

National Survey
on Risk Factors
for Chronic
Noncommunicable
Diseases in
Azerbaijan

2011

Final Report

Prepared by: J.Mammadov, MD, PhD, MSc
F.Ibrahimov, MD, MPH
A.Ibrahimova, MD, MPH
T.Jamilova, MD

Acknowledgement

This study was implemented with funds from the World Bank-supported Ministry of Health's Health Sector Reform Project (HSRP), World Health Organization and the Public Health and Reforms Center (PHRC), Ministry of Health of Azerbaijan Republic. On behalf of the study team, we would like to express our appreciation for their financial support in carrying out this work.

We would like to also express our appreciation to the HSRP Implementation Unit of the MOH, WHO Office in Azerbaijan, and the PHRC staff for their continuous support and contributions during the study.

Abbreviations

AZN	Azerbaijani Manat
BMI	Body Mass Index
DBP	diastolic blood pressure
DHS	Demographic and Health Survey
ETS	Environmental Tobacco Smoke
HSPR	Health Sector Reforms Project
MOH	Ministry of Health
NCDs	Noncommunicable Diseases
PHRC	Public Health and Reforms Center
SBP	systolic blood pressure
SSC	State Statistical Committee
WHO	World Health Organization

Table of Contents

Acknowledgement.....	2
Abbreviations	3
Table of Contents	4
List of Tables and Figures	6
1. Executive Summary.....	9
2. Introduction	11
3. Methods.....	13
3.1. Survey tool.....	13
3.2. Survey population and sampling design	14
3.3. Survey implementation	15
4. Results	15
4.1. Response rate	15
4.2. Demographic characteristics	15
4.3. Tobacco use.....	20
4.4. Alcohol consumption	24
4.5. Nutrition.....	28
4.6. Physical activity	33
4.7. Blood pressure and diabetes history.....	36
4.8. Physical measurements	42
4.9. Biochemical measurements.....	47
4.10. Summary of combined risk factors	48
5. Discussion	49
5.1. Noncommunicable diseases	49
5.1.1. Hypertension.....	49
5.1.2. Diabetes	50
5.2. Risk factors for NCDs.....	50
5.2.1. Tobacco use	50
5.2.2. Alcohol consumption.....	51

5.2.3.	Nutrition.....	51
5.2.4.	Physical activity.....	51
5.2.5.	Excessive body weight	52
5.3.	Combined risk factors	52
5.4.	Limitations and strengths	52
6.	Recommendations and conclusions.....	53
7.	References	54

List of Tables and Figures

Table 1. Allocation of the sample by economic regions of Azerbaijan.....	14
Table 2. Distribution of the respondents by age and gender.	16
Table 3. Mean number of years of education among the respondents by age groups and gender.	16
Table 4. Highest level of education among the respondents.	17
Table 5. Ethnic composition of the survey participants.	17
Table 6. Marital status of the respondents.	18
Table 7. Employment status of the respondents.	19
Table 8. Distribution of the households by average monthly expenditure and income.....	19
Table 9. Current smokers among male responders by age groups.	20
Table 10. Distribution of the respondents according to their smoking status (daily, non-daily, non-smokers) by age.	20
Table 11. Mean age of initiation daily smoking among male current daily smokers, by age groups. .	21
Table 12. Mean duration of smoking (in years) among male current daily smokers, by age groups...	21
Table 13. Number and percentage of current daily smokers by use of tobacco products.	21
Table 14. Mean number of manufactured cigarette used per day by daily smokers, by age groups. ...	21
Table 15. Mean age the ex-smokers quitted smoking, by age groups.....	23
Table 16. Percentage of respondents exposed to ETS at home, work and public places during the last 7 days.	24
Table 17. Alcohol consumption status of the respondents by age groups and gender.	25
Table 18. Frequency of alcohol consumption among those respondents who have drunk in the last 12 months, by age groups and gender.	26
Table 19. Mean number of standard drinks consumed on a drinking occasion among current (past 30 days) drinkers.....	26
Table 20. Mean maximum number of drinks consumed on one occasion among current (past 30 days) drinkers.....	27
Table 21. Percentage of current (past 30 days) drinkers who reported drinking alcohol usually, sometimes, rarely or never with meals.	27
Table 22. Frequency and quantity of drinks consumed in the past 7 days among current drinkers.....	28
Table 23. Mean number of days fruits or vegetables consumed in a typical week.	29
Table 24. Mean number of servings of fruits or vegetables consumed by the respondents on average day.	29

