7.2
50–69	479	51.6	45.8–57.4	10.0	6.9–13.1	29.6	24.3–34.9	8.8	5.9–11.6
18–69	**755**	**66.8**	**61.7–71.9**	**9.2**	**6.3–12.0**	**18.0**	**14.4–21.6**	**6.0**	**4.1–7.9**
WOMEN									
18–29	2	50.0	0.0–100	50.0	0.0–100	0.0	–	0.0	–
30–49	121	64.9	53.1–76.6	12.0	0.0–100	10.6	3.4–17.8	12.5	4.3–20.7
50–69	389	37.5	31.2–43.9	8.4	4.6–19.5	29.2	23.7–34.7	24.9	19.5–30.2
18–69	**512**	**47.6**	**41.5–53.6**	**10.2**	**4.8–12.0**	**22.1**	**17.8–26.5**	**20.1**	**15.6–24.6**
BOTH SEXES									
18–29	30	83.5	65–100	15.6	0.0–34.1	0.0	–	0.9	0.0–2.7
30–49	369	74.3	68–80.7	8.9	5.5–12.2	9.9	5.9–14.0	6.9	3.2–10.5
50–69	868	45.5	41.1–49.8	9.3	7.0–11.7	29.4	25.6–33.3	15.8	12.9–18.7
18–69	**1267**	**59.8**	**55.4–64.2**	**9.5**	**7.3–11.8**	**19.5**	**16.5–22.5**	**11.2**	**8.7–13.6**

Sources: WHO and MOH Viet Nam.

Table 38 shows the percentage of respondents previously diagnosed and being treated for hypertension at a health facility among those with raised BP or on hypertension medication. Overall, only four in 10 (40.2%) with raised BP had been diagnosed and only about one in four (24.7%) were being managed at a health facility.

TABLE 38 • Respondents previously diagnosed and currently treated for hypertension at a health facility, among those with raised BP or on hypertension medication, by sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Previously diagnosed (%)	95% CI	*n*	Previously diagnosed (%)	95% CI	*n*	Previously diagnosed (%)	95% CI
Raised BP previously diagnosed or currently on hypertension medication									
18–69	**755**	**33.2**	**28.3–38.4**	**512**	**52.4**	**46.3–58.4**	**1267**	**40.2**	**35.9–44.7**
	n	Treated in a health facility (%)	95% CI	*n*	Treated in a health facility (%)	95% CI	*n*	Treated in a health facility (%)	95% CI
Raised BP currently treated currently treated in a health facility									
18–69	**755**	**18.9**	**15.6–22.6**	**512**	**34.8**	**29.5–40.5**	**1267**	**24.7**	**21.4–28.3**

Sources: WHO and MOH Viet Nam.

3.4 Objective 3

Biochemical measurements

Blood glucose

Table 39 presents the percentage of different blood glucose level categories as well as the percentage of the study population currently on medication for raised blood glucose, excluding non-fasting cases. The percentage of those with impaired fasting glycaemia (blood glucose value ≥ 6.1 mmol/L and < 7.0 mmol/L) was 11% overall among both sexes (7.9% among men and 14.3% among women).

The proportion of respondents with raised blood sugar (blood glucose value ≥ 7 mmol) or who were currently on medication for diabetes was 7.1%.

This figure was higher among men than women (7.3% and 6.9%, respectively) and higher among older than younger age groups. Among the age group 50–69, the prevalence was 13.4%.

TABLE 39 • Respondents categorized into blood glucose level categories and those currently on medication for raised blood glucose, excluding non-fasting recipients, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Impaired fasting glycaemia*									
18–29	172	6.2	1.6–10.9	187	9.3	1.7–16.9	359	7.9	3.3–12.4
30–49	674	16.6	12.8–20.5	743	5.3	3.4–7.2	1417	10.8	8.5–13
50–69	762	18.3	14.5–22.2	800	10.9	8.2–13.6	1562	14.6	12.1–17
18–69	**1608**	**14.3**	**11.9–16.7**	**1730**	**7.9**	**5.5–10.3**	**3338**	**11.0**	**9.2–12.8**
Raised blood glucose or currently on medication for diabetes**									
18–29	172	1.6	0.0–3.8	187	4.4	0.0–9.0	359	3.0	0.4–5.7
30–49	674	6.7	4.3–9.1	743	4.5	2.7–6.2	1417	5.6	4–7.1
50–69	762	13.6	10.9–16.2	800	13.3	10.3–16.3	1562	13.4	11.4–15.5
18–69	**1608**	**7.3**	**5.9–8.7**	**1730**	**6.9**	**5.2–8.5**	**3338**	**7.1**	**6–8.2**
Currently on medication for diabetes									
18–29	203	0.0	–	207	1.6	0.0–4.6	410	0.8	0.0–2.3
30–49	766	1.1	0.2–2.0	812	1.8	0.5–3.0	1578	1.4	0.6–2.2
50–69	848	6.7	4.5–8.8	876	8.4	6.2–10.5	1724	7.5	5.9–9.1
18–69	**1817**	**2.3**	**1.6–3.0**	**1895**	**3.5**	**2.3–4.6**	**3712**	**2.9**	**2.2–3.6**

* Impaired fasting glycaemia is defined as blood glucose value ≥ 6.1 mmol/L (110 mg/dL) and < 7.0 mmol/L (126 mg/dL).

** Raised blood glucose is defined as blood glucose value ≥ 7.0 mmol/L (126 mg/dL).

Sources: WHO and MOH Viet Nam.

Table 40 separates respondents into blood glucose level categories for special age group 18–39 versus age group 40–69. As expected, people aged 40–69 have significantly higher rates of impaired fasting glucose and raised blood glucose compared to their younger counterparts.

Table 41 shows the percentage of respondents ever having blood glucose measured, being diagnosed of raised blood glucose and being treated at a health facility, among those with raised blood glucose or on diabetes medication. Overall, about one third (34.9%) of those with raised blood glucose had been diagnosed before, and less than one fourth (23.3%) were being treated/managed at a health facility.

TABLE 40 • Respondents categorized into blood glucose level categories or currently on medication for diabetes, for special age groups 18–39 and 40–69, by sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Impaired fasting glycaemia*									
18–39	482	10.8	7.7–14.9	569	7.2	3.7–13.4	1051	8.9	6.1–12.8
40–69	1126	17.4	14.4–20.9	1161	8.6	6.9–10.8	2287	13.0	11.1–15.1
Raised blood glucose or currently on medication for diabetes**									
18–39	482	3.4	1.9–6.2	569	3.5	1.6–7.4	1051	3.4	2.1–5.6
40–69	1126	10.6	8.9–12.7	1161	10.1	8.2–12.6	2287	10.4	9.0–12.0

* Impaired fasting glycaemia is defined as blood glucose value ≥ 6.1 mmol/L (110 mg/dL) and < 7.0 mmol/L (126 mg/dL).

** Raised blood glucose is defined as blood glucose value: ≥ 7.0 mmol/L (126 mg/dL).

Sources: WHO and MOH Viet Nam.

TABLE 41 • Respondents having blood glucose measured, being diagnosed with raised blood glucose and treated at a health facility, among those with raised blood glucose or on diabetes medication, by sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Previously diagnosed (%)	95% CI	*n*	Previously diagnosed (%)	95% CI	*n*	Previously diagnosed (%)	95% CI
Raised blood glucose diagnosed									
18–69	**146**	**26.4**	**19.0–35.3**	**154**	**43.4**	**31.2–56.3**	**300**	**34.9**	**27.3–43.3**
	n	Treated at a health facility (%)	95% CI	*n*	Treated at a health facility (%)	95% CI	*n*	Treated at a health facility (%)	95% CI
Raised blood glucose treated in a health facility									
18–69	**146**	**18.3**	**12.1–26.9**	**154**	**28.2**	**17.1–42.8**	**300**	**23.3**	**16.2–32.2**

Sources: WHO and MOH Viet Nam.

Cholesterol/HDL

Total blood cholesterol was examined using two cut-off points (5 mmol/L and 6.2 mmol/L). **Table 42** presents the prevalence of respondents having total blood cholesterol ≥ 5.0 mmol/L or currently on medication for raised cholesterol, which was 44.1%. The proportion of respondents with the total amount of cholesterol in their blood ≥ 6.2 mmol/L or currently on medication for raised cholesterol was 14.6% (this figure was higher for women compared to men: 16.9% versus 12.2%). HDL cholesterol is known as "good" cholesterol because it helps remove other forms of cholesterol from the bloodstream. Higher levels of HDL cholesterol are associated with a lower risk of heart disease. Higher numbers are better in the case of HDL, and respondents with low HDL (defined as men with HDL < 1.03 mmol/L or women with HDL < 1.29 mmol/L) are at higher risk of cardiovascular disease (CVD).

Table 43 presents the proportion of the study population with low HDL. This figure was 51.4% among male respondents and 57.1% among female respondents.

TABLE 42 • Respondents with raised total cholesterol (≥ 5.0 mmol/L and ≥ 6.2 mmol/L) and those currently on medication for raised cholesterol, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Total cholesterol ≥ 5.0 mmol/L (≥ 190 mg/dL) or currently on medication for raised cholesterol									
18–29	202	22.5	13.6–31.4	205	38.9	29.9–48.0	407	30.7	24.5–36.8
30–49	764	41.9	37.4–46.4	810	43.6	38.5–48.6	1574	42.7	39.1–46.4
50–69	844	50.2	45.8–54.7	870	69.4	65.5–73.3	1714	59.8	56.6–63.0
18–69	**1810**	**38.8**	**35.1–42.5**	**1885**	**49.3**	**45.6–53.0**	**3695**	**44.1**	**41.3–46.8**
Total cholesterol ≥ 6.2 mmol/L (≥ 240 mg/dL) or currently on medication for raised cholesterol									
18–29	202	6.5	2.4–10.7	205	10.0	4.5–15.5	407	8.2	4.8–11.7
30–49	764	12.9	9.8–16.0	810	12.4	9.6–15.3	1574	12.6	10.4–14.9
50–69	844	16.9	13.8–20.0	870	31.5	27.4–35.7	1714	24.2	21.5–26.9
18–69	**1810**	**12.2**	**10.2–14.2**	**1885**	**16.9**	**14.4–19.5**	**3695**	**14.6**	**12.8–16.3**

Sources: WHO and MOH Viet Nam.

TABLE 43 • Respondents with low HDL (< 40 and < 50 mg/dL), by age group and sex (*n*, %)

Age group	MEN			WOMEN		
	n	(%)	95% CI	*n*	(%)	95% CI
Respondents…	…with HDL < 1.03 mmol/L (< 40 mg/dL)			…with HDL < 1.29 mmol/L (< 50 mg/dL)		
18–29	201	59.8	51.0–68.6	205	53.6	45.1–62.1
30–49	761	48.8	44.0–53.6	810	57.6	52.5–62.7
50–69	841	47.2	42.3–52.1	869	59.7	54.9–64.5
18–69	**1803**	**51.4**	**47.7–55.1**	**1884**	**57.1**	**53.1–61.1**

Sources: WHO and MOH Viet Nam.

Salt intake per day

Table 44 presents the average salt intake in grams (g) per 24 hours. This figure was 8.1 g for both sexes (7.1 g for women and 9.1 g for men). By looking at the mean of 95% CI, it can be concluded that most Vietnamese people consume more salt per day than the recommendation made by WHO, which is < 5 g of salt, or 2 g of sodium per person per day.

TABLE 44 • Mean salt intake in grams per person and per day, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
18–29	164	8.8	8.4–9.1	163	7.0	6.7–7.3	327	7.9	7.6–8.1
30–49	618	9.3	9.2–9.5	684	7.5	7.4–7.6	1302	8.4	8.2–8.5
50–69	714	9.2	9.1–9.3	777	6.7	6.6–6.8	1491	7.9	7.7–8.3
18–69	**1496**	**9.1**	**9.0–9.3**	**1624**	**7.1**	**7.0–7.2**	**3120**	**8.1**	**8.0–8.2**

Sources: WHO and MOH Viet Nam.

Cotinine in urine

COT200 test strips have cut-off point of 200 ng/mL (positive if total cotinine ≥ 200 ng/mL; and negative if total cotinine < 200 ng/mL). Generally, being COT200-positive indicates that the respondent is a current smoker.

Table 45 presents the prevalence of respondents with total cotinine ≥ 200 ng/mL (i.e. positive), which was 25.7% (47.8% for men and 4.8% for women).

TABLE 45 • Respondents with total cotinine in urine > 200 ng/mL, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
18–29	76	36.5	29.0–44.7	11	5.9	2.9–11.5	87	20.7	16.4–25.8
30–49	400	51.3	46.4–56.3	36	3.3	2.0–5.4	436	26.4	23.8–29.2
50–69	441	51.9	47.7–51.4	60	6.4	4.5–9.0	501	28.9	26.4–31.6
18–69	**917**	**47.8**	**44.3–51.4**	**107**	**4.8**	**3.4–6.8**	**1024**	**25.7**	**23.7–27.9**

Sources: WHO and MOH Viet Nam.

Table 46 presents the percentage of respondents with total cotinine in urine > 200 ng/mL by current tobacco user group. According to the interview, 899 respondents reported as being smokers, but 109 of these people presented urinary cotinine levels lower than the cut-off point, giving a 12.1% misclassification rating; 2831 subjects declared to be non-smokers, but 234 of them presented urinary cotinine levels higher than the cut-off (8.3%).

The rate of agreement between the classification as a smoker/non-smoker obtained with the measurement of urinary cotinine and self-assessed in the questionnaire was determined by the Cohen's kappa coefficient that was 0.76, providing an agreement of 90.8% ($P < 0.001$).

TABLE 46 • Respondents with total cotinine in urine < 200 ng/mL and ≥ 200 ng/mL, by current tobacco user group (smoker/non-smoker) and sex (*n*, %)

Current tobacco user	MEN (*n*, %)			WOMEN (*n*, %)			BOTH SEXES (*N*, %)		
	Total cotinine < 200 ng/mL	Total cotinine ≥ 200 ng/mL	Total	Total cotinine < 200 ng/mL	Total cotinine ≥ 200 ng/mL	Total	Total cotinine < 200 ng/mL	Total cotinine ≥ 200 ng/mL	Total
Current smoker	104 (11.8%)	775 (88.2%)	879	5 (25.0%)	15 (75.0%)	20	109 (12.1%)	790 (88.9%)	899
Non-smoker	806 (85.0%)	142 (15.0%)	948	1791 (95.1%)	92 (4.9%)	1883	2597 (91.7%)	234 (8.3%)	2831
Total	910 (49.8%)	917 (50.2%)	1827	1796 (95.1%)	107 (5.6%)	1903	2706 (72.5%)	1024 (27.4%)	3730
	Sensitivity = 84.5			Sensitivity = 14.0			Sensitivity = 77.1		
	Specificity = 88.6			Specificity = 99.7			Specificity = 96.0		
	Positive predictive value = 88.2			Positive predictive value = 75.0			Positive predictive value = 88.9		
	Negative predictive value = 85.0			Negative predictive value = 95.1			Negative predictive value = 91.7		
	Agreement = 86.54%			Agreement = not applicable			Agreement = 90.8%		

Sources: WHO and MOH Viet Nam.

3.5 Objective 4

Combined NCD risk factors

Combined risk factors for NCDs

The analysis of combined risk factors was done by combining information from STEPS 1 and 2 on five risk factors:

» Current daily smoking.

» Less than five servings of fruit and/or vegetables per day.

» Not meeting WHO recommendations on physical activity for health (< 150 min of moderate activity per week, or equivalent).

» Overweight or obese (BMI ≥ 25 kg/m^2).

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

The study population was classified into three groups according to the presence of these five risk factors:

» **Group 1:** no risk factors,

» **Group 2:** from one or two risk factors,

» **Group 3:** from three to five risk factors.

The percentage in Group 3 was 15.8% among both sexes (20.1 among men and 7.2% among women). This prevalence was higher among the older age group and among men compared to women (**Table 47**).

TABLE 47 • Respondents classified into risk factor groups 1, 2 and 3, by age group and sex (*n*, %)

Age group	*n*	GROUP 1		GROUP 2		GROUP 3	
		0 risk factors (%)	95% CI	1–2 risk factors (%)	95% CI	3–5 risk factors (%)	95% CI
MEN							
18–44	728	16.4	12.4–20.4	65.9	60.8–71.0	17.7	14.3–21.1
45–69	1043	7.8	5.7–10.0	62.3	58.6–65.9	29.9	26.2–33.5
18–69	**1771**	**12.9**	**10.4–15.5**	**64.4**	**61.0–67.8**	**22.7**	**20.1–25.3**
WOMEN							
18–44	797	25.2	20.8–29.6	70.3	65.7–74.9	4.5	2.5–6.4
45–69	1035	17.2	13.7–20.6	67.2	63.5–70.8	15.7	12.8–18.6
18–69	**1832**	**22.1**	**19.1–25.0**	**69.1**	**66.0–72.1**	**8.8**	**7.2–10.5**
BOTH SEXES							
18–44	1525	20.9	17.8–23.9	68.1	64.4–71.9	11.0	8.8–13.2
45–69	2078	12.4	10.2–14.5	64.7	62.0–67.4	22.9	20.4–25.5
18–69	**3603**	**17.5**	**15.5–19.5**	**66.7**	**64.3–69.2**	**15.8**	**14.0–17.5**

Sources: WHO and MOH Viet Nam.