Table 25. Amount of fruit and/or vegetable consumption.....	30
Table 26. Percentage of respondents classified into three categories of total physical activity, by age groups and gender.	34
Table 27. Mean and median minutes of total physical activity on average per day.....	34
Table 28. Mean and median minutes of work-related physical activity on average per day.....	35
Table 29. Percentage of respondents classified as doing no work-, transport- or recreation-related physical activity.....	35
Table 30. Mean and median time (in minutes) spent in sedentary activities on a typical day, by gender and age groups.....	36
Table 31. Blood pressure measurement and diagnosis among all respondents.....	36
Table 32. Percentage of respondents with diagnosed hypertension who were on medicines or received lifestyle advice from a doctor or health worker.....	37
Table 33. Percentage of respondents with diagnosed hypertension who have sought advice or received treatment from traditional healers.....	38
Table 34. Diabetes measurement and diagnosis among all respondents.....	39
Table 35. Diabetes treatment results.....	40
Table 36. Percentage of respondents with diagnosed diabetes who received lifestyle advice from a doctor or health worker.....	40
Table 37. Percentage of respondents with diagnosed diabetes who have sought advice or received treatment from traditional healers.....	41
Table 38. Mean height, weight, and body mass index among all respondents.....	42
Table 39. Percentage of respondents in each BMI category.	43
Table 40. Mean waist circumference among all respondents (excluding pregnant women).....	44
Table 41. Mean blood pressure among all respondents.....	44
Table 42. Percentage of the respondents with raised blood pressure.	45
Table 43. Percentage of respondents with treated and/or controlled raised blood pressure among those with raised blood pressure or currently on medication for raised blood pressure	46
Table 44. Mean heart rate (beats per minute).....	47
Table 45. Mean fasting glucose among all respondents.....	47
Table 46. Categorization of respondents into blood glucose level categories.....	48
Table 47. Summary of combined risk factors for NCDs.....	49

Figure 1. The general concept of STEPwise approach to NCD risk factor surveillance.....	12
Figure 2. Distribution of respondents by number of days per week they smoke inside their home.....	22
Figure 3. Distribution of current smokers by frequency of smoking in public places.	22
Figure 4. Respondents' opinion about healthy diet.	31
Figure 5. Type of oil or fat most often used for meal preparation in the households.....	31
Figure 6. Respondents' daily salt consumption.....	32
Figure 7. The number of days per week the respondents consumed pickled food.....	32
Figure 8. The number of days sugar-containing soft drinks consumed in the past 30 days.	33
Figure 9. Percentage of the respondents being classified as overweight (BMI > 25).	43

1. Executive Summary

The survey on the prevalence and risk factors for noncommunicable diseases in Azerbaijan is the first nationwide cross-sectional survey conducted from February to April 2011 by using the WHO Non-Communicable Disease Stepwise survey methodology. The goal of the survey was to determine the prevalence of risk factors for noncommunicable diseases and to establish the baseline information for the prevention and control of these diseases in the country.

Two-stage random cluster sampling was employed for this study. The sampling frame was all population of Azerbaijan aged 18 years and above. The survey data was obtained from 2000 adult participants with 83.3% response rate.

The following are the key findings of the survey:

- The prevalence of **smoking** and daily smoking was overall 22.9% and 21.3% respectively. However, this prevalence was almost 100 times higher for men than for women. The mean starting tobacco smoking age of daily smokers was overall around 19 years. Furthermore, environmental tobacco smoke exposure or passive smoking in home, public places and/or in workplace was reported by 59.6% of the total respondents, by more men than by women.
- In regards to **alcohol** drinkers, 14.3% of the total respondents were reportedly current drinkers in the past 30 days, whereas 9.3% drank in the past 12 months but not currently. The proportions of current (past 30 days) and non-current drinkers were significantly higher among male respondents than female respondents (29.0% and 18.4% vs. 1.9% and 1.7% respectively).
- **Fruit and/or vegetable** consumption was generally low, with the majority of the respondents (78.8%) reported to consume less than 5 servings per day with no significant differences among age groups and sexes. More than half of households (54%) used unsaturated oil such as butter or ghee for cooking.
- In terms of **physical activity**, 44.1% of the total respondents were engaged in high level of activities, and the amount of time spent in physical activity was on average around three hours per day. Male and younger respondents were more physically active than female and older respondents.
- In regards to **physical measurements**, the Body Mass Index (BMI) of the total respondents averaged overall 27.1, and the percentage of **overweight** and **obese** was 37.2% and 25.0% respectively. The share of obese respondents was substantially higher among women than among men (30.7% and 18.4% respectively).