CVD risk and risk prediction

Table 48 presents the analysis of the study population with a 10-year CVD risk ≥ 20% or with existing CVD. This indicator was defined according to age, sex, blood pressure, smoking status, total cholesterol and diabetes (previously diagnosed or a fasting blood glucose concentration ≥ 7 mmol/L) or with existing CVD (history of CVD). The percentage of participants with a 10-year CVD risk ≥ 20% or with existing CVD accounted for 15.3% of the study population aged 40–69 (15.0% among men and 15.6% among women).

Table 49 presents the proportion of respondents aged 40–69 with a 10-year CVD risk ≥ 20% or with existing CVD who are currently receiving drug therapy or counselling to prevent heart attacks and strokes. This figure was 40.8% for both sexes, 41.6% among eligible men and 40.0% among eligible women.

TABLE 48 • Respondents aged 40–69 with a 10-year CVD risk* ≥ 20% or with existing CVD, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
40–54	667	9.8	7.3–13.0	619	14.6	10.8–18.3	1286	11.6	9.5–14.1
55–69	588	23.7	19.5–28.5	629	18.1	14.6–22.1	1217	20.7	17.9–23.8
40–69	**1255**	**15.0**	**12.7–17.7**	**1248**	**15.6**	**13.2–18.4**	**2503**	**15.3**	**13.5–17.3**

* A 10-year CVD risk of ≥ 20% 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 ≥ 7.0 mmol/L [126 mg/dL].

Sources: WHO and MOH Viet Nam.

TABLE 49 • Eligible persons* receiving drug therapy and counselling, including glycaemic control, to prevent heart attacks and strokes, by age group and sex (*n*, %)**

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
40–54	72	33.8	20.5–50.4	86	17.7	9.8–29.8	158	25.0	16.8–35.5
55–69	139	47.0	36.8–57.4	120	61.3	49.1–72.3	259	53.7	45.6–61.6
40–69	**211**	**41.6**	**33.3–50.3**	**206**	**40.0**	**31.3–49.5**	**417**	**40.8**	**34.5–47.4**

* Eligible persons: persons aged 40–69 with a 10-year CVD risk ≥ 20%[#], including those with existing CVD.

[#] A 10-year CVD risk of ≥ 20% 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 ≥ 7.0 mmol/L [126 mg/dL].

** Counselling is defined as receiving advice from a doctor or other health worker to quit using tobacco or not start, reduce salt in diet, eat at least five servings of fruit and/or vegetables per day, reduce fat in diet, start or do more physical activity, maintain a healthy body weight or lose weight.

Sources: WHO and MOH Viet Nam.

3.6 Objective 5

Trend of NCDs and risk factors between 2015 and 2021

Smoking status

The comparison of prevalence of risk factors between 2015 and 2021 is made using the 95% CI. The two prevalences or means are significantly different if their 95% CI do not overlap.

Table 50 presents the prevalence of smoking status in STEPS 2021 and GATS 2015. The prevalence of current smoking reported in 2021 for both males and females (20.8%) was slightly lower than that reported in the GATS survey in 2015 (22.5%), while there was a larger reduction of smoking among males from 2015 (45.3%) to 2021 (41.1%). However, both reductions were not statistically significant ($P > 0.05$).

The prevalence of exposure to SHS in the home in the past 30 days (37.3%) is lower than that reported in the GATS survey in 2015 (59.9%) — a significant change ($P < 0.05$).

TABLE 50 • Comparison, between two rounds of STEPS (2015 and 2021), of the smoking status and of exposure to SHS at home among all respondents, by sex (*n*, %)

Men/Women	STEPS/GATS* 2015 N = 8996		STEPS 2021 N = 4738	
	(%)	95% CI	(%)	95% CI
Current smokers				
MEN	45.3	43.1–47.5	41.1	38.3–44.0
WOMEN	1.1	0.7–1.6	0.6	0.4–1.0
TOTAL	**22.5**	**21.3–23.8**	**20.8**	**19.3–22.4**
Exposure to second-hand tobacco smoke at home in the past 30 days				
MEN	**65.2**	**63.0–67.3**	**37.4**	**34.6–40.4**
WOMEN	**55.0**	**53.0–57.0**	**37.2**	**34.1–40.3**
TOTAL	**59.9**	**58.2–61.7**	**37.3**	**35.0–40.0**

* In 2015, the tobacco issue was reported under the GATS survey only.

Sources: WHO and MOH Viet Nam.

Alcohol consumption

Table 51 shows that the prevalence of current drinkers was significantly lower in 2021 compared to 2015. Alcohol intake was higher among males than females, which was also noted in both rounds of STEPS surveys.

Table 52 shows the prevalence of current drinkers who drove within two hours of drinking in the past 30 days in 2021 compared to 2015. There was a significant reduction in the rate of drink–driving from 45% in 2015 to 27.3% in 2021. Significant reductions are also seen in subgroups by sex or by age group.

TABLE 51 • Comparison, between two rounds of STEPS (2015 and 2021), of the respondents who are current drinkers, by age group, rural/urban and sex (*n*, %)

Men/Women Age group Rural/Urban	STEPS 2015 N = 3749		STEPS 2021 N = 4396	
	(%)	95% CI	(%)	95% CI
MEN	77.3	74.6–80.0	64.2	60.5–67.9
WOMEN	11.1	9.3–12.9	9.8	7.8–11.8
18–29	43.2	39.0–47.5	32.5	27.6–37.4
30–49	48.2	45.0–51.4	40.7	37.6–43.8
50–69	36.7	33.6–39.8	35.3	32.7–37.9
RURAL	43.6	40.6–46.6	39.1	36.3–41.9
URBAN	44.2	41.0–47.4	33.3	29.8–36.8
TOTAL	**43.8**	**41.6–46.1**	**36.9**	**34.7–39.2**

Sources: WHO and MOH Viet Nam.

TABLE 52 • Comparison, between two rounds of STEPS (2015 and 2021), of the drinkers who drive within two hours after drinking, by age group and sex (*n*, %)

Men/Women Age group	STEPS 2015 N = 1504		STEPS 2021 N = 1722	
	(%)	95% CI	(%)	95% CI
MEN	47.9	44.3–51.4	28.1	25.1–31.1
WOMEN	24.0	17.3–30.7	22.7	14.6–30.8
18–29	47.6	40.8–54.5	31.7	23.7–39.7
30–49	46.5	42.3–50.7	26.4	22.6–30.1
50–69	37.2	36.1–42.7	25.1	21.2–29.1
TOTAL	**45.0**	**41.7–48.2**	**27.3**	**24.5–30.2**

Sources: WHO and MOH Viet Nam.

Physical activity

Table 53 presents the percentage of respondents not meeting WHO recommendations on physical activity for health between two rounds of STEPS. In 2015, 28.1% of the population aged 18–69 year did not meet WHO recommendations for physical activity for health. In 2021, this figure dropped significantly to 22.2% ($P < 0.05$). The decreasing trend was more noticeable for the urban population (from 36.9% to 28.3%) than for the rural population (from 23.2 to 19.1%).

TABLE 53 • Comparison, between two rounds of STEPS (2015 and 2021), of respondents not meeting WHO recommendations on physical activity for health, by age group, rural/urban and sex (*n*, %)

Men/Women Age group Rural/Urban	STEPS 2015 N = 3661		STEPS 2021 N = 4300	
	(%)	95% CI	(%)	95% CI
MEN	20.2	17.8–22.6	16.1	13.7–18.5
WOMEN	35.7	32.7–38.7	28.3	25.2–31.5
18–29	33.4	29.1–37.7	26.2	21.3–31.2
30–49	25.8	23.1–28.5	19.7	17.1–22.2
50–69	25.1	22.1–28.1	22.4	19.5–25.4
RURAL	23.2	20.4–26.0	19.1	16.5–21.7
URBAN	36.9	34.0–39.8	28.3	25.2–31.4
TOTAL	**28.1**	**25.9–30.2**	**22.2**	**20.1–24.4**

Sources: WHO and MOH Viet Nam.

Vegetable/fruit consumption

Table 54 presents the comparison of the proportion of respondents consuming less than five servings of fruit and/or vegetables on average per day between two rounds of STEPS. This figure was 57.2% in 2015 and increased to 59.0% in 2021, which was not a statistically significant change.

TABLE 54 • Comparison, between two rounds of STEPS (2015 and 2021), of respondents consuming less than five servings of fruit and/or vegetables on average per day, by age group, rural/urban and sex (*n*, %)

Men/Women Age group Rural/Urban	STEPS 2015 N = 3740		STEPS 2021 N = 4423	
	(%)	95% CI	(%)	95% CI
MEN	63.1	59.9–66.3	61.5	58.1–64.9
WOMEN	51.4	48.1–54.8	56.6	52.5–60.6
18–29	54.1	49.3–59.0	56.7	50.8–62.6
30–49	58.0	54.7–61.3	60.3	56.7–63.9
50–69	60.0	56.6–63.4	59.3	55.8–62.8
RURAL	60.3	56.8–63.9	61.6	57.5–65.8
URBAN	52.0	48.2–55.7	54.6	50.6–58.7
TOTAL	**57.2**	**54.6–59.8**	**59.0**	**55.9–62.1**

Sources: WHO and MOH Viet Nam.

Overweight/Obesity

Table 55 presents the proportion of the population with BMI > 25 (classified as overweight/obesity) over time for total population and subgroup by sex, geographical area and age group.

This figure was significant higher in 2021 compared to 2015 ($P < 0.05$) and the same trend was observed for the subgroup analysis.

TABLE 55 • Comparison, between two rounds of STEPS (2015 and 2021), of the proportion with a BMI > 25 among respondents, by age group, rural/urban and sex (*n*, %)

Men/Women Age group Rural/Urban	STEPS 2015 N = 3037		STEPS 2021 N = 3717	
	(%)	95% CI	(%)	95% CI
MEN	14.9	12.3–17.5	19.3	16.7–21.9
WOMEN	16.4	14.2–18.6	19.7	16.6–22.8
18–29	9.8	6.5–13.0	16.1	11.4–20.7
30–49	17.6	15.3–20.0	19.6	17.0–22.1
50–69	19.7	16.7–22.7	22.8	20.1–25.6
RURAL	12.6	10.5–14.6	16.7	14.0–19.4
URBAN	21.4	18.0–24.7	24.2	21.0–27.4
TOTAL	**15.6**	**13.9–17.4**	**19.5**	**17.4–21.6**

Sources: WHO and MOH Viet Nam.

Table 56 presents the BMI levels among all respondents for STEPS 2015 and 2021. Almost one fifth (19.5%) of people were overweight in STEPS 2021, a figure higher than that reported in STEPS 2015 (15.6%).

TABLE 56 • Comparison, between two rounds of STEPS (2015 and 2021), of BMI levels among all respondents (%)

BMI level	STEPS 2015		STEPS 2021	
	(%)	95% CI	(%)	95% CI
Underweight	11.6	10.0–13.2	9.4	7.9–10.9
Normal weight	72.7	70.6–74.9	71.1	69.0–73.2
Overweight	13.9	12.3–15.6	17.4	15.5–19.2
Obese	1.7	1.1–2.0	2.1	1.3–2.9
TOTAL	**100.0**	**13.9–17.4**	**100.0**	**17.4–21.6**

Sources: WHO and MOH Viet Nam.

Raised BP

Table 57 presents the prevalence of raised BP over time (using the criteria of SBP ≥ 140 or DBP ≥ 90 mmHg or on medication for hypertension). The proportion of hypertension in year 2015 was 18.9% and this figure increased to 26.2% in 2021 ($P < 0.05$). The population aged 50–69 and those living in urban areas experienced a faster increase in the proportion of hypertension compared to younger and rural counterparts.

Table 58 shows that the proportion of people with raised BP and currently under management in a health facility increased significantly between 2015 (13.6%) and 2021 (24.7%).

TABLE 57 • Comparison, between two rounds of STEPS (2015 and 2021), of respondents with high BP (SBP > 140 and/or DBP > 90) or currently on medication, by age group, rural/urban and sex (*n*, %)

Men/Women Age group Rural/Urban	STEPS 2015 N = 3079		STEPS 2021 N = 3654	
	(%)	95% CI	(%)	95% CI
MEN	23.1	20.3–25.9	33.3	30.4–36.2
WOMEN	14.9	13.0–16.7	19.1	17.1–21.1
18–29	5.4	3.1–7.7	5.9	3.2–8.5
30–49	17.3	14.9–19.7	23.7	20.7–26.7
50–69	40.2	36.5–43.8	51.9	48.7–55.2
RURAL	19.2	17.1–21.3	25.5	23.3–27.7
URBAN	18.4	16.2–20.7	28.0	24.8–31.1
TOTAL	**18.9**	**17.3–20.5**	**26.2**	**24.4–28.0**

Sources: WHO and MOH Viet Nam.

TABLE 58 • Comparison, between two rounds of STEPS (2015 and 2021), of raised BP management at a health facility, among respondents with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) or currently on medication (*n*, %)

Health facility level	STEPS 2015 N = 689		STEPS 2021 N = 1267	
	(%)	95% CI	(%)	95% CI
Type and proportion of health facility where respondents are being managed (%)				
Commune health station	19.0	–	21.2	16.5–26.8
District health facilities	33.6	–	42.8	36.2–49.7
Provincial health facilities	27.0	–	15.4	10.7–21.6
Central hospital	10.2	–	5.2	3.1–8.4
Private health facility	8.0	–	12.8	9.0–18.1
Others	2.2	–	2.6	1.2–5.4
Respondents having hypertension management at a health facility, among those with raised BP or on hypertension medicine				
TOTAL	**13.6**	**11.1–16.2**	**24.7**	**21.4–28.3**

Sources: WHO and MOH Viet Nam.

Blood total cholesterol

The proportion of respondents with raised cholesterol (total cholesterol value ≥ 6.2 mmol/L) or were currently on medication for raised cholesterol was significant higher in 2021 compared to 2015 ($P < 0.05$). Specifically, this figure was 9.6% in 2015 and 14.6 in 2021. The same pattern was seen for the subgroup analysis by sex, age group and rural/urban between the two surveys (**Table 59**).

At the level of cholesterol ≥ 5.0 mmol/L or ≥ 190 mg/dL or currently on medication, the proportion of respondents who had raised cholesterol level was also significantly higher in 2021 ($P < 0.05$): 44.1% in 2021 versus 30.2% in 2015 (**Table 59**).

TABLE 59 • Comparison, between two rounds of STEPS (2015 and 2021), of respondents with total cholesterol level or currently on medication for raised cholesterol, by age group, rural/urban and sex (*n*, %)

Men/Women Age group Rural/Urban	STEPS 2015 N = 3074		STEPS 2021 N = 3695	
	(%)	95% CI	(%)	95% CI
Total cholesterol (≥ 6.2 mmol/L or ≥ 240 mg/dL) or currently on medication for raised cholesterol				
MEN	7.5	5.8–9.3	12.2	10.2–14.2
WOMEN	11.7	9.8–13.6	16.9	14.4–19.5
18–29	5.0	2.8–7.3	8.2	4.8–11.7
30–49	8.6	6.9–10.3	12.6	10.4–14.9
50–69	17.7	14.9–20.5	24.2	21.5–26.9
RURAL	9.1	7.4–10.9	13.2	10.9–15.6
URBAN	10.3	8.1–12.6	17.5	14.9–20.0
TOTAL	**9.6**	**8.2–11.0**	**14.6**	**12.8–16.3**
Total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dL) or currently on medication for raised cholesterol				
MEN	25.5	22.3–28.6	38.9	35.3–42.5
WOMEN	35.0	31.8–38.2	49.7	45.9–53.5
18–29	16.3	12.3–20.3	31.2	24.9–37.5
30–49	30.7	27.5–33.9	42.0	38.4–45.7
50–69	45.5	41.5–49.5	59.4	56.1–62.7
RURAL	29.4	26.4–32.4	41.5	37.8–45.3
URBAN	33.0	29.4–36.5	50.2	46.4–54.0
TOTAL	**30.5**	**28.1–32.8**	**44.5**	**41.7–47.3**

Sources: WHO and MOH Viet Nam.

Raised blood glucose

The proportion of respondents with raised blood sugar (blood glucose value ≥ 7 mmoL) or were currently on medication for diabetes was 4.1% in 2015. This figure was higher in 2021, which was 7.1%, ($P < 0.05$).

The same trend was observed for comparison of the proportion of diabetes among men/women, age group and rural/urban over time (**Table 60**).

Table 61 compares the proportion of respondents with raised blood glucose being managed at a health facility between 2015 and 2021. The proportion being managed at a health facility has decreased, but is not statistically significant.

Table 62 shows the percentage of eligible persons receiving drug therapy and counselling. The proportion increased between 2015 and 2021 but the change was not significant.

TABLE 60 • Comparison, between two rounds of STEPS (2015 and 2021), of respondents who have raised blood glucose or are currently on medication for diabetes, by age group, rural/urban and sex (*n*, %)

Men/Women Age group Rural/Urban	STEPS 2015 N = 2816		STEPS 2021 N = 3338	
	(%)	95% CI	(%)	95% CI
MEN	4.5	3.1–5.9	7.3	5.9–8.7
WOMEN	3.6	2.7–4.6	6.9	5.2–8.5
18–29	1.8	0.3–3.3	3.0	0.4–5.7
30–49	3.6	2.5–4.7	5.6	4.0–7.1
50–69	7.7	5.8–9.7	13.4	11.4–15.5
RURAL	3.2	2.3–4.2	6.0	4.6–7.3
URBAN	5.1	3.7–6.6	8.7	6.8–10.5
TOTAL	**4.1**	**3.2–5.0**	**7.1**	**6.0–8.2**

Sources: WHO and MOH Viet Nam.

TABLE 61 • Comparison of raised blood glucose management at a health facility among those with raised blood glucose or on medication for raised blood glucose (n, %)

Health facility level	STEPS 2015 N = 135		STEPS 2021 N = 313	
	(%)	95% CI	(%)	95% CI
Type and proportion of health facility where respondents are being managed				
Commune health station	6.2	–	12.3	4.7–28.7
District health facilities	38.5	–	53.4	34.8–71.1
Provincial health facilities	35.4	–	11.2	6.0–20.0
Central hospital	13.8	–	6.2	2.7–13.8
Private health facility	4.6	–	8.5	3.4–19.7
Others	1.5	–	8.3	2.6–23.5
Respondents receiving diabetes management at a health facility, among those with raised blood glucose or on diabetes medicine (%)				
TOTAL	**28.9**	**21.1–36.6**	**23.3**	**16.2–32.2**

Sources: WHO and MOH Viet Nam.

TABLE 62 • Eligible persons* receiving, between 2015 and 2021 surveys, drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes, by sex (*n*, %)

Men/Women	STEPS 2015 N = 262		STEPS 2021 N = 417	
	(%)	95% CI	(%)	95% CI
MEN	32.3	24.3–41.5	41.6	33.3–50.5
WOMEN	42.8	33.5–52.5	40.0	31.3–49.5
TOTAL	**37.7**	**31.4–44.4**	**40.8**	**34.5–47.4**

* Persons defined as aged 40–69 years with a 10-year CVD risk ≥ 20%, including those with existing CVD.

Sources: WHO and MOH Viet Nam.

4. DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

The Viet Nam National Survey on the Risk Factors for NCDs using the WHO STEPS methodology conducted in 2021 was the second round of the national STEPS survey for the country. The objective of the survey was to evaluate the current situation and trends of risk factors for NCDs among the population aged 18–69 and selected indicators for those aged 15 and above (such as tobacco use) to provide information to help assess the implementation of the national NCDs programme and to provide evidence for formulation of policies and interventions.

The main NCDs behavioural risk indicators evaluated in STEPS included smoking, alcohol consumption, diet and physical activity. The survey also collected anthropometric and biochemical measurements indicators. The prevalence of each indicator was estimated for 2021 and compared with the same indicator in 2015 to evaluate the trend over time. The overall findings for each of these risk factors is summarized below.

Smoking

One fifth (20.8%) of the population aged 15 and above were current smokers, including 41.1% of all men and 0.6% of all women. Every third respondent (37.3%) had been exposed to SHS at home during the 30 days before the survey. The prevalence of current smoking in 2021 was slightly lower than that reported in the GATS survey in 2015, at 20.8% and 22.5%, respectively (age group 15 and above for tobacco indicator only). The adult male smoking rate dropped from 45.3% in 2015 to 41.1% in 2021, while the respective rate for females decreased from 1.1% to 0.6%. It is noteworthy that the results of the two surveys show that the rate of exposure to SHS at home has reduced remarkably from 59.9% in 2015 to 37.3% in 2021. The reduction clearly reflects various efforts by the Viet Nam Tobacco Control Fund and partners in recent years.

In comparison to other countries in the Western Pacific, the prevalence of smoking among the Vietnamese population was lower than in Indonesia in 2021, at 33.5% overall, with 64.7% of men and 2.3% of women currently using smoking tobacco. Prevalence in Viet Nam seems to be similar to that in the Philippines in 2015, although the Philippines has a significantly higher smoking rate among women (overall 22.5%; 40.3% and 5.1% for males and females, respectively).

The global NCD voluntary targets and the National Strategy for NCD Prevention and Control require Viet Nam to relatively reduce tobacco use by 30% by 2025 compared to the baseline in 2015. With the current rate of reduction in Viet Nam, much more effort will be required to achieve the goal of global and national targets by 2025.

Alcohol consumption

Alcohol consumption was frequent and levels consumed were relatively high in Viet Nam. Nearly two thirds of men (64.2%) and one tenth (9.8%) of women, 36.9% overall, had consumed alcohol in the previous 30 days.

Heavy episodic drinking (HED) is defined as consuming six or more drinks on at least one drinking occasion in the past 30 days. In Viet Nam in 2021, every seventh person aged 18−69 (14.7%) was a heavy episodic drinker and HED was higher among men (28.5%) than women (1.0%). HED is an important indicator and part of the indicators for the WHO global NCD monitoring framework. It is important to note that globally, WHO uses HED prevalence among adults aged 15 and older as the internationally comparable indicator.

Regarding drink−driving, more than one fourth (27.3%) of current drinkers drove motorized vehicles within two hours after drinking, with a higher rate among men (28.1%) compared to women (22.7%).

Compared to 2015, the prevalence of alcohol use in the past 30 days decreased from 43.8% in 2015 to 36.9% in 2021. A decrease was also shown for both males and females between the two surveys. HED prevalence among age group 18–69 years was reduced from 22.4% (44.2% in males and 1.2% in females) in 2015 to 14.7% in 2021 (28.5% in males and 1.0% in females). Among current drinkers, prevalence of driving within two hours after drinking reduced significantly from 45.0% to 27.3% between 2015 and 2021. The reduction of alcohol use and drink−driving is very encouraging, and this could be attributable to strong enforcement of the drink−driving ban as defined in the alcohol control law, coming into force in January 2020, and related policies. The COVID-19 pandemic could have played a role in the reduction as well.

Among the population aged 15 and older, the HED prevalence in Viet Nam estimated in the 2021 survey was 13.4% overall (25.8% among males and 1.0% among females). This is lower compared to Thailand, which has a rate of 16.8% overall (28.2% among males and 5.6% among females) and almost the same as the Philippines at 12.1% overall (20.8% among males and 3.4% among females).

The National Strategy for NCD Prevention and Control set the target of reducing alcohol use by 10% by 2025 relatively to 2015. Results from STEPS 2021 indicate that alcohol use has fallen, and Viet Nam is likely to achieve the National Strategy target. However, it should be noted that the reduction in alcohol use reflected in this round of the survey could be attributable to the alcohol control policy and partly due to the effect of the COVID-19 pandemic. Therefore, the next STEPS survey will be important for assessing the trend of alcohol use in the country.

Diet

The percentage of the population not consuming a sufficient quantity of fruits and vegetables (five servings of fruit and/or vegetables daily) was still high and increased between 2015 (57.2%) and 2021 (59.0%) but the change is not statistically significant. The slight reduction in vegetable and fruit consumption could be partly due to the COVID-19 pandemic, which affected the normal flow of supply for these products in certain areas of the country.

Reducing population salt intake has been identified as an important and cost-effective measure for improving population health outcomes throughout the world because high salt diets are linked to raised BP and a range of other diseases. WHO recommends less than 5 g of salt (or 2 g of sodium) per

person per day. The average salt intake was 8.1 g per day among Vietnamese, a significant reduction compared to 9.4 g in 2015. This reduction was seen for both males and females. If the current trend of salt reduction is maintained, Viet Nam will likely reach the desired target of reducing salt use by 30% by 2025 compared to the baseline in 2015.

Physical activity

WHO recommends that weekly, including activity for work, during transport and leisure time, adults should do at least 150 minutes of moderate-intensity physical activity, or 75 minutes of vigorous-intensity physical activity, or an equivalent combination of moderate- and vigorous-intensity physical activity to achieve at least 600 MET-minutes.

Results showed that in 2021 nearly one fourth of the population (22.2%) did not meet WHO recommendations on physical activity for health. Compared to 2015, the rate of inactive physical population decreased (from 28.1% to 22.2%) for the entire population and for both males and females.

Global age-standardized prevalence of insufficient physical activity was 27.5% in 2016. In East and South-East Asia, this prevalence was 17.6% (95% CI: 15.7–23.9). Thus, the prevalence of insufficient physical activity in Viet Nam in 2021 was lower than the global average, but still higher compared to other South-East Asian countries.

Blood pressure

In Viet Nam, one fourth of the population (26.2%) in 2021 had raised BP, defined as levels of SBP ≥ 140 and/or DBP ≥ 90 mmHg, or currently taking medication for raised BP.

Compared to 2015, the prevalence of raised BP increased significantly from 18.9% to 26.2%, which is approximately a 1.39 times relative increase. This increasing trend between the two surveys was observed for both males and females.

The raised BP prevalence in Viet Nam is similar to that of Thailand in 2016 (25% overall, 26% in males and 24% in females), but significantly higher than the Philippines in 2016 (19% overall, 20% in males and 18% in females). With current increasing trends, Viet Nam will need to strengthen prevention efforts to achieve the national target of keeping prevalence of hypertension below 30% by 2025, as specified in the National Strategy.

Overweight/Obesity

In 2021, almost one fifth of the population (19.5%) were overweight (BMI ≥ 25 kg/m^2), including 2.1% who were obese (BMI ≥ 30 kg/m^2). The prevalence of overweight/obesity rose from 15.6% in 2015 to 19.5% in 2021, a relative increase of 1.25 times.

The National Strategy proposes to control the prevalence of overweight to below 15% among adults. Based on this, this target was not achieved in 2021. WHO's global estimation of overweight/obesity showed that 39% of adults aged 18 years and over were overweight in 2016, and 13% were obese. Compared to the global situation, Viet Nam was not among countries with a high burden; however, the prevalence has increased rapidly in the past 10 years (1% per year on average), therefore the burden of obesity/overweight is expected to escalate in the future.

Raised blood glucose

In 2021, the prevalence of raised fasting blood glucose (≥ 7.0 mmol/L or currently taking oral hypoglycaemic drugs or insulin) was 7.1% among population aged 18–69 years. The prevalence had increased significantly compared to 2015, from 4.1% to 7.1%, a relative change of 1.73 times. The increasing trend was observed for both men and women between the two surveys. With this rapidly increasing trend, Viet Nam will need to strengthen prevention efforts to achieve the national as well as global targets in controlling diabetes prevalence to < 8% by 2025.

Raised cholesterol

In 2021, the prevalence of raised cholesterol (total blood cholesterol levels of ≥ 5.0 mmol/L or currently on medication for raised cholesterol) was 44.1%. This prevalence increased dramatically compared to 2015 (30.2%). The target of the National Strategy is to control the prevalence of raised cholesterol to < 35%. This target was not achieved in 2021. The burden of raised blood cholesterol is also expected to increase in the coming year.

NCD detection and management

The data show that the detection rates of hypertension and diabetes are still not high. As of 2021, only 40.2% of people with hypertension and 35% of people with diabetes were detected. The goal of the National Strategy is to detect 50% of people with hypertension and 50% of people with diabetes by 2025.

The management of hypertension and diabetes showed different trends. The trend for hypertension was positive.

The proportion of the population with raised BP or on hypertension medicine under management at a health facility was higher in 2021 (24.7%) compared to 2015 (13.6%). In 2021, most hypertension cases were managed at the district (42.8%) or commune level (21.2%). The increased rate of hypertension patients being managed at a health facility is encouraging and reflects strong efforts by the MOH and partners in building capacity for hypertension management at the primary-care level in recent years. However, this figure still did not meet the target set by the National Strategy (50% detected hypertension to be managed at health facility).

The proportion of diabetes patients being managed at a health facility decreased from 28.9% in 2015 to 23.3% in 2021. This reduction may be explained by the sharp increase in the prevalence of people with raised blood glucose, from 4.1% to 7.1% within five years. Most of the diabetes cases were managed either at district or provincial health facilities.

Conclusion

STEPS 2021 aimed to evaluate the situation and trends of risk factors for NCDs among the population aged 18–69 and selected indicators for those aged 15 and above in Viet Nam. In general, the prevalence of behavioural risk factors showed decreasing trends over time, but more efforts are needed to ensure these indicators will reach the national and global targets by 2025. On the other hand, the prevalence of anthropometric and biochemical risk factors showed opposite trends, which will pose a heavy burden for the health sector in Viet Nam in coming years. The main findings are as follows.

» *Decrease in rate of current smokers:* the prevalence of current smoking in 2021

was slightly lower than that reported in the GATS survey in 2015 at 20.8% and 22.5%, respectively (age group is 15 and above for tobacco indicator only). Male smoking rate reduced from 45.3% in 2015 to 41.1% in 2021, while the respective rate for female population decreased from 1.1% to 0.6%.

» *Reduction in rate of current drinkers:* the prevalence of alcohol use in the past 30 days decreased from 43.8% in 2015 to 36.9% in 2021. Among current drinkers, prevalence of driving two hours after drinking reduced significantly from 45.5% to 27.3% between 2015 and 2021.

» *Slight increase in population not consuming enough fruit and vegetables but reduction in salt intake:* the proportion of respondents who reported not consuming at least five servings of fruit and/or vegetables per day slightly increased from 57.2% in 2015 to 59.0% in 2021. The average salt intake per day among the population was significantly reduced from 9.4 g to 8.1 g, and this reduction was seen for both men and women between the two surveys.

» *Decrease in population reporting insufficient physical activity:* the rate of inactive physical population decreased from 28.1% in 2015 to 22.2% in 2021 for the whole population and for both men and women.

» *Increase in overweight/obesity:* the prevalence of overweight/obesity rose rapidly from 15.6% in 2015 to 19.5% in 2021.

» *Increase in raised BP:* there was a significant increase in the prevalence of raised BP from 18.9% in 2015 to 26.2% in 2021 overall in both men and women.

» *Increase in raised blood glucose:* the percentage of the population with raised blood glucose increased significantly from 4.1% to 7.1% overall among both men and women between the two surveys in 2015 and 2021.

» *Sharp increase in raised total blood cholesterol:* the prevalence of respondents having total blood cholesterol ≥ 5.0 mmol/L or currently on medication for raised cholesterol sharply increased from 30.2% to 44.1% between the two surveys.

» *The proportion of population with hypertension and diabetes being managed at health facilities* was still low, at only 24.7% for hypertension and 23.3% for diabetes.

4.2 Recommendations

» Although progress is being made in reducing behavioural risk factors, more effort is needed to reduce NCD risk factors, especially to control metabolic risk factors, to reach the global and national targets by 2025 and 2030.

» NCD management services at the primary-care level need to be significantly strengthened to ensure coverage and quality and cost-effective services for NCD patients in coming years, to detect those at the early stages of raised BP and blood glucose and provide proper management to avoid serious complications and thereby reduce hospital overloads at the central level.

» As part of the NCD surveillance system, STEPS surveys need to be conducted periodically to monitor NCD risk factors in Viet Nam.

5. ANNEXES

5.1 ANNEX 1: Other results from STEPS 2021

Background characteristics

TABLE A1 • Mean number of years of education among respondents, by age group and sex (*n*)

Age group	MEN		WOMEN		BOTH SEXES	
	n	Mean value	*n*	Mean value	*n*	Mean value
18–29	275	11.05	268	11.07	543	11.06
30–49	980	9.47	953	9.15	1933	9.31
50–69	961	8.49	998	7.26	1959	7.86
18–69	**2216**	**9.24**	**2219**	**8.53**	**4435**	**8.88**

Sources: WHO and MOH Viet Nam.

TABLE A2 • Marital status of survey respondents, by age group and sex (*n*, %)

Age group	*n*	Never married (%)	Currently married (%)	Separated (%)	Divorced (%)	Widowed (%)	Cohabitating (%)
MEN							
18–29	275	58.9	39.3	1.5	0.4	0.0	0.0
30–49	978	6.1	89.9	3.7	0.3	0.0	0.0
50–69	957	1.5	92.9	1.5	4.2	0.0	0.0
18–69	**2210**	**10.7**	**84.9**	**9.2**	**2.0**	**0.0**	**0.0**
WOMEN							
18–29	268	26.1	71.6	2.2	0.0	0.0	0.0
30–49	950	4.0	85.2	5.6	5.3	0.0	0.0
50–69	989	4.3	67.3	5.1	23.3	0.0	0.0
18–69	**2207**	**6.8**	**75.5**	**4.9**	**12.7**	**0.0**	**0.0**
BOTH SEXES							
18–29	543	42.7	55.2	1.8	0.2	0.0	0.0
30–49	1928	5.1	87.6	4.6	2.7	0.0	0.0
50–69	1946	2.9	79.9	3.3	13.9	0.0	0.0
18–69	**4417**	**8.8**	**80.2**	**3.7**	**7.3**	**0.0**	**0.0**

Sources: WHO and MOH Viet Nam.

TABLE A3 • Respondents classified between those in unpaid work and those unemployed, by age group and sex (*n*, %)

Age group	*n*	UNPAID WORK (%)			UNEMPLOYED (%)	
		Student	Home-maker	Retired	Able to work	Not able to work
MEN						
18–29	45	88.9	2.2	0.0	6.7	2.2
30–49	20	0.0	15.0	10.0	45.0	30.0
50–69	270	0.7	1.5	66.7	17.4	13.7
18–69	**335**	**12.5**	**2.4**	**54.3**	**17.6**	**13.1**
WOMEN						
18–29	76	39.5	52.6	1.3	6.6	0.0
30–49	112	1.8	89.3	0.9	5.4	2.7
50–69	424	0.5	48.6	33.5	8.5	9.0
18–69	**612**	**5.6**	**56.5**	**23.5**	**7.7**	**6.7**
BOTH SEXES						
18–29	121	57.9	33.9	0.8	6.6	0.8
30–49	132	1.5	78.0	2.3	11.4	6.8
50–69	694	0.6	30.3	46.4	12.0	10.8
18–69	**947**	**8.0**	**37.4**	**34.4**	**11.2**	**9.0**

Sources: WHO and MOH Viet Nam.