- In total, respondents with mild to severe **raised blood pressure** (SBP \geq 140 and/or DBP \geq 90 mmHg) and severe raised blood pressure (SBP \geq 160 and/or DBP \geq 100 mmHg) excluding those currently on medication for **hypertension**, were on average 30.7% and 12.4% respectively. The share of respondents with mild to severe and severe raised blood pressure or currently taking medication was respectively 43.6% and 28.8%.
- Overall, 20.2% of the respondents had impaired fasting glycaemia (glucose level equal or greater than 100 mg/dl or 5.6 mmol/l and less than 110 mg/dl or 6.1 mmol/l), and 11.0% were found to have **diabetes** (glucose level equal or greater than 110 mg/dl or 6.1 mmol/l)¹.
- Finally, the survey revealed that 52.5% of the surveyed respondents had one to two risk factors for developing noncommunicable diseases, whereas 39.91% had three or more risk factors. The proportion of respondents who had three or more risk factors was higher in men than in women.

¹ Values for capillary blood

2. Introduction

This report presents the findings and recommendations from the national survey on risk factors for chronic noncommunicable diseases conducted in 2011 in Azerbaijan.

With the epidemiologic transition the main burden of diseases shifted from infectious diseases to chronic noncommunicable diseases (NCDs), which have become a major challenge to global development now. The World Health Organization (WHO) report 2002 stated that the mortality, morbidity and disability attributed to the major noncommunicable diseases (NCDs) accounted for about 60% of global deaths and 47% of burden of disease. By 2020 these estimates are expected to rise to 73% and 60% respectively.¹

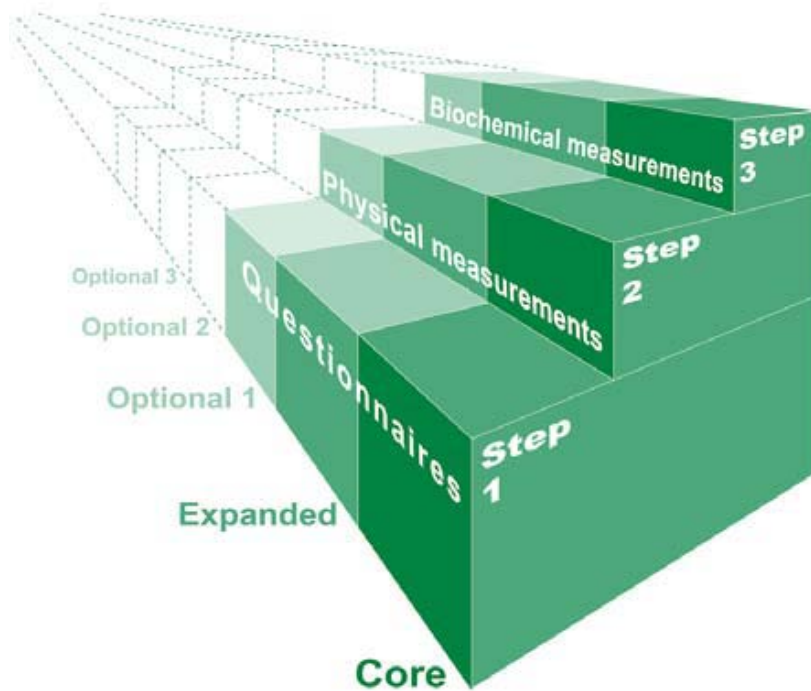
Among other conditions, chronic noncommunicable diseases include circulatory diseases, chronic respiratory diseases, and cancer. According to the State Statistical Committee of Azerbaijan, these diseases were the leading mortality causes in the country representing 79% of all deaths in 2009.² Most of these diseases are attributed to common preventable risk factors such as tobacco use, excessive alcohol consumption, unhealthy diet, and physical inactivity.

In Azerbaijan, the data on prevalence of main NCDs and their risk factors are largely based on health provider records, whereas a population-based national surveillance system is lacking. Collection of timely and ongoing data on the magnitude and trends of NCDs and their risk factors is needed to inform policy development, to identify appropriate prevention interventions and to evaluate their effectiveness. Recognizing this need and based on the Ministry of Health letter #02/19-4489 from September 27, 2010, the Public Health and Reform Center launched the first national survey for NCD risk factors in Azerbaijan, which allowed establishing national baselines in this area. It is envisioned that the survey will be conducted regularly thus forming a foundation for a national surveillance system for NCD risk factors. Once fully functional, this surveillance system will serve the following objectives:

- To collect consistent data across the country;
- To develop standardized tools to enable comparisons over time and across regions of the country, as well as international comparison;
- To prevent chronic disease epidemics before they occur;
- To help health services plan and determine public health priorities;
- To predict future caseloads of chronic diseases;
- To monitor and evaluate population-wide interventions

The survey was based on WHO STEPS methodology, which is widely used all over the world and meets above-mentioned objectives. STEPS methodology utilizes stepwise approach that starts with gathering key information on risk factors with a questionnaire, then moves to simple physical measurements and then to more complex collection of blood samples for biochemical analysis. The Figure 1 illustrates the general concept of the STEPwise approach:

Figure 1. The general concept of STEPwise approach to NCD risk factor surveillance.