Alcohol consumption

TABLE A4 • Former drinkers* who stopped drinking due to health reasons among those respondents who drank in their lifetime, but not in the past 12 months, by age group and sex (*n*, %)**

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
18–29	7	–	–	29	13.9	1.2–26.6	36	11.2	1.0–21.3
30–49	33	64.2	45.5–82.9	98	13.4	5.2–21.6	131	25.3	15.7–35.0
50–69	79	41.1	27.9–54.2	97	10.2	4.1–16.4	176	24.4	16.6–32.2
18–69	**119**	**42.2**	**31.0–53.4**	**224**	**12.7**	**7.4–17.9**	**343**	**21.7**	**16.2–27.2**

* Drinkers who did not drink during the past 12 months.

** Such as negative impact of drinking on health or as advised by doctor or other health worker.

Sources: WHO and MOH Viet Nam.

TABLE A5 • Frequency of alcohol consumption in the past seven days among current drinkers (within the past 30 days), by age group and sex (*n*, %)

Age group	*n*	Daily (%)	95% CI	5–6 days (%)	95% CI	3–4 days (%)	95% CI	1–2 days (%)	95% CI	0 days (%)	95% CI
MEN											
18–29	100	6.0	0.5–11.5	3.9	0.0–9.5	8.1	1.4–14.8	81.9	72.6–91.3	–	–
30–49	502	15.2	11.1–19.3	1.8	0.8–2.9	10.1	6.9–13.4	72.8	67.9–77.8	–	–
50–69	473	31.7	26.9–36.5	2.8	0.9–4.6	8.5	5.5–11.6	57.0	51.5–62.5	–	–
18–69	**1075**	**18.2**	**15.2–21.2**	**2.5**	**1.2–3.8**	**9.3**	**6.9–11.6**	**70.0**	**66.3–73.8**	**–**	**–**
WOMEN											
18–29	12	–	–	3.9	0.0–11.8	26.7	0.0–58.2	69.4	15.9–37.7	–	–
30–49	52	3.4	0.0–9.3	–	–	0.9	0.0–2.1	95.7	89.6–100	–	–
50–69	29	4.9	0.0–10.8	–	–	–	–	95.1	89.2–100	–	–
18–69	**93**	**2.8**	**0.0–6.1**	**1.0**	**0.0–3.1**	**7.6**	**0.0–17.2**	**88.5**	**78.4–98.7**	**–**	**–**
BOTH SEXES											
18–29	112	5.4	0.4–10.4	3.9	0.0–9.0	10.0	3.1–16.9	80.7	71.7–89.7	–	–
30–49	554	14.3	10.5–18.1	1.7	0.7–2.7	9.4	6.4–12.5	74.6	69.9–79.2	–	–
50–69	502	30.2	25.5–34.8	2.6	0.9–4.3	8.0	5.2–10.9	59.2	53.9–64.5	–	–
18–69	**1168**	**17.0**	**14.2–19.8**	**2.4**	**1.2–3.6**	**9.1**	**6.9–11.4**	**71.4**	**67.8–75.0**	**–**	**–**

Sources: WHO and MOH Viet Nam.

TABLE A6 • Mean number of standard drinks consumed on average per day in the past seven days among current drinkers (within the past 30 days), by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean number	95% CI	*n*	Mean number	95% CI	*n*	Mean number	95% CI
Respondents stopping due to health reasons									
18–29	100	2.10	1.36–2.85	12	0.74	0.22–1.27	112	1.97	1.28–2.65
30–49	502	1.77	1.51–2.02	52	0.62	0.39–0.84	554	1.68	1.45–1.92
50–69	473	2.08	1.82–2.34	29	0.40	0.24–0.57	502	1.98	1.73–2.23
18–69	**1075**	**1.92**	**1.72–2.13**	**93**	**0.61**	**0.42–0.79**	**1168**	**1.82**	**1.63–2.02**

Sources: WHO and MOH Viet Nam.

TABLE A7 • Frequency of failing to do what was normally expected because of drinking during the past 12 months, among past-12-month drinkers, by age group and sex (*n*, %)

Age group	*n*	Monthly or more frequently (%)	95% CI	Less than monthly (%)	95% CI	Never (%)	95% CI
MEN							
18–29	216	2.7	0.7–4.7	4.1	1.1–7.1	93.1	83.4–96.9
30–49	842	2.9	1.4–4.3	7.0	4.8–9.1	90.2	87.5–92.8
50–69	753	1.5	0.6–2.5	5.5	3.4–7.6	93.0	90.7–95.2
18–69	**1811**	**2.5**	**1.6–3.4**	**5.9**	**4.4–7.3**	**91.7**	**90.0–93.3**
WOMEN							
18–29	85	0.0	–	0.8	0.0–2.4	99.2	97.6–100
30–49	283	0.0	–	1.2	0.0–2.4	98.8	97.6–100
50–69	153	0.0	–	0.0	–	100.0	–
18–69	**521**	**0.0**	**–**	**0.9**	**0.04–1.7**	**99.1**	**98.3–99.9**
BOTH SEXES							
18–29	301	1.9	0.5–3.3	3.1	0.9–5.3	94.9	92.2–97.6
30–49	1125	2.2	1.1–3.3	5.7	3.9–7.4	92.1	90.1–94.2
50–69	906	1.3	0.5–2.1	4.7	2.9–6.4	94.0	92.2–96.0
18–69	**2332**	**1.9**	**1.2–2.6**	**4.7**	**3.6–5.8**	**93.4**	**92.0–94.7**

Sources: WHO and MOH Viet Nam.

TABLE A8 • Frequency of having had problems with family or partner due to someone else's drinking in the past 12 months, among all respondents, by age group and sex (*n*, %)

Age group	*n*	Monthly or more frequently (%)	95% CI	Less than monthly (%)	95% CI	Never (%)	95% CI
MEN							
18–29	273	3.0	0.0–7.5	1.5	0.0–3.1	95.5	90.9–100
30–49	969	0.3	0.0–0.7	3.4	1.9–4.9	96.3	94.6–98.0
50–69	951	0.4	0.0–1.1	2.1	1.0–3.2	97.5	96.0–99.0
18–69	**2193**	**1.1**	**0.0–2.4**	**2.5**	**1.6–3.4**	**96.4**	**94.8–97.9**
WOMEN							
18–29	268	0.1	0.0–0.3	3.9	1.5–6.4	96.0	93.5–98.4
30–49	942	0.2	0.0–0.5	3.4	2.0–4.8	96.4	95.0–97.9
50–69	992	0.8	0.0–1.7	4.1	2.0–6.2	95.0	92.7–97.4
18–69	**2202**	**0.3**	**0.1–0.6**	**3.7**	**2.6–4.9**	**95.9**	**94.7–97.1**
BOTH SEXES							
18–29	541	1.5	0.0–3.8	2.8	1.3–4.2	95.7	93.1–98.3
30–49	1911	0.3	0.02–0.5	3.4	2.3–4.5	96.3	95.2–97.5
50–69	1943	0.6	0.1–1.2	3.1	**1.9–4.3**	96.3	94.9–97.6
18–69	**4395**	**0.7**	**0.04–1.4**	**3.1**	**2.3–4.0**	**96.1**	**95.1–97.2**

Sources: WHO and MOH Viet Nam.

TABLE A9 • Alcohol consumption status of all respondents in the past 30 days, for age 15 and above, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	***n***	(%)	95% CI	***n***	(%)	95% CI
Respondents reporting drinking alcohol: at least one standard drink									
15–29	337	45.9	38.0–53.7	310	10.6	5.6–15.6	647	28.2	23.9–32.6
30–49	972	70.7	66.1–75.2	939	10.6	8.0–13.2	1911	40.6	37.5–43.7
50 +	1033	62.7	58.7–66.6	1103	6.3	4.5–8.1	2136	34.4	31.9–37.0
15 +	**2342**	**60.8**	**57.2–64.5**	**2352**	**9.3**	**7.4–11.2**	**4694**	**35.0**	**32.9–37.1**
Respondents reporting heavy episodic drinking (HED): six standard drinks or more, at least one time									
15–29	335	19.0	13.7–24.3	310	0.8	0.0–1.6	645	9.9	7.2–12.5
30–49	961	33.9	29.6–38.3	939	1.5	0.6–2.4	1900	17.6	15.3–19.9
50 +	1029	22.0	18.6–25.4	1103	0.5	0.0–1.0	2132	11.2	9.4–13.0
15 +	**2325**	**25.8**	**23.0–28.7**	**2352**	**1.0**	**0.5–1.4**	**4677**	**13.4**	**11.9–14.8**

Sources: WHO and MOH Viet Nam.

Diet

TABLE A10 • Frequency of fruit and/or vegetables consumption on average per day, by age group and sex (*n*, %)

Age group	*n*	0 fruit and/or vegetables (%)	95% CI	1–2 servings (%)	95% CI	3–4 servings (%)	95% CI	≥ 5 servings (%)	95% CI
MEN									
18–29	274	3.3	1.0–5.7	26.4	19.4–33.4	28.0	22.0–34.1	42.3	34.5–50.0
30–49	977	2.2	1.1–3.2	29.8	25.9–33.7	31.4	28.1–34.8	43.0	32.6–40.6
50–69	958	4.4	2.7–6.1	29.0	25.1–32.9	28.9	25.1–32.6	37.7	33.4–42.1
18–69	**2209**	**3.1**	**2.1–4.1**	**28.6**	**25.5–31.7**	**29.8**	**27.4–32.2**	**38.5**	**35.1–41.9**
WOMEN									
18–29	268	2.7	0.7–4.8	23.1	16.1–30.2	29.8	22.7–37.0	44.3	36.1–52.5
30–49	951	1.6	0.6–2.5	22.0	18.2–25.9	33.6	29.3–37.9	42.8	38.0–47.7
50–69	995	3.6	2.1–5.1	26.2	22.4–30.0	26.6	23.0–30.2	43.6	38.9–48.2
18–69	**2214**	**2.4**	**1.6–3.3**	**23.5**	**20.3–26.6**	**30.7**	**27.4–33.9**	**43.4**	**39.4–47.5**
BOTH SEXES									
18–29	542	3.0	1.5–4.6	24.7	19.7–29.8	28.9	24.0–33.8	43.3	37.4–49.2
30–49	1928	1.9	1.2–2.6	25.9	22.9–28.9	32.5	29.8–35.2	39.7	36.1–43.3
50–69	1953	4.0	2.8–5.2	27.6	24.6–30.5	27.7	25.1–30.4	40.7	37.2–44.2
18–69	**4423**	**2.8**	**2.1–3.4**	**26.0**	**23.6–28.5**	**30.2**	**28.0–32.4**	**41.0**	**37.9–44.1**

Sources: WHO and MOH Viet Nam.

TABLE A11 • Respondents who always, or often, add salt to their food when cooking or preparing foods at home, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
18–29	275	87.9	82.4–93.5	268	90.9	86.8–95.1	543	89.5	85.9–93.0
30–49	980	90.1	87.7–92.5	953	90.6	88.0–93.3	1933	90.4	88.5–92.2
50–69	961	88.3	85.2–91.3	998	88.2	85.4–91.0	1959	88.2	86.0–90.5
18–69	**2216**	**89.0**	**86.7–91.3**	**2219**	**90.1**	**88.1–92.0**	**4435**	**89.5**	**87.8–91.3**

Sources: WHO and MOH Viet Nam.

TABLE A12 • Respondents who think they consume far too much or too much salt, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
18–29	274	20.0	14.2–25.9	267	19.1	13.2–24.9	541	19.5	15.3–23.8
30–49	977	20.1	16.9–23.3	949	14.7	11.7–17.7	1926	17.4	15.0–19.7
50–69	960	22.3	19.2–25.4	998	14.7	11.9–17.5	1958	18.5	16.3–20.7
18–69	**2211**	**20.7**	**18.2–23.2**	**2214**	**15.9**	**13.6–18.2**	**4425**	**18.3**	**16.5–20.1**

Sources: WHO and MOH Viet Nam.

TABLE A13 • Respondents who think that lowering salt in diet is very, somewhat or not at all important, by age group and sex (*n*, %)

Age group	*n*	Very important (%)	95% CI	Somewhat important (%)	95% CI	Not at all important (%)	95% CI
MEN							
18–29	256	5.6	2.2–9.1	64.0	55.5–72.5	30.4	22.2–38.6
30–49	905	6.6	4.6–8.6	64.0	60.0–68.0	29.4	25.5–33.3
50–69	906	6.7	5.0–8.4	71.3	67.2–75.4	22.1	18.1–26.0
18–69	**2067**	**6.4**	**4.9–7.8**	**66.0**	**62.6–69.4**	**27.6**	**24.3–31.0**
WOMEN							
18–29	254	2.5	0.8–4.1	61.7	52.9–70.5	35.8	26.9–44.8
30–49	908	7.8	5.5–10.1	66.5	62.0–71.1	25.7	21.3–30.1
50–69	942	7.3	5.4–9.2	72.8	68.6–77.0	19.9	15.9–23.9
18–69	**2104**	**6.2**	**4.9–7.5**	**66.8**	**63.3–70.4**	**27.0**	**23.3–30.7**
BOTH SEXES							
18–29	510	4.0	2.2–5.8	62.8	56.5–69.1	33.2	26.6–39.7
30–49	1813	7.2	5.6–8.8	65.3	62.0–68.6	27.5	24.2–30.8
50–69	1848	7.0	5.7–8.3	72.0	69.0–75.1	21.0	18.0–24.0
18–69	**4171**	**6.3**	**5.2–7.3**	**66.4**	**63.7–69.1**	**27.3**	**24.4–30.2**

Sources: WHO and MOH Viet Nam.

TABLE A14 • Respondents who think that consuming too much salt could cause a serious health problem, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
18–29	251	89.7	85.5–94.0	257	93.8	89.7–98.0	508	91.9	89.0–94.7
30–49	880	87.0	83.9–90.0	883	90.8	88.0–93.6	1763	88.9	86.7–91.2
50–69	885	87.2	83.7–90.8	906	91.8	89.4–94.2	1791	89.5	87.2–91.8
18–69	**2016**	**87.8**	**85.6–90.0**	**2046**	**91.9**	**90.1–93.8**	**4062**	**89.9**	**88.2–91.6**

Sources: WHO and MOH Viet Nam.

TABLE A15 • Respondents who take specific actions on a regular basis to control salt intake, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Limit the consumption of processed foods									
15–29	275	63.4	55.4–71.4	267	72.0	64.6–79.3	542	67.7	62.0–73.4
30–49	977	67.4	63.1–71.7	950	73.6	69.6–77.6	1927	70.5	67.2–73.8
50 +	957	75.0	71.0–79.0	994	73.8	70.4–77.3	1951	74.4	71.5–77.4
15 +	**2209**	**68.4**	**65.0–71.8**	**2211**	**73.2**	**70.0–76.4**	**4420**	**70.8**	**68.0–73.6**
Look at the salt or sodium content on food labels									
15–29	273	32.9	23.5–42.3	268	31.4	24.0–38.7	541	32.1	26.0–38.3
30–49	979	31.9	27.9–36.0	951	35.9	31.4–40.3	1930	33.9	30.5–37.3
50 +	955	34.3	30.4–38.3	996	31.0	27.4–34.7	1951	32.7	29.7–35.6
15 +	**2207**	**32.8**	**29.1–36.5**	**2215**	**33.3**	**30.1–36.5**	**4422**	**33.1**	**30.3–35.9**
Buy low-salt/sodium alternatives									
15–29	275	41.4	31.8–50.9	268	42.4	34.1–50.8	543	41.9	35.3–48.5
30–49	978	46.4	42.3–50.5	951	48.1	43.4–52.8	1929	47.2	43.7–50.7
50 +	959	45.0	40.5–49.5	998	45.7	41.4–50.0	1957	45.3	41.9–48.8
15 +	**2212**	**44.6**	**40.7–48.5**	**2217**	**45.9**	**42.3–49.5**	**4429**	**45.2**	**42.1–48.4**
Use spices other than salt when cooking									
15–29	275	57.4	49.5–65.2	267	55.6	46.9–64.2	542	56.5	50.1–62.9
30–49	977	54.4	50.5–58.4	952	54.8	50.0–59.6	1929	54.6	51.1–58.2
50 +	960	61.0	56.9–65.1	996	62.3	58.0–66.5	1956	61.6	58.4–64.9
15 +	**2212**	**57.0**	**53.6–60.5**	**2215**	**57.0**	**53.0–61.1**	**4427**	**57.0**	**53.9–60.2**
Avoid eating foods prepared outside of a home									
15–29	275	59.7	52.0–67.5	268	66.2	58.3–74.2	543	63.0	57.5–68.5
30–49	975	65.5	61.4–69.6	952	71.9	67.2–76.6	1927	68.7	65.1–72.3
50 +	956	68.8	64.3–73.2	995	69.7	65.9–73.4	1951	69.2	66.1–72.3
15 +	**2206**	**64.8**	**61.4–68.2**	**2215**	**69.7**	**65.9–73.5**	**4421**	**67.3**	**64.3–70.3**
Do other things specifically to control salt intake									
15–29	273	10.6	5.0–16.2	268	9.6	5.7–13.6	541	10.1	6.5–13.7
30–49	971	8.6	6.2–10.9	945	7.1	5.0–9.3	1916	7.8	6.0–9.6
50 +	947	8.4	6.2–10.6	993	7.0	4.9–9.1	1940	7.7	6.0–9.4
15 +	**2191**	**9.1**	**6.9–11.3**	**2206**	**7.8**	**6.0–9.6**	**4397**	**8.4**	**6.7–10.1**

Sources: WHO and MOH Viet Nam.

Physical activity

TABLE A16 • Mean minutes spent in work-, transport- and recreation-related physical activity on average per day, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
Mean minutes of work-related physical activity on average per day									
18–29	271	237.5	196.1–279	261	171.2	138.6–203.8	532	204.6	176.8–232.5
30–49	943	270.7	250.4–291	929	211.6	191.2–232.0	1872	240.8	225.5–256.2
50–69	928	174.4	158.9–189.9	968	145.9	125.2–166.6	1896	160.0	146.0–174.0
18–69	**2142**	**235.5**	**218.9–252**	**2158**	**182.7**	**167.9–197.5**	**4300**	**209.0**	**196.4–221.5**
Mean minutes of transport-related physical activity on average per day									
18–29	271	27.9	14.6–41.3	261	15.9	10.4–21.5	532	22.0	14.7–29.3
30–49	943	21.9	17.4–26.5	929	35.3	26.0–44.6	1872	28.7	23.2–34.1
50–69	928	25.2	20.8–29.6	968	34.8	29.5–40.0	1896	30.0	26.6–33.5
18–69	**2142**	**24.5**	**20.3–28.7**	**2158**	**29.8**	**25.2–34.5**	**4300**	**27.2**	**24.1–30.3**
Mean minutes of recreation-related physical activity on average per day									
18–29	271	17.7	13.2–22.1	261	5.0	2.7–7.4	532	11.4	8.7–14.1
30–49	943	11.6	8.8–14.3	929	10.0	7.4–12.6	1872	10.8	8.9–12.7
50–69	928	15.4	12.6–18.3	968	14.0	11.1–17.0	1896	14.7	12.6–16.8
18–69	**2142**	**14.3**	**12.4–16.2**	**2158**	**9.7**	**8.2–11.3**	**4300**	**12.0**	**10.7–13.3**

Sources: WHO and MOH Viet Nam.

TABLE A17 • Median minutes spent in work-, transport- and recreation-related physical activity on average per day, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Median minutes	Interquartile range (P25–P75)	*n*	Median minutes	Interquartile range (P25–P75)	*n*	Median minutes	Interquartile range (P25–P75)
Median minutes of work-related physical activity on average per day									
18–29	271	240.0	0.0–420.0	261	34.3	0.0–411.4	532	120.0	0.0–411.4
30–49	943	300.0	12.9–480.0	929	128.6	0.0–420.0	1872	210.0	0.0–420.0
50–69	928	111.4	0.0–308.6	968	30.0	0.0–300.0	1896	60.0	0.0–300.0
18–69	**2142**	**214.3**	**0.0–420.0**	**2158**	**60.0**	**0.0–360.0**	**4300**	**137.1**	**0.0–411.4**

TABLE A17 • Median minutes spent on average per day in work-, transport- and recreation related physical activity, by age group and sex (*n*) *(continued)*

Age group	MEN			WOMEN			BOTH SEXES		
	n	Median minutes	Interquartile range (P25–P75)	*n*	Median minutes	Interquartile range (P25–P75)	*n*	Median minutes	Interquartile range (P25–P75)
Median minutes of recreation-related physical activity on average per day									
18–29	271	0.0	0.0–34.3	261	0.0	0.0–0.0	532	0.0	0.0–8.6
30–49	943	0.0	0.0–8.6	929	0.0	0.0–0.0	1872	0.0	0.0–0.0
50–69	928	0.0	0.0–15.0	968	0.0	0.0–8.6	1896	0.0	0.0–15.0
18–69	**2142**	**0.0**	**0.0–15.0**	**2158**	**0.0**	**0.0–0.0**	**4300**	**0.0**	**0.0–7.1**
Median minutes of transport-related physical activity on average per day									
18–29	271	0.0	0.0–25.7	261	0.0	0.0–14.3	532	0.0	0.0–20.0
30–49	943	0.0	0.0–17.1	929	0.0	0.0–30.0	1872	0.0	0.0–25.7
50–69	928	0.0	0.0–30.0	968	15.0	0.0–40.0	1896	4.3	0.0–30.0
18–69	**2142**	**0.0**	**0.0–21.4**	**2158**	**0.0**	**0.0–30.0**	**4300**	**0.0**	**0.0–30.0**

Sources: WHO and MOH Viet Nam.

TABLE A18 • Work, transport and recreational activity contributing to total physical activity, by age group and sex (*n*, %)

Age group	*n*	Work activity (%)	95% CI	Transport activity (%)	95% CI	Recreational activity (%)	95% CI
MEN							
18–29	244	68.8	62.8–74.8	13.2	9.0–17.3	18.0	12.3–23.7
30–49	856	77.1	73.6–80.7	13.0	10.3–15.6	9.9	7.4–12.4
50–69	786	64.5	60.9–68.2	19.8	17.1–22.6	15.7	12.7–18.6
18–69	**1886**	**6.4**	**68.8–74.2**	**14.8**	**12.9–16.7**	**13.7**	**11.5–16.0**
WOMEN							
18–29	195	69.7	62.8–76.6	22.2	16.3–28.2	8.1	4.7–11.4
30–49	753	66.6	62.6–70.7	22.5	19.2–25.8	10.8	8.2–13.5
50–69	784	52.1	47.8–56.3	34.7	30.8–38.6	13.2	10.6–15.8
18–69	**1732**	**63.3**	**60.2–66.4**	**25.9**	**23.2–28.5**	**10.8**	**9.2–12.5**
BOTH SEXES							
18–29	439	69.2	64.4–74.0	17.1	13.5–20.8	13.7	9.8–17.5
30–49	1609	72.1	69.0–75.2	17.5	15.2–19.9	10.3	8.3–12.4
50–69	1570	58.3	55.5–61.2	27.2	24.6–29.9	14.4	12.4–16.5
18–69	**3618**	**67.6**	**65.3–70.0**	**20.0**	**18.3–21.8**	**12.3**	**10.7–14.0**

Sources: WHO and MOH Viet Nam.

History of raised BP

TABLE A19 • Respondents who have sought advice or received treatment from a traditional healer for raised BP, among those previously diagnosed, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Respondents who have seen a traditional healer for raised BP									
18–29	6	–	–	11	–	–	17	–	–
30–49	99	3.5	0.0–8.7	66	4.7	0.0–10.9	165	4	0.1–8.0
50 +	300	3.9	1.7–6.1	308	4.8	1.7–7.9	608	4.3	2.5–6.2
18–69	**405**	**3.6**	**1.3–5.9**	**385**	**4.5**	**1.9–7.0**	**790**	**4**	**2.3–5.8**
Currently taking herbal or traditional treatment for raised BP									
18–29	6	–	–	11	–	–	17	–	–
30–49	99	1.1	0.0–3.1	66	5.2	0.0–11.5	165	3.0	0.0–5.9
50 +	301	4.6	2.1–7.2	308	4.3	1.1–7.5	609	4.5	2.4–6.5
18–69	**406**	**3.4**	**1.6–5.2**	**385**	**4.3**	**1.6–7.0**	**791**	**3.8**	**2.2–5.5**

Sources: WHO and MOH Viet Nam.

TABLE A20 • Respondents who have sought advice or treatment from a traditional healer for diabetes, among those previously diagnosed, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Respondents who have seen a traditional healer for diabetes									
18–29	–	–	–	4	–	–	4	–	–
30–49	20	25.0	0.0–51.6	19	5.6	0.0–16.6	39	14.9	0.3–29.5
50–69	76	8.5	2.1–14.9	108	11.3	3.2–19.4	184	10.1	4.8–15.4
18–69	**96**	**13.7**	**4.3–23.1**	**131**	**8.3**	**2.4–14.3**	**227**	**10.5**	**5.4–15.6**
Currently taking herbal or traditional treatment for diabetes									
18–29	–	–	–	4	–	–	4	–	–
30–49	20	14.2	0.0–36.5	19	5.6	0.0–16.6	39	9.7	0.0–21.9
50–69	76	5.7	0.0–11.3	108	9.1	2.5–15.7	184	7.7	3.3–12.0
18–69	**96**	**8.4**	**0.6–16.1**	**131**	**7.0**	**1.9–12.0**	**227**	**7.5**	**3.3–11.8**

Sources: WHO and MOH Viet Nam.

History of raised total cholesterol

TABLE A21 • Respondents who have sought advice or treatment from a traditional healer for raised cholesterol, among those previously diagnosed, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Respondents who have seen a traditional healer for raised cholesterol									
18–29	3	0.0	–	4	0.0	–	7	0.0	–
30–49	54	1.6	0.0–4.9	43	0.0	–	97	0.8	0.0–2.4
50–69	115	8.3	2.3–14.2	210	7.0	2.4–11.5	325	7.5	3.9–11.1
18–69	**405**	**4.4**	**1.2–7.6**	**257**	**4.4**	**1.5–7.2**	**429**	**4.4**	**2.3–6.5**
Currently taking herbal or traditional treatment for raised cholesterol									
18–29	3	0.0	–	4	0.0	–	7	0.0	–
30–49	54	3.4	0.0–8.1	43	0.0	–	97	1.6	0.0–3.9
50–69	115	8.9	2.3–15.4	210	6.2	2.0–10.3	325	7.2	3.7–10.7
18–69	**172**	**5.3**	**1.6–9.0**	**257**	**3.9**	**1.3–6.4**	**429**	**4.5**	**2.4–6.7**

Sources: WHO and MOH Viet Nam.

History of CVD

TABLE A22 • Respondents currently taking aspirin or statins regularly to prevent or treat heart disease, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Currently taking aspirin regularly to prevent or treat heart disease									
18–29	275	0.2	0.0–0.5	267	0.1	0.0–0.2	542	0.1	0.0–0.3
30–49	980	0.5	0.1–0.9	952	1.1	0.2–1.9	1932	0.8	0.3–1.3
50–69	957	3.7	2.2–5.3	993	4.5	3.0–6.0	1950	4.1	3.1–5.2
18–69	**2212**	**1.3**	**0.8–1.8**	**2212**	**1.7**	**1.1–2.3**	**4424**	**1.5**	**1.1–1.9**
Currently taking statins regularly to prevent or treat heart disease									
18–29	275	0.0	–	267	0.1	0.0–0.2	542	0.0	0.0–0.1
30–49	978	0.5	0.0–1.0	949	0.8	0.0–1.6	1927	0.6	0.2–1.1
50–69	954	2.1	1.1–3.1	992	3.0	1.9–4.2	1946	2.6	1.8–3.3
18–69	**2207**	**0.8**	**0.4–1.1**	**2208**	**1.2**	**0.7–1.7**	**4415**	**1.0**	**0.7–1.3**

Sources: WHO and MOH Viet Nam.

TABLE A23 • Respondents previously diagnosed with chronic obstructive pulmonary disease (COPD) or currently taking medicine for COPD treatment, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Previously diagnosed with COPD									
18–29	275	1.9	0.5–6.6	268	2.5	0.9–6.9	543	2.2	1.0–4.9
30–49	980	2.1	1.2–3.5	953	3.1	1.9–5.0	1933	2.6	1.8–3.7
50–69	961	5.3	3.9–7.1	998	4.6	3.2–6.5	1959	4.9	3.9–6.1
18–69	**2216**	**2.9**	**2.1–4.8**	**2219**	**3.3**	**2.4–4.6**	**4435**	**3.1**	**2.5–3.9**
Previously diagnosed with COPD, for special age groups									
15–39	792	1.6	0.8–3.0	810	2.3	1.2–4.6	1602	1.9	1.2–3.2
40 +	1567	4.7	3.5–6.3	1569	4.3	3.2–5.8	3136	4.5	3.7–5.5
15 +	2359	3.2	2.4–4.2	2379	3.3	2.5–4.5	4738	3.2	2.6–4.0
30 +	**2020**	**3.8**	**2.9–5.0**	**2965**	**3.6**	**2.7–4.8**	**4085**	**3.7**	**3.1–4.5**
Currently taking medicine for COPD treatment, among those previously diagnosed									
18–69	**81**	**21.1**	**12.2–34.0**	**74**	**29.4**	**18.3–43.7**	**155**	**25.6**	**18.0–35.1**

Sources: WHO and MOH Viet Nam.

Physical measurements

TABLE A24 • Mean heart rate (beats per minute), by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
18–29	206	73.6	71.5–75.7	211	80.0	78.4–81.6	417	76.8	75.5–78.2
30–49	779	75.0	73.6–76.4	816	76.5	75.4–77.7	1595	75.8	74.7–76.8
50–69	852	75.5	74.5–76.5	882	76.5	75.6–77.4	1734	76.0	75.3–76.7
18–69	**1837**	**74.7**	**73.6–75.9**	**1909**	**77.5**	**76.7–78.2**	**3746**	**76.1**	**75.4–76.8**

Sources: WHO and MOH Viet Nam.

TABLE A25 • Mean height and weight (cm) among all respondents, excluding pregnant women, by age group and sex (*n*)

Age group	MEN			WOMEN		
	n	Mean value	95% CI	*n*	Mean value	95% CI
Mean height (cm)						
18–29	206	165.8	164.7–167.0	199	155.0	153.9–156.0
30–49	779	164.1	163.5–164.6	805	153.2	152.7–153.8
50–69	852	161.9	161.4–162.4	880	152.0	151.6–152.5
18–69	**1837**	**164.0**	**163.5–164.4**	**1884**	**153.4**	**153.0–153.8**
Mean weight (kg)						
18–29	206	60.6	58.5–62.7	199	51.8	49.9–53.7
30–49	779	61.1	60.2–62.0	805	53.4	52.6–54.1
50–69	852	58.4	57.7–59.2	880	53.3	52.6–54.1
18–69	**1837**	**60.2**	**59.5–60.9**	**1884**	**53.0**	**52.2–53.7**

Sources: WHO and MOH Viet Nam.

TABLE A26 • Mean BMI (kg/m^2) among all respondents, excluding pregnant women, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
18–29	206	22.0	21.4–22.7	199	21.6	20.8–22.3	405	21.8	21.3–22.3
30–49	779	22.7	22.4–22.9	805	22.7	22.5–23.0	1584	22.7	22.5–22.9
50–69	850	22.3	22.0–22.5	878	23.0	22.8–23.3	1728	22.7	22.5–22.9
18–69	**1835**	**22.4**	**22.2–22.6**	**1882**	**22.5**	**22.2–22.8**	**3717**	**22.4**	**22.3–22.6**

Sources: WHO and MOH Viet Nam.

TABLE A27 • Mean waist circumference (cm) among all respondents and classification of waist circumference using a cut-off value of 90 cm for men and 85 cm for women, excluding pregnant women, by age group and sex (*n*)

Age group	MEN			WOMEN		
	n	Mean value	95% CI	*n*	Mean value	95% CI
Waist circumference (cm)						
18–29	206	77.8	76.3–79.3	199	72.8	71.0–74.6
30–49	779	81.2	80.4–82.0	806	76.2	75.5–76.9
50–69	852	81.7	80.9–82.5	880	81.0	80.1–81.9
18–69	**1837**	**80.4**	**79.8–81**	**1885**	**76.6**	**75.9–77.3**
Having waist circumference above cut-off value: 90 cm for men and 85 cm for women						
18–29	206	8.6	4.3–16.3	199	11.4	6.5–19.3
30–49	779	16.6	13.3–20.6	806	15.1	11.9–19.0
50–69	852	18.6	15.7–22.0	880	33.3	28.8–38.3
18–69	**1837**	**14.9**	**12.8–17.4**	**1885**	**19.8**	**17.1–22.8**

Sources: WHO and MOH Viet Nam.

TABLE A28 • Mean hip circumference (cm) among all respondents, excluding pregnant women, by age group and sex (*n*)

Age group	MEN			WOMEN		
	n	Mean value	95% CI	*n*	Mean value	95% CI
18–29	206	91.7	90.7–92.7	199	89.5	88.0–91.0
30–49	779	92.5	91.9–93.1	806	91.0	90.3–91.6
50–69	852	91.5	91.0–92.1	880	91.7	91.1–92.4
18–69	**1837**	**92.0**	**91.6–92.4**	**1885**	**90.8**	**90.2–91.4**

Sources: WHO and MOH Viet Nam.

TABLE A29 • Mean waist-to-hip ratio among all respondents, excluding pregnant women, by age group and sex (*n*)

Age group	MEN			WOMEN		
	n	Mean value	95% CI	*n*	Mean value	95% CI
18–29	206	0.8	0.8–0.9	199	0.8	0.8–0.8
30–49	779	0.9	0.9–0.9	806	0.8	0.8–0.8
50–69	852	0.9	0.9–0.9	880	0.9	0.9–0.9
18–69	**1837**	**0.9**	**0.9–0.9**	**1885**	**0.8**	**0.8–0.8**

Sources: WHO and MOH Viet Nam.