The more detailed information on STEPS methodology is provided in the Methods section of this report.

3. Methods

3.1. Survey tool

The survey consisted of the interviews using the adapted STEPS questionnaire (STEP 1), physical measurement of the study participants (STEP 2) and blood testing for glucose (STEP 3). Glucose measurement was conducted using portable glucometers. Due to financial and logistical considerations, cholesterol and triglyceride measurements were not conducted.

The survey content is presented below:

STEP 1:

- Demographic data:
 - Gender
 - Age
 - Education
 - Employment
 - Marital status
 - Income level and expenditure profile
- Behavioral data:
 - Tobacco use
 - Alcohol consumption
 - Diet
 - Physical activity
- History of blood pressure and diabetes

STEP 2:

- Blood pressure
- Heart rate
- Height
- Weight
- Waist circumference

STEP 3:

- Blood glucose

The STEP questionnaire was translated into Azerbaijani, then reviewed by the representatives from the WHO Country Office and HSRP and piloted on accessible sample with subsequent minor modifications.

3.2. Survey population and sampling design

Two-stage random cluster sampling was employed for this study. The sampling frame was all population of Azerbaijan aged 18 years and above. According to the Central Election Commission of Azerbaijan, there were 4,598,629 people in this age group in the country in 2010.³ The following formula was used to calculate the sample size for the study:

$$N = \frac{Z^2 \times p \times (1-p)}{C^2},$$

where:

Z = 1.96 for confidence level of 95%

p = estimated proportion in the population (0.5)

C = 2% confidence interval (the magnitude of change we want to be able to detect)

Using this formula, the sample size was identified at 2,400.

The survey team used the database of Central Election Commission for sampling purposes for several reasons: (i) it contains the data on all voters (all citizens above 18 years), which corresponds to the study population; (ii) it contains the most recent data updated for the parliamentary elections conducted in November 2010; (iii) the data are divided by clusters. Azerbaijan has 11 economic regions that are identified considering economic and geographic specifics, which were considered important to the study subject. Therefore, the entire sample was divided in 11 strata according to the economic regions. The allocation of the sample by strata was done based on the number of election points in each region. For logistical purposes Nakhchivan was not included into the study. To ensure more efficient use of the resources, it was decided to conduct 24 interviews in each election post regardless of its population size. Using SPSS software, 100 election posts were randomly selected out of 4,833 posts existing in the country (see Table 1).

Table 1. Allocation of the sample by economic regions of Azerbaijan.

Economic region	Number of election posts	% of total election posts	Sample allocation
Baku City	886	18.1	18x24=432
Absheron	198	4.1	4x24=96
Ganja-Gazakh	654	13.4	14x24=336
Sheki-Zagatala	388	7.9	8x24=192
Lankaran	555	11.4	11x24=264
Guba-Khachmaz	353	7.2	7x24=168
Aran	1,037	21.2	21x24=504
Mountainous Shirvan	218	4.5	5x24=120
Upper Garabag	272	5.6	6x24=144
Kalbajar-Lachin	212	4.3	4x24=96
Other	110	2.3	2x24=48
Total	4,883	100.0	2,400

The voter lists for each randomly selected election post were obtained from the official website of Central Election Commission. Again, using SPSS software final respondents for the survey were randomly identified from the voter lists. The final respondent list was adjusted to ensure that its female-to-male ratio corresponds to the national ratio.

3.3. Survey implementation

Twenty surveyors and five monitors were recruited for the survey using predefined criteria such as previous experience in population-based health surveys, health background and other. The interviewers and monitors attended 3-day training where the STEPS survey tool was presented and discussed.

As part of the preparation to field activities, ten teams were created each consisting of two surveyors. Each team received individual itinerary and work plan. Each monitor was assigned two surveyor teams for supervision in the field. The role of the monitors was to oversee the data collection process, to assist the surveyors if problems arise and to check the filled questionnaires for completeness.

The data collection in the field started on February 23, 2011 and lasted approximately 30 days.