Biochemical measurements

TABLE A30 • Mean fasting blood glucose (mmol/L and mg/dL) results for those currently on medication for diabetes, excluding non-fasting recipients, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
Mean fasting blood glucose (mmol/L)									
18–29	172	5.3	5.2–5.4	187	5.3	5.1–5.5	359	5.3	5.2–5.4
30–49	674	5.8	5.7–5.9	741	5.4	5.3–5.5	1415	5.6	5.5–5.7
50–69	754	5.9	5.8–6.1	797	6.0	5.8–6.2	1551	6.0	5.8–6.1
18–69	**1600**	**5.7**	**5.6–5.8**	**1725**	**5.5**	**5.4–5.6**	**3325**	**5.6**	**5.6–5.7**
Mean fasting blood glucose (mg/dL)									
18–29	172	95.4	93.1–97.7	187	95.1	91.5–98.6	359	95.2	92.9–97.6
30–49	674	104.3	102.5–106.1	741	97.7	96.3–99.1	1415	100.9	99.6–102.2
50–69	754	107.1	105.2–109.1	797	107.5	104.1–110.8	1551	107.3	105.3–109.3
18–69	**1600**	**102.7**	**101.5–103.9**	**1725**	**99.6**	**98.1–101.2**	**3325**	**101.1**	**100.0–102.2**

Sources: WHO and MOH Viet Nam.

TABLE A31 • Mean total cholesterol (mmol/L and mg/dL), among all respondents, for those currently on medication for raised cholesterol, by age group and sex (*n*)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
Mean total cholesterol (mmol/L)									
18–29	202	4.3	4.1–4.5	205	4.7	4.5–4.9	407	4.5	4.4–4.7
30–49	764	4.9	4.8–5.0	810	5.0	4.9–5.1	1574	4.9	4.8–5.0
50–69	844	5.0	4.9–5.1	870	5.6	5.5–5.7	1714	5.3	5.2–5.4
18–69	**1810**	**4.7**	**4.6–4.8**	**1885**	**5.1**	**5.0–5.2**	**3695**	**4.9**	**4.8–5.0**
Mean total cholesterol (mg/dL)									
18–29	202	165.6	156.7–174.4	205	183.2	175.7–190.7	407	174.3	168.5–180.2
30–49	764	188.0	183.9–192.0	810	192.0	188.1–195.9	1574	190.0	186.8–193.2
50–69	844	193.5	189.6–197.5	870	216.8	212.6–221.1	1714	205.2	201.8–208.5
18–69	**1810**	**183.3**	**179.6–186.9**	**1885**	**196.3**	**193.1–199.6**	**3695**	**189.8**	**187.1–192.5**

Sources: WHO and MOH Viet Nam.

TABLE A32 • Respondents with raised total cholesterol, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Total cholesterol ≥ 5.0 mmol/L or ≥ 190 mg/dL									
18–29	202	22.2	13.3–31.1	205	38.9	29.9–48.0	407	30.5	24.4–36.7
30–49	764	40.4	36.0–44.8	810	43.4	38.4–48.5	1574	41.9	38.3–45.6
50–69	844	47.4	43.0–51.8	870	67.8	64.0–71.7	1714	57.6	54.4–60.9
18–69	**1810**	**37.3**	**33.6–41.0**	**1885**	**48.8**	**45.1–52.5**	**3695**	**43.1**	**40.3–45.8**
Total cholesterol ≥ 6.2 mmol/L or ≥ 240 mg/dL									
18–29	202	6.2	2.1–10.3	205	10.0	4.5–15.5	407	8.1	4.6–11.5
30–49	764	11.4	8.5–14.3	810	12.1	9.3–14.9	1574	11.8	9.6–13.9
50–69	844	13.7	11.1–16.4	870	28.4	24.5–32.3	1714	21.1	18.6–23.6
18–69	**1810**	**10.6**	**8.7–12.5**	**1885**	**15.9**	**13.4–18.5**	**3695**	**13.3**	**11.6–14.9**

Sources: WHO and MOH Viet Nam.

TABLE A33 • Mean HDL among all respondents and percentage of respondents with low HDL, by age group and sex (*n*, %)

Age group	MEN			WOMEN			BOTH SEXES		
	n	Mean value	95% CI	*n*	Mean value	95% CI	*n*	Mean value	95% CI
Mean HDL (mmol/L) among all respondents									
18–29	202	1.0	0.9–1.1	205	1.3	1.2–1.4	406	1.2	1.1–1.2
30–49	764	1.1	1.0–1.1	810	1.2	1.2–1.3	1571	1.2	1.1–1.2
50–69	844	1.1	1.1–1.2	869	1.2	1.2–1.3	1710	1.2	1.1–1.2
18–69	**1810**	**1.1**	**1.0–1.1**	**1884**	**1.2**	**1.2–1.3**	**3687**	**1.2**	**1.1–1.2**
	n	(%)	95% CI	*n*	(%)	95% CI	*n*	(%)	95% CI
Respondents with low HDL (%)									
18–29	201	39.2	36.6–41.7	205	50.4	47.5–53.2	406	44.8	42.6–46.9
30–49	761	41.6	40.0–43.1	810	47.5	46.1–48.9	1571	44.6	43.4–45.7
50–69	841	44.0	42.5–45.6	869	47.0	45.4–48.7	1710	45.5	44.2–46.8
18–69	**1803**	**41.6**	**40.4–42.7**	**1884**	**48.2**	**46.9–49.5**	**3687**	**44.9**	**43.8–45.9**

Sources: WHO and MOH Viet Nam.

5.2 ANNEX 2: Questionnaire

1. SURVEY INFORMATION

Location / Date		Response	Code
Province	City name	.....	XI 1
	Code	___ ___	XI 2
District	Name	.....	XI 3
	Code	___ ___ ___	XI 4
Commune	Name	.....	XI 5
	Code	___ ___ ___ ___ ___	XI 6
Cluster / Centre / Village ID		___ ___ ___ ___ ___ ___	I 1
Interview ID		___ ___ ___	I 3
Date of data collection *(interview day at home)*		___ ___ / ___ ___ / ___ ___ ___ ___ *(dd/mm/year)*	I 4
Consent / Interview / Language / Name			
Consent has been read and obtained		☐ Yes 1 ☐ No *if* "No", *end*	I 5
Interview language		☐ Vietnamese 1 ☐ Other 2 *please, specify*	I 6
Time of interview *(24-hour clock)*		___ ___ h ___ ___ min	I 7
Name of the interviewee		.....	I 8
Nickname / Common name *(if any)*		.....	I 9
Additional information			
Contact phone number, *where possible*		___ ___ ___ ___ ___ ___ ___ ___ ___	I 10
In which administrative unit do you live?		☐ Commune *(in provinces)* 1 ☐ Commune *(in cities)* 2 ☐ Town 3 ☐ *Refused* 9	XI 10
Address: Urban: *Number / apartment, alley, street, ward, cluster name* Rural: *Village, cluster name*		....	I 11

2. DEMOGRAPHIC INFORMATION

Question	Response	Code
Sex *(record "Male" or "Female" as observed)*	☐ Male 1 ☐ Female 2	C 1
What is your date of birth? *(dd/mm/year, solar calendar)*	☐ ___ ___ / ___ ___ / ___ ___ ___ ___ *(dd, mm, year)* *if known, go to* C 4 ☐ Do not know 88/88/8888 ☐ *Refused* 99/99/9999	C 2
How old are you? *(western / lunar age)*	☐ ___ ___ *years old*	C 3
In total, how many years have you spent at school and in full-time study *(excluding pre-school)*?	☐ ___ ___ *years*	C 4
What is the highest level of education you have completed?	☐ No formal schooling 1 ☐ Primary school 2 ☐ Secondary school 3 ☐ High school 4 ☐ College 5 ☐ University/Post-graduate 6 ☐ Do not know 8 ☐ *Refused* 9	C 5
What is your ethnicity?	☐ Kinh 1 ☐ Other, *please specify*..... 2 ☐ Do not know 8 ☐ *Refused* 9	C 6
What is your marital status?	☐ Never married 1 ☐ Currently married 2 ☐ Separated/Divorced 3 ☐ Widowed 4 ☐ Other, *please specify*..... 5 ☐ Do not know 8 ☐ *Refused* 9	C 7

2. DEMOGRAPHIC INFORMATION *(continued)*

Question	Response	Code
Which of the following best describes your **main work** status over the past 12 months?	☐ Government employee 1 ☐ Nongovernment employee 2 ☐ Self-employed/freelance 3 ☐ Student 4 ☐ Homemaker 5 ☐ Retired 6 ☐ Unemployed *(able to work)* 7 ☐ Unemployed *(unable to work)* 8 ☐ Other, *please specify*..... 9 ☐ Do not know 88 ☐ *Refused* 99	**C 8**
Taking the **past year,** can you tell me what the average earnings of the household have been? ▲ *RECORD 1 RESPONSE ONLY*	☐ Per week ____ ____ ____ ____ ____ ____ ₫VND ☐ Per month ____ ____ ____ ____ ____ ____ ₫VND ☐ Per year ____ ____ ____ ____ ____ ____ ₫VND ☐ Do not know 88 ☐ *Refused* 99	**C 10**
Please, tell me whether this household, or any person who lives in the household, has the following items, *(from* "a." *to* "p."*).* ▲ Y: Yes N: No DN: Do not know R: *Refused*	Y N DN R a. Electricity ☐ ☐ ☐ ☐ b. Flush toilet ☐ ☐ ☐ ☐ c. Telephone ☐ ☐ ☐ ☐ d. Cell phone ☐ ☐ ☐ ☐ e. Television ☐ ☐ ☐ ☐ f. Radio ☐ ☐ ☐ ☐ g. Refrigerator ☐ ☐ ☐ ☐ h. Car, truck, or van ☐ ☐ ☐ ☐ i. Moped/scooter/motorcycle ☐ ☐ ☐ ☐ j. Washing machine ☐ ☐ ☐ ☐ k. Air conditioner ☐ ☐ ☐ ☐ l. Electric generator ☐ ☐ ☐ ☐ m. Grinder ☐ ☐ ☐ ☐ n. Agricultural car/Motor boat ☐ ☐ ☐ ☐ o. Computer ☐ ☐ ☐ ☐ p. Internet (wire, wireless, 3G, 4G) ☐ ☐ ☐ ☐	**X 1**

3. BEHAVIOURAL MEASUREMENTS

3.1 TOBACCO USE

Now, I am going to ask you some questions about tobacco use (including tobacco, pipe, cigar). Please mention only smoke tobacco, while other types of tobacco such as e-cigarettes, such as betel, chewing tobacco will be asked in the following section.

Question	Response	Code
Do you **currently smoke any tobacco** products, such as cigarettes, cigars or pipes? ▲ *USE SHOWCARD*	☐ Yes 1 ☐ No 2 → *go to* T 8 ☐ *Refused* 9 → *go to* T 8	**T 1**
Do you currently smoke tobacco products **daily**?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**T 2**
How old were you when you **first started** smoking?	☐ ____ ____ *years* *if known, go to* T 5a/T 5aw ☐ Do not know 88 ☐ *Refused* 99	**T 3**
Do you remember how long ago it was? ▲ *RECORD 1 RESPONSE ONLY*	☐ ____ ____ *years* *if known, go to* T 5a/T 5aw ☐ ____ ____ *months* *if known, go to* T 5a/T 5aw ☐ ____ ____ *weeks* *if known, go to* T 5a/T 5aw ☐ Do not remember 88 ☐ *Refused* 99	**T 4**
On average, how many of the following products do you smoke each day or week? If less than daily, record "Weekly" Record for each type ▲ *USE SHOWCARD*	**Daily** **Weekly** ☐ Manufactured cigarettes ____ ____ **T 5a/T 5aw** ☐ Hand-rolled cigarettes ____ ____ **T 5b/T 5bw** ☐ Pipes full of tobacco ____ ____ **T 5c/T 5cw** ☐ Cigars ____ ____ **T 5d/T 5dw** ☐ Hubble-bubble bowl ____ ____ **T 5e/T 5ew** ☐ Shisha ____ ____ **T 5f/T 5fw** ☐ Other ____ ____ **T 5g/T 5gw** *if* "Other", *go to* T 5other, *or else, go to* T 6 ☐ Other, *please specify:* ..... **(T 5other/ T 5other)** ☐ Do not know 8888 ☐ *Refused* 9999	
During the past 12 months, have you tried **to stop smoking?**	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**T 6**

3.1 TOBACCO USE *(continued)*

Question	Response			Code
During any visit to a doctor, or other health worker, in the past 12 months, were you advised to quit smoking tobacco?	☐ Yes	1	*if* T 2 = "Yes", *go to* T 12 *if* T 2 = "No", *go to* T 8	**T 7**
	☐ No	2	*if* T 2 = "Yes", *go to* T 12 *if* T 2 = "No", *go to* T 8	
	☐ No visit during the past 12 months	3	*if* T 2 = "Yes", *go to* T 12 *if* T 2 = "No", *go to* T 8	
	☐ *Refused*	9	*if* T 2 = "Yes", *go to* T 12 *if* T 2 = "No", *go to* T 8	
In the past, did you **ever smoke** any tobacco products? ▲ *USE SHOWCARD*	☐ Yes	1		**T 8**
	☐ No	2	→ *go to* T 12	
	☐ *Refused*	9	→ *go to* T 12	
In the past, did you **ever smoke daily?**	☐ Yes	1		**T 9**
	☐ No	2		
	☐ *Refused*	9		
How old were you when you **stopped** smoking?	☐ ___ ___ *years*		*if known, go to* T 12	**T 10**
	☐ Do not know	88		
	☐ *Refused*	99		
How **long ago** did you stop smoking? ▲ *RECORD 1 RESPONSE ONLY*	☐ ___ ___ *years*	1	*if known, go to* T 12	**T 11a**
	☐ ___ ___ *months*	2	*if known, go to* T 12	**T 11b**
	☐ ___ ___ *weeks*	3	*if known, go to* T 12	**T 11c**
	☐ Do not know	88		
	☐ *Refused*	99		
Do you **currently** use any **smokeless tobacco products** such as chewing tobacco, betel? ▲ *USE SHOWCARD*	☐ Yes	1		**T 12**
	☐ No	2	→ *go to* HT P1	
	☐ *Refused*	9	→ *go to* HT P1	
Do you **currently use smokeless tobacco products** such as chewing tobacco, betel **daily?**	☐ Yes	1		**T 13**
	☐ No	2		
	☐ *Refused*	9		

3.2 HEATED TOBACCO PRODUCTS

Now I am going to ask you some questions about heated tobacco products. Heated tobacco products are heating products that generate gases containing nicotine and other chemicals, such as iQOS, Ploom TECH, Glo and PAX.

▲ *USE SHOWCARD*

Question	Response		Code
Do you currently use heated tobacco products? *Example: iQOS, Ploom TECH, Glo and PAX.*	☐ Yes ☐ No ☐ *Refused*	1 2 ——▸ *go to* EC 1 9 ——▸ *go to* EC 1	**HTP 1**
Do you currently use heated tobacco products daily?	☐ Yes ☐ No ☐ *Refused*	1 2 9	**HTP 2**
How old were you when you **first started** using heated tobacco products?	☐ ___ ___ *years old* ☐ Do not know ☐ *Refused*	*if known, go to* EC 1 88 99	**HTP 3**
How long have you been using heated tobacco products? ▲ *RECORD 1 RESPONSE ONLY*	☐ ___ ___ *years* ☐ ___ ___ *months* ☐ ___ ___ *weeks* ☐ Do not know ☐ *Refused*	*if known, go to* EC 1 *if known, go to* EC 1 *if known, go to* EC 1 88 99	**HTP 4a** **HTP 4b** **HTP 4c**

3.3 ELECTRONIC CIGARETTES

Now I am going to ask you some questions about electronic cigarettes/vape. These devices heat a liquid that contains or does not contain nicotine. Electronic cigarettes or vape, vape pens, vaporizers, mods; do not include heated tobacco products (HTP).

▲ *USE SHOWCARD*

Question	Response		Code
Do you **currently** use electronic cigarettes or any other vaping device? ▲ *USE SHOWCARD*	☐ Yes ☐ No ☐ *Refused*	1 2 ——▸ *go to* X 2 9 ——▸ *go to* X 2	**EC 1**
Do you currently use electronic cigarettes or any other vaping device daily?	☐ Yes ☐ No ☐ *Refused*	1 2 9	**EC 2**
How old were you when you **first started** using electronic cigarettes or any other vaping device?	☐ ___ ___ *years old* ☐ Do not know ☐ *Refused*	*if known, go to* X 2 88 99	**EC 3**

3.3 ELECTRONIC CIGARETTES *(continued)*

Question	Response		Code
For how long have you been using electronic cigarettes or any other vaping device on a daily basis? ▲ *RECORD 1 RESPONSE ONLY*	☐ ____ ____ *years*	*if known, go to* X 2	**EC 4a**
	☐ ____ ____ *months*	*if known, go to* X 2	**EC 4b**
	☐ ____ ____ *weeks*	*if known, go to* X 2	**EC 4c**
	☐ Do not know	88	**EC 4kb**
	☐ *Refused*	99	**EC 4tc**
How often does anyone smoke inside your home *(with a roof and at least one wall)?* Would you say daily, weekly, monthly, less than monthly, or never?	☐ Daily	1	**X 2**
	☐ Weekly	2	
	☐ Monthly	3	
	☐ Less than monthly	4	
	☐ Never	5	
	☐ Do not know	8	
	☐ *Refused*	9	
Do you currently work outside of your home?	☐ Yes	1	**X 3**
	☐ No/Do not work	2 → *go to* A 1	
Do you usually work indoors *(with a roof and at least one wall)* or outdoors?	☐ Indoors	1	**X 4**
	☐ Outdoors	2 → *go to* A 1	
	☐ Both	3	
	☐ Do not know	8	
	☐ *Refused*	9	
During the past 30 days, did someone smoke in closed areas **in your workplace** *(building, work area or specific office)?*	☐ Yes	1	**T 18**
	☐ No	2	
	☐ Do not know	8	
	☐ *Refused*	9	

3.4 ALCOHOL CONSUMPTION

The next questions ask about the consumption of alcohol.

Question	Response		Code
Have you **ever** consumed any alcohol? At least one drink of alcohol or beer of any degree even just a sip. ▲ *USE SHOWCARD or SHOW EXAMPLES*	☐ Yes	1	**A 1**
	☐ No	2 → *go to* A 16	
	☐ *Refused*	9 → *go to* A 16	
Have you consumed any alcohol within the **past 12 months?**	☐ Yes	1 → *go to* A 4	**A 2**
	☐ No	2	
	☐ *Refused*	9	

3.4 ALCOHOL CONSUMPTION *(continued)*

Question	Response		Code
Have you stopped drinking due to health reasons, such as a negative impact on your health or on the advice of your doctor or health worker?	☐ Yes ☐ No ☐ *Refused*	1 ——▸ *go to* A 16 2 ——▸ *go to* A 16 9 ——▸ *go to* A 16	A 3
During the past 12 months, **how frequently** have you had at least one standard alcoholic drink? ▲ *USE SHOWCARD* *Explain what is one standard drink in different serves of beer, wine or liquor.*	☐ Daily ☐ 5–6 days/week ☐ 3–4 days/week ☐ 1–2 days/week ☐ 1–3 days/month ☐ Less than once/month ☐ Never ☐ Do not know ☐ *Refused*	1 2 3 4 5 6 7 8 9	A 4
During the past 30 days:			
– have you consumed any alcohol?	☐ Yes ☐ No ☐ *Refused*	1 2 ——▸ *go to* A 13 9 ——▸ *go to* A 13	A 5
– on how many **occasions** did you have at least one standard alcoholic drink? *Only ask people within the past 30 days (a month) about occasions when they drank more than one standard drink. Apply rounding rule.*	☐ ___ ___ *occasions* ☐ Do not know ☐ *Refused*	*if* "000" ——▸ *go to* A 13 888 999	A 6
– when you drank alcohol, how many **standard drinks on average** did you have during one drinking occasion? *Explain what one standard drink is in different serves of beer, wine or liquor. Use showcard to calculate the number of standard drinks.*	☐ ___ ___ *standard drinks during one occasion* ☐ Do not know ☐ *Refused*	88 99	A 7

3.4 ALCOHOL CONSUMPTION *(continued)*

Question	Response		Code
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? *Ask about each beverage (beer, wine or spirits), use showcard to calculate the number of alcohol unit for each beverage and add up the total units.* ▲ USE SHOWCARD	☐ ___ ___ *standard drinks during one occasion* ☐ Do not know ☐ *Refused*	*put "00" if less than one occasion* 88 99	**A 8**
– how many times did you have **six or more** standard drinks in a single drinking occasion?	☐ ___ ___ *times* ☐ Do not know ☐ *Refused*	 88 99	**A 9**
– have you ever driven a motor vehicle *(car or motorbike, for example)* within two hours after drinking alcohol or beer?	☐ Yes ☐ No ☐ Do not know ☐ *Refused*	1 2 8 9	**XA 9a**
During each of the past 7 days:			
– how many standard drinks did you have each day? *Asking for information for each day as follows:* *1. Did you drink alcohol that day?* *2. If yes, drink beer, wine or spirits? Use showcard to calculate number of standard drinks for each beverage then add the total number of alcohol units.* ▲ USE SHOWCARD	☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday ☐ Do not know ☐ *Refused*	___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ 88 99	**A 10a** **A 10b** **A 10c** **A 10d** **A 10e** **A 10f** **A 10g**

3.4 ALCOHOL CONSUMPTION *(continued)*

I have just asked you about your consumption of alcohol during the past seven 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 include these types of alcohol when answering the next questions.*

▲ *USE SHOWCARD*

Question	Response		Code
In total, **during the past 7 days, how many standard drinks of:**			
– **homebrewed spirits** (rice spirit, casava spirit, herbal medicine alcohol) did you consume?	☐ ___ ___ *standard drinks* ☐ Do not know ☐ *Refused*	 88 99	**A 12a**
– **beer** did you consume?	☐ ___ ___ *standard drinks* ☐ Do not know ☐ *Refused*	 88 99	**A 12b**
– **factory produced spirits** (vodka, whisky) did you consume?	☐ ___ ___ *standard drinks* ☐ Do not know ☐ *Refused*	 88 99	**A 12c**
– **factory produced wine** (including Champagne and fruit wine) did you consume?	☐ ___ ___ *standard drinks* ☐ Do not know ☐ *Refused*	 88 99	**A 12d**
In total, **during the past 12 months, how often:**			
– were you not able to stop drinking once you had started? *That means, when you are drinking, you always want to drink more even though no one forces you.*	☐ Daily, or almost daily ☐ Weekly ☐ Monthly ☐ Less than monthly ☐ Never ☐ Do not know ☐ *Refused*	1 2 3 4 5 8 9	**A 13**
– have you failed to do what was normally expected from you because of drinking? *Example of normal daily jobs, such as sitting at work, doing housework, gardening and farming.*	☐ Daily, or almost daily ☐ Weekly ☐ Monthly ☐ Less than monthly ☐ Never ☐ Do not know ☐ *Refused*	1 2 3 4 5 8 9	**A 14**

3.4 ALCOHOL CONSUMPTION *(continued)*

Question	Response		Code
In total, **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 ☐ Do not know ☐ *Refused*	1 2 3 4 5 8 9	**A 15**
– have you had family problems or problems with your partner due to **someone else's** drinking? *Because your family member or other person's drinking causes problems with you or your relatives, such as quarrelling, insults or beating or other forms of violence?*	☐ Yes, more than monthly ☐ Yes, monthly ☐ Yes, several times, but less than monthly ☐ Yes, once or twice/year ☐ No ☐ Do not know ☐ *Refused*	1 2 3 4 5 8 9	**A 16**

3.5 CORE: 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*	☐ ___ ___ *days* ☐ Do not know ☐ *Refused*	*if* 0 *days, fill* "00" → *go to* D 3 88 99	**D 1**
How many **servings** of fruit do you eat on one of those days? Ask participant to think of one day he/she can recall easily. *Ask and use showcard to calculate number of servings:* *1) Number of meals/ occasions eating fruits in a day* *2) What fruits did he/she usually eat in that day?*	☐ ___ ___ *servings* ☐ Do not know ☐ *Refused*	88 99	**D 2**

3.5 CORE: DIET *(continued)*

Question	Response		Code
In a typical week, on how many days do you **eat vegetables?**	☐ ___ ___ *days*	*if* 0 *days, fill* "00" → *go to* D 5	**D 3**
	☐ Do not know	88	
	☐ *Refused*	99	
How many servings of vegetables do you eat on one of those days? *Ask* "in a consuming day, how many bowls of vegetables did he/she eat, including breakfast, lunch and dinner"*and use showcard to calculate servings, as follows:* – bowls of fresh vegetable (small size) – bowls of boiled/fried vegetable (small size) – bowls of vegetable soup (medium size). *Based on the amount of vegetable consumed, convert to servings:* *1 serving is equal to:* *– ½ small-size bowl of boiled/fried vegetable, or* *– 1 small-size bowl of fresh vegetable, or* *– 1 medium-size bowl of vegetable soup).* *Sum total.* *Apply rounding rule.* ▲ *USE SHOWCARD*	☐ ___ ___ *servings*		**D 4**
	☐ Do not know	88	
	☐ *Refused*	99	

3.6 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 soy sauce or fish sauce (see showcard). The following questions are on adding salt to food right before you eat it, on how food is prepared in your home, on eating processed foods that are high in salt (such as canned food, instant noodles), and questions on controlling your salt intake. Please answer the questions even if you think you eat a diet low in salt.

▲ *USE SHOWCARD*

Question	Response		Code
How often do you add **salt or a salty sauce such as soy** sauce to your food right before you eat it or as you are eating it? ▲ *RECORD 1 RESPONSE ONLY*	☐ Always, every single meal ☐ Often, most of the meal ☐ Sometimes ☐ Rarely ☐ Never ☐ Do not know ☐ *Refused*	1 2 3 4 5 8 9	**D 5**
How often is **salt, salty seasoning or a salty sauce added** in cooking or preparing foods in your household?	☐ Always, every single meal ☐ Often, most of the meal ☐ Sometimes ☐ Rarely ☐ Never ☐ Do not know ☐ *Refused*	1 2 3 4 5 8 9	**D 6**
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 pickled mustard greens, pickled eggplants, instant noodles, packaged salty snacks, salty peanuts, salty cashews, canned salty food including pickles and preserves, salty food prepared at a fast food restaurant, cheese, bacon and processed meat such as sausages, hams.* ▲ *SHOW EXAMPLES*	☐ Always, every single meal ☐ Often, most of the meal ☐ Sometimes ☐ Rarely ☐ Never ☐ Do not know ☐ *Refused*	1 2 3 4 5 8 9	**D 7**

3.6 DIETARY SALT *(continued)*

Question	Response	Code
How much salt or salty sauce do you think you consume?	☐ Far too much 1 ☐ Too much 2 ☐ Just the right amount 3 ☐ Too little 4 ☐ Far too little 5 ☐ Do not know 8 ☐ *Refused* 9	**D 8**
How important to you is **lowering the salt** in your diet	☐ Very important 1 ☐ Somewhat important 2 ☐ Not at all important 3 ☐ *Refused* 9	**D 9**
Do you think that too much salt or salty sauce in your diet could cause a **health problem?**	☐ Yes 1 ☐ No 2 → *go to* D 11a ☐ Do not know 8 → *go to* D 11a ☐ *Refused* 9 → *go to* D 11a	**D 10**
Do you think that too much salt/salty sauce in your diet can cause the **following diseases?**		
– Hypertension	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**XD 10a**
– Strokes	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**XD 10b**
– Heart attack	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**XD 10c**
– Stomach cancer	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**XD 10d**

3.6 DIETARY SALT *(continued)*

Question	Response		Code
Do you do any of the following on a regular basis **to control your salt intake?**			
– Limit consumption of processed foods	☐ Yes ☐ No ☐ *Refused*	1 2 9	**D 11a**
– Look at the salt or sodium content on food labels	☐ Yes ☐ No ☐ *Refused*	1 2 9	**D 11b**
– Buy low salt/sodium alternatives	☐ Yes ☐ No ☐ *Refused*	1 2 9	**D 11c**
– Use spices other than salt when cooking	☐ Yes ☐ No ☐ *Refused*	1 2 9	**D 11d**
– Avoid eating foods prepared outside of a home	☐ Yes ☐ No ☐ *Refused*	1 2 9	**D 11e**
– Use a small quantity of salt when cooking and preparing food	☐ Yes ☐ No ☐ *Refused*	1 2 9	**XD 11 eX 1**
– Restrict adding salt on the table (dipping food to salt and/or adding salt to food)	☐ Yes ☐ No ☐ *Refused*	1 2 9	**XD 11 eX 2**
– Restrict eating of salty foods as stew, fry	☐ Yes ☐ No ☐ *Refused*	1 2 9	**XD 11 eX 3**
– Do other things specifically to control your salt intake	☐ Yes ☐ No ☐ *Refused*	1 2 ——▸ *go to* XD 11f 9 ——▸ *go to* XD 11f	**D 11f**
Other, *please specify*	.....		**(D11 other)**
Have you ever heard or seen the advice "less salt, eat less salt, reduce salt" on TV, Facebook, radio, or from someone?	☐ Yes ☐ No ☐ *Refused*	1 2 9	**XD 11f**

4. 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).

For ALL the following questions, related to work, travel and recreational activities, consider:

Vigorous-intensity activities – *done for at least 10 minutes continuously* – are activities that require a large amount of hard physical effort, cause rapid and large increases in breathing or a substantial increase in heart rate, and break a sweat after one minute, such as: running, football, stair climbing, tennis, cycling with high speed, tennis or running.

Moderate-intensity activities – *done for at least 10 minutes continuously* – are activities that require a moderate physical effort, cause small increases in breathing or noticeably accelerate the heart rate, and break a sweat after 10 minutes, such as: sports, fitness or recreational ones.

4.1 ACTIVITY RELATED TO WORK

Question	Response		Code
Does your work involve vigorous-intensity activity done for at least 10 min continuously? *For example: carrying or lifting heavy loads, digging or construction work.* ▲ *USE SHOWCARD*	☐ Yes ☐ No ☐ Do not know ☐ *Refused*	1 2 *if* "No", *go to* P 4 8 ⟶ *go to* P 4 9 ⟶ *go to* P 4	P 1
In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	☐ ___ *days* ☐ Do not remember ☐ *Refused*	 8 9	P 2
On a typical day, how much time do you spend doing vigorous-intensity activities at work?	☐ ___ h ___ min ☐ Do not know ☐ *Refused*	 88 99	P 3 (a–b)
Does your work involve moderate-intensity activity, for at least 10 minutes continuously? *For example: brisk walking 4 km/h, carrying light loads.* ▲ *USE SHOWCARD*	☐ Yes ☐ No ☐ Do not remember ☐ *Refused*	1 2 *if* "No", *go to* P 7 8 ⟶ *go to* P 7 9 ⟶ *go to* P 7	P 4

4.1 ACTIVITY RELATED TO WORK *(continued)*

Question	Response		Code
In a typical week, on how many days do you do moderate-intensity activities as part of your work?	☐ ____ *days* ☐ Do not remember ☐ *Refused*	 8 9	**P 5**
On a typical day, how much time do you spend doing moderate-intensity activities at work?	☐ ____ h ____ min ☐ Do not remember ☐ *Refused*	 88 99	**P 6 (a–b)**

4.2 ACTIVITY RELATED TO 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 church, to place of worship. *Does not include time when cycling or walking for training.*

Question	Response		Code
Do you walk or use a bicycle *(pedal cycle)* for at least 10 minutes continuously to get to and from places?	☐ Yes ☐ No ☐ Do not remember ☐ *Refused*	1 2 ——▸ *go to* P 10 8 ——▸ *go to* P 10 9 ——▸ *go to* P 10	**P 7**
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? *Only counted if walk or bike at least 10 minutes each.*	☐ ____ *days* ☐ Do not remember ☐ *Refused*	 8 9	**P 8**
How much time do you spend walking or bicycling for travel on a typical day?	☐ ____ h ____ min ☐ Do not remember ☐ *Refused*	 88 99	**P 9 (a–b)**

4.3 RECREATIONAL (LEISURE) ACTIVITIES

Now I would like to ask you about **sports, fitness and recreational (vigourous- and modereate-intensity) activities – done for at least 10 minutes continuously.** *The next questions exclude the work and transport activities that you have already mentioned.*

▲ *USE SHOWCARD*

Question	Response		Code
Do you do any vigorous-intensity activities.	☐ Yes ☐ No ☐ *Refused*	1 2 *if "No", go to* P 13 9 ⟶ *go to* P 13	**P 10**
In a typical week, on how many days do you do vigorous-intensity activities?	☐ ___ *days* ☐ Do not remember ☐ *Refused*	 8 9	**P 11**
On a typical day, how much time do you spend doing vigorous-intensity activities?	☐ ___ h ___ min ☐ Do not remember ☐ *Refused*	 88 99	**P 12 (a–b)**
Do you do any moderate-intensity activities?	☐ Yes ☐ No ☐ *Refused*	1 2 *if "No", go to* P 16 9 ⟶ *go to* P 16	**P 13**
In a typical week, on how many days do you do moderate-intensity activities?	☐ ___ *days* ☐ Do not remember ☐ *Refused*	 8 9	**P 14**
On a typical day, how much time do you spend doing moderate-intensity activities?	☐ ___ h ___ min ☐ Do not remember ☐ *Refused*	 88 99	**P 15 (a–b)**

4.4 SEDENTARY BEHAVIOUR

The following question is about sitting or reclining at work or home, getting to and from places, or with friends, including time spent sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television, but do not include time spent sleeping.

▲ *USE SHOWCARD*

Question	Response		Code
On a typical day, how much time do you usually spend sitting or reclining? *Do not include time spent sleeping.*	☐ ___ h ___ min ☐ Do not remember ☐ *Refused*	1 88 99	**P 16 (a–b)**

4.5 HISTORY OF RAISED BLOOD PRESSURE

Question	Response		Code
Have you ever had your blood pressure measured by a doctor or other health worker *(including health worker in private or state health facility)?*	☐ Yes ☐ No ☐ Do not remember/know ☐ *Refused*	1 2 → *go to* H 6 8 → *go to* H 6 9 → *go to* H 6	**H 1**
When was the last time you had your blood pressure measured by a doctor or other health worker?	☐ Within the last 12 months ☐ Longer than 12 months ☐ *Refused*	1 2 9	**XH 1**
Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?	☐ Yes ☐ No ☐ *Refused*	1 2 → *go to* H 6 9 → *go to* H 6	**H 2a**
Were you first told that you have raised blood pressure in the past 12 months?	☐ Within the last 12 months ☐ Longer than 12 months ☐ Do not remember ☐ *Refused*	1 2 8 9	**H 2b**
Do you have regular hypertension check-ups?	☐ Yes ☐ No ☐ *Refused*	1 2 9	**XH 2c**
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 ☐ *Refused*	1 2 → *go to* H 4 9 → *go to* H 4	**H 3**
Currently, do you take any antihypertensive medication regularly?	☐ Yes ☐ No ☐ *Refused*	1 2 → *go to* H 4 9 → *go to* H 4	**XH 3a**
If yes, where do you go to have routine check-ups or take medicine?	☐ Commune health station ☐ District health facilities ☐ Provincial health facilities ☐ Central hospital ☐ Private health facility ☐ Other, *please specify*..... ☐ *Refused*	1 2 3 4 5 9	**XH 3b** **(XH 3b1)**

4.5 HISTORY OF RAISED BLOOD PRESSURE *(continued)*

Question	Response	Code
How often do you visit your doctors for a routine check-up or take medicine?	☐ Weekly 1 ☐ Every 2–3 weeks 2 ☐ Monthly 3 ☐ Every 2,3 months, *or more* 4 ☐ Other, *please specify*..... ☐ *Refused* 9	**XH 3c** **(XH 3c1)**
Have you ever seen a traditional healer for raised blood pressure or hypertension?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**H 4**
Are you currently taking any herbal or traditional remedy for your raised blood pressure?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**H 5**

4.6 HISTORY OF DIABETES

Have you ever had your blood sugar measured by a doctor or other health worker? *(Including a health worker in a private or state health facility.)*	☐ Yes 1 ☐ No 2 → *go to* H 12 ☐ Do not remember/know 8 → *go to* H 12 ☐ Refused 9 → *go to* H 12	**H 6**
When was the last time you had your blood sugar measured by a doctor or other health worker?	☐ Within the last 12 months 1 ☐ Longer than 12 months 2 ☐ Do not remember 8 ☐ Refused 9	**XH 6**
Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	☐ Yes 1 ☐ No 2 → *go to* H 12 ☐ Refused 9 → *go to* H 12	**H 7a**
Were you first told that you have high blood sugar in the past 12 months?	☐ Yes 1 ☐ No 2 ☐ Do not remember 8 ☐ Refused 9	**H 7b**
Do you have routine check-ups with your doctor?	☐ Yes 1 ☐ No 2 ☐ Refused 9	**XH 7c**

4.6 HISTORY OF DIABETES *(continued)*

Question	Response	Code
In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker?	☐ Yes 1 ☐ No 2 ⟶ *go to* H 10 ☐ *Refused* 9 ⟶ *go to* H 10	**H 8**
Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**H 9**
Do you take medicine to treat diabetes regularly?	☐ Yes 1 ☐ No 2 ⟶ *go to* H 10 ☐ *Refused* 9 ⟶ *go to* H 10	**H 9a**
If yes, where do you go to have routine check-ups or take medicine?	☐ Commune health station 1 ☐ District health facilities 2 ☐ Provincial health facilities 3 ☐ Central hospital 4 ☐ Private health facility 5 ☐ Buy medicines from pharmacies 6 ⟶ *go to* H 10 ☐ Other, *please specify*..... (XH 9b1) ☐ *Refused* 9 ⟶ *go to* H 10	**XH 9b** **(XH 9b1)**
How often do you visit your doctors for a routine check-up or take medicine for your diabetes?	☐ Weekly 1 ☐ Every 2–3 weeks 2 ☐ Monthly 3 ☐ Every 2–3 months, *or more* 4 ☐ Other, *please specify*..... (XH 9c1) ☐ *Refused* 9	**XH 9c** **(XH 9c1)**
Have you ever seen a traditional healer for diabetes or raised blood sugar?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**H 10**
Are you currently taking any herbal or traditional remedy for your diabetes?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**H 11**
Does anyone in your immediate family, including your biological parents, siblings or biological children, have diabetes?	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**XH 11**

4.7 HISTORY OF RAISED TOTAL CHOLESTEROL

Question	Response	Code
Have you ever had your cholesterol *(fat levels in your blood)* measured by a doctor or other health worker (*including a health worker in a private or state health facility)?*	☐ Yes 1 ☐ No 2 → *go to* H 17 ☐ Do not know 8 → *go to* H 17 ☐ *Refused* 9 → *go to* H 17	**H 12**
When was the last time you had your raised total cholesterol measured by a doctor or other health worker?	☐ Within the last 12 months 1 ☐ Longer than 12 months 2 ☐ Do not remember 8 ☐ *Refused* 99	**XH 12**
Have you ever been told by a doctor or other health worker that you have raised cholesterol?	☐ Yes 1 ☐ No 2 → *go to* H 17 ☐ *Refused* 9 → *go to* H 17	**H 13a**
Were you first told about raised cholesterol in the past 12 months?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**H 13b**
Do you have routine check-ups with your doctor?	☐ Yes 1 ☐ No 2 ☐ *Refused* 9	**XH 13c**
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 1 ☐ No 2 ☐ *Refused* 9	**H 14**
Do you take medicine to treat raised total cholesterol regularly?	☐ Yes 1 ☐ No 2 → *go to* H 15 ☐ *Refused* 9 → *go to* H 15	**XH 14a**
If yes, where do you go to have routine check-ups or take medicine?	☐ Commune health station 1 ☐ District health facilities 2 ☐ Provincial health facilities 3 ☐ Central hospital 4 ☐ Private health facility 5 ☐ Buy medicines from pharmacies 6 → *go to* H 15 ☐ Other, *please specify*..... ☐ *Refused* 9	**XH 14b** **(XH 14b1)**

4.7 HISTORY OF RAISED TOTAL CHOLESTEROL *(continued)*

Question	Response		Code
How often do you visit your doctors for a routine check-up or take medicine for your raised total cholesterol?	☐ Weekly	1	**XH 14c**
	☐ Every 2–3 weeks	2	
	☐ Monthly	3	
	☐ Every 2–3 months, *or more*	4	
	☐ Other, *please specify*.....		**(XH 14c1)**
	☐ *Refused*	9	
Have you ever seen a traditional healer for raised cholesterol?	☐ Yes	1	**H 15**
	☐ No	2	
	☐ *Refused*	9	
Are you currently taking any herbal or traditional remedy for your raised cholesterol?	☐ Yes	1	**H 16**
	☐ No	2	
	☐ *Refused*	9	

4.8 HISTORY OF CARDIOVASCULAR DISEASES

Question	Response		Code
Have you ever had a heart attack or chest pain from heart disease (angina) or a stroke *(cerebrovascular accident or incident)?*	☐ Yes	1	**H 17**
	☐ No	2	
	☐ *Refused*	9	
Are you currently taking aspirin regularly to prevent or treat heart disease?	☐ Yes	1	**H 18**
	☐ No	2	
	☐ *Refused*	9	
Are you currently taking statins *(Lovastatin/ Simvastatin/Atorvastatin or any other statin)* regularly to prevent or treat heart disease?	☐ Yes	1	**H 19**
	☐ No	2	
	☐ *Refused*	9	

4.9 HISTORY OF CHRONIC RESPIRATORY DISEASE

Question	Response	Code
Have you ever been told that you have COPD/asthma by a doctor or other health worker? *Including health worker in private or state health facilities.*	☐ Yes 1 ☐ No 2 —▸ *go to* H 20a ☐ *Refused* 9 —▸ *go to* H 20a	XH 19a
Was the first time you were informed (by a health worker) of having COPD or asthma within the last 12 months?	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	XH 19b
In the past two weeks, have you taken any oral treatment (medication) for COPD/asthma prescribed by a doctor or other health worker?	☐ Yes 1 ☐ No 2 —▸ *go to* H 20a ☐ *Refused* 9	XH 19c
Do you have routine check-ups or take medicine to treat COPD/asthma?	☐ Yes 1 ☐ No 2 —▸ *go to* H 20a ☐ *Refused* 9 —▸ *go to* H 20a	XH 19d
If yes, where do you go to have routine check-ups or take medicine for COPD/ asthma?	☐ Commune health station 1 ☐ District health facilities 2 ☐ Provincial health facilities 3 ☐ Central hospital 4 ☐ Private health facility 5 ☐ Buy medicines from pharmacies 6 ☐ Other, *please specify*..... (XH 19e1) ☐ *Refused* 9	XH 19e
How often do you visit your doctors for a routine check-up or take medicine for your COPD/asthma?	☐ Weekly 1 ☐ Every 2–3 weeks 2 ☐ Monthly 3 ☐ Every 2–3 months, *or more* 4 ☐ Other, *please specify*..... (XH 19f1) ☐ *Refused* 9	XH 19f

4.10 LIFESTYLE ADVICE

Question	Response		Code
During the past 12 months, have you visited a doctor or other health worker?	☐ Yes ☐ No ☐ *Refused*	1 2 ⟶ *go to* XC X0 9 ⟶ *go to* XC X0	**H 20**
During any of your visits to a doctor or other health worker in the past 12 months, were you advised to do any of the following? *(Record for each.)*			
– Quit using tobacco or do not start again	☐ Yes ☐ No ☐ Do not remember	1 2 8	**H 20a**
– Reduce salt in your diet	☐ Yes ☐ No ☐ Do not remember	1 2 8	**H 20b**
– Eat at least five servings of fruit and/or vegetables each day. ▲ *USE SHOWCARD*	☐ Yes ☐ No ☐ Do not remember	1 2 8	**H 20c**
– Reduce fat in your diet	☐ Yes ☐ No ☐ Do not remember	1 2 8	**H 20d**
– Start or do more physical activity	☐ Yes ☐ No ☐ Do not remember	1 2 8	**H 20e**
– Maintain a healthy body weight or lose weight	☐ Yes ☐ No ☐ Do not remember	1 2 8	**H 20f**
– Reduce sugary beverages in your diet	☐ Yes ☐ No ☐ Do not remember	1 2 8	**H 20g**

4.11 CANCER SCREENING

Colorectal cancer screening test

Question	Response		Code
Have you ever had a screening test for colorectal cancer?	☐ Yes ☐ No ☐ Do not remember ☐ *Refused*	1 *if* "C1" = 1, *go to* M 1 2 *if* "C1" = 1, *go to* M 1 8 *if* "C1" = 1, *go to* M 1 9 *if* "C1" = 1, *go to* M 1	**XC X0**

4.11 CANCER SCREENING *(continued)*

Cervical and breast cancer screening *(women only)*

The next questions ask about cervical cancer prevention. Screening tests for cervical cancer prevention can be done in different ways, including:

- **Pap smear** uses a device to take a sample of cervical cells for find any abnormalities.
- **Visual Inspection with Acetic Acid/vinegar** (VIA), VILI. VIA is an inspection of the surface of the uterine cervix after acetic acid, vinegar or iodine has been applied to it.
- **Human papillomavirus** (HPV) test uses a device to take a sample of cervical cells for HPV.
- **Colonoscopy** uses a colonoscope to closely examine women's cervix.

For both pap smear and HPV test, a doctor or nurse uses a swab to wipe from inside your vagina, take a sample and send it to a laboratory. It is even possible that you were given the swab yourself and asked to swab the inside of your vagina. The laboratory checks for abnormal cell changes if a pap smear is done, and for the HP virus if an HPV test is done.

Question	Response	Code
▷ **Cervical cancer prevention**		
Have you ever had a screening to test for cervical cancer, using any of the methods described above (VIA, VILI, PAP smear, HPV)?	☐ Yes 1 ☐ No 2 → *go to* XC X3 ☐ Do not remember 8 → *go to* XC X3 ☐ *Refused* 9 → *go to* XC X3	**CX 1**
When was the last time you had a screening test?	☐ Within the last 12 months 1 ☐ Longer than 12 months 2 ☐ Do not remember 8 ☐ *Refused* 9	**XC X2**
▷ **Vaccination against cervical cancer and diseases caused by HPV**		
Have you been vaccinated against HPV?	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**XC X3**
▷ **Breast cancer prevention**		

Screening tests for breast cancer prevention can be done in different ways, including breast self-exam, clinical breast exam, ultrasound or having an X-ray (mammography). Breast self–exam is a check-up a woman does at home about five days after her period. Clinical breast exam, ultrasound or mammography are done by a doctor at a screening programme or hospital.

Have you ever had a screening test for breast cancer, using any of these methods described above *(self-exam, X-ray or clinical breast exam)?*	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**XC X4**

5. BIOCHEMICAL AND PHYSICAL MEASUREMENTS

Question	Response	Code
▷ **Urinary sodium and creatinine**		
Did you fast prior to the urine collection?	☐ Yes 1 ☐ No 2 ☐ Do not remember 8 ☐ *Refused* 9	**B 10**
Time of day the urine sample was taken *(24-hour clock)*	☐ ___ h ___ min	**B 13**
Urinary sodium	☐ ___ ___ ___ . ___ ___ mmol/L	**B 14**
Urinary creatinine	☐ ___ ___ . ___ ___ mmol/L	**B 15**
▷ **Urine cotinine test**		
Test results for cotinine in the urine	☐ **COT 10** — positive 1 → *go to* B 18c ☐ — negative 2 → *go to* B 1 ☐ **COT 200** — positive 1 ☐ — negative 2	**B 18a** **B 18b** **B 18c** **B 18d**
▷ **Blood**		
In the past 12 hours, have you eaten or drank anything other than regular drinks *(water, mineral water, cold water)?*	☐ Yes 1 ☐ No 2 ☐ Do not remember 8 ☐ *Refused* 9	**B 1**
What time did you eat your last meal? *(in 24-hour clock)*	☐ ___ h ___ min	**XB 1**
Technician ID	☐ ___ ___ ___	**B 2**
Device ID	☐ ___ ___	**B 3**
Time of day blood specimen taken? *(in 24-hour clock)*	☐ ___ h ___ min	**B 4**
▷ **Blood lipids**		
Total cholesterol (mmol/L) or (mg/dL)	☐ ___ ___ . ___ ___ mmol/L ☐ ___ ___ ___ . ___ ___ mg/dL	**B 8**

5. BIOCHEMICAL AND PHYSICAL MEASUREMENTSL *(continued)*

Question	Response	Code
▷ Blood lipids *(continued)*		
During the past two weeks, have you been treated for raised cholesterol with drugs *(medication)* prescribed by a doctor/other health worker?	☐ Yes 1 ☐ No 2 ☐ Do not know/remember 8 ☐ *Refused* 9	B 9
HDL cholesterol (mmol/L) or (mg/dL)	☐ ___ . ___ ___ mmol/L ☐ ___ ___ ___ . ___ mg/dL	B 17
▷ **Blood glucose**		
Fasting blood glucose (mmol/L)	☐ ___ ___ . ___ ___ mmol/L	B 5
Today, have you taken insulin or other drugs (*medication)* that have been prescribed by a doctor or other health worker for raised blood glucose?	☐ Yes 1 ☐ No 2 ☐ Do not know/remember 8 ☐ *Refused* 9	B 6

5.1 BLOOD PRESSURE AND HEART RATE

Question	Response	Code
Technician ID	☐ ___ ___ ___	M 1
Device ID	☐ ___ ___	M 2
Reading 1	☐ ___ ___ ___ systolic (mmHg) ☐ ___ ___ ___ diastolic (mmHg) ☐ ___ ___ ___ beats per minute	M 4a M 4b M 16a
Reading 2	☐ ___ ___ ___ systolic (mmHg) ☐ ___ ___ ___ diastolic (mmHg) ☐ ___ ___ ___ beats per minute	M 5a M 5b M 16b
Reading 3	☐ ___ ___ ___ systolic (mmHg) ☐ ___ ___ ___ diastolic (mmHg) ☐ ___ ___ ___ beats per minute	M 6a M 6b M 16c
During the past two weeks, have you been treated for raised blood pressure with drugs *(medication)* prescribed by a doctor or other health worker?	☐ Yes 1 ☐ No 2 ☐ Do not know/remember 8 ☐ *Refused* 9	M 7

5.2 HEIGHT AND WEIGHT

Question	Response	Code
For women: are you pregnant?	☐ Yes 1 ☐ No 2 ☐ Do not know 8 ☐ *Refused* 9	**M 8**
Technician ID	☐ ____ ____ ____ ____	**M 9**
Device ID	☐ Height ____ ____ cm ☐ Weight ____ ____ cm	**M 10a** **M 10b**
Height	☐ ____ ____ ____ . ____ ____ cm	**M 11**
Weight *(if too large for scale:* 666.6)	☐ ____ ____ ____ . ____ ____ kg	**M 12**

5.3 WAIST / HIP

Question	Response	Code
Device ID for waist/hip	☐ ____ ____ ____ ____	**M 13**
Waist circumference	☐ ____ ____ ____ . ____ ____ cm	**M 14**
Hip circumference	☐ ____ ____ ____ . ____ ____ cm	**M 15**

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