Six PHRC staff members with appropriate skills were identified and recruited for double data entry, which was conducted in parallel to data collection. The data was entered and analyzed using SPSS software version 17.

4. Results

4.1. Response rate

The planned sample for the study was 2400 households. The response rate was 83.3% for Step 1 and Step 2, and 83% for STEP 3 of the survey.

4.2. Demographic characteristics

Table 2 presents the distribution of the study participants by gender and age groups. Overall, the share of female respondents was higher than male (54.4% and 45.7% respectively). When considered by age, the greatest proportion of respondents was in 45-54 years age group (25.6%). The proportion of male respondents was greater than female only in 25-34 years age group (51.3% vs. 48.7% respectively).

Table 2. Distribution of the respondents by age and gender.

Age Group	Men			Women			Both Sexes		
	N	Row N %	Col N %	N	Row N %	Col N %	N	Row N %	Col N %
18 – 24	121	47.6%	13.3%	133	52.4%	12.2%	254	100.0%	12.7%
25 – 34	211	51.3%	23.1%	200	48.7%	18.4%	411	100.0%	20.6%
35 – 44	168	43.4%	18.4%	219	56.6%	20.1%	387	100.0%	19.4%
45 – 54	224	43.8%	24.5%	287	56.2%	26.4%	511	100.0%	25.6%
55 – 64	102	40.8%	11.2%	148	59.2%	13.6%	250	100.0%	12.5%
65 and older	87	46.5%	9.5%	100	53.5%	9.2%	187	100.0%	9.4%
Total	913	45.7%	100.0%	1087	54.4%	100.0%	2000	100.0%	100.0%

The mean number of years of education (excluding pre-school years) was 10.8 with schooling years longer in men than in women (11.2 and 10.5 respectively). Interestingly, the greatest number of schooling years was observed among the youngest age group of 18-24 years, which might be explained by increasing the duration of secondary education from 10 years to 11 years introduced in 1990s (see Table 3).

Table 3. Mean number of years of education among the respondents by age groups and gender.

Age Group	Men		Women		Both Sexes	
	N	Mean	N	Mean	N	Mean
18 – 24	121	11.2	133	11.3	254	11.3
25 – 34	211	11.3	200	11.1	411	11.2
35 – 44	168	11.1	219	10.5	387	10.8
45 – 54	224	11.6	287	10.9	511	11.2
55 – 64	102	12.1	148	10.5	250	11.2
65 and older	87	9.6	100	7.0	187	8.2
Total	913	11.2	1087	10.5	2000	10.8

The greater proportion of female respondents did not attend any formal school in comparison to male respondents (3.1% vs. 1.5% respectively). This difference was caused mainly by higher share of uneducated persons among those above 55 years of age, whereas among younger age groups no significant difference was found. Significantly greater proportion of male respondents had university education in comparison to female respondents (15.8% vs. 10.5% respectively). Interestingly, the greatest proportion of university-educated people was observed in 55-64 years age group, and this finding was consistent for both sexes (see Table 4).

Table 4. Highest level of education among the respondents.

Age Group	N	No formal school	Primary school completed	Secondary school completed	High school completed	Professional-technical Institutions	Secondary specialized education	University (not completed)	University completed
Men									
18 - 24	121	2.5%	0.8%	11.6%	59.5%	2.5%	4.1%	10.7%	8.3%
25 - 34	211	1.4%	4.3%	13.7%	51.2%	3.3%	5.7%	1.9%	18.5%
35 - 44	168	0.6%	1.2%	9.5%	43.5%	17.9%	13.7%	1.8%	11.9%
45 - 54	224	0.4%	0.9%	4.5%	44.6%	12.5%	18.8%	2.2%	16.1%
55 - 64	102	1.0%	1.0%	11.8%	25.5%	9.8%	20.6%	1.0%	29.4%
65 and older	87	5.7%	16.1%	23.0%	18.4%	9.2%	16.1%	1.1%	10.3%
Total	913	1.5%	3.2%	11.1%	43.3%	9.4%	12.8%	3.0%	15.8%
Women									
18 - 24	133	1.5%	5.3%	15.0%	45.1%	0.8%	9.8%	13.5%	9.0%
25 - 34	200	1.0%	6.5%	18.0%	39.5%	2.5%	17.5%	1.0%	14.0%
35 - 44	219	1.4%	1.8%	15.1%	57.5%	4.6%	11.4%	0.0%	8.2%
45 - 54	287	0.7%	2.4%	16.0%	42.5%	6.6%	20.9%	1.0%	9.8%
55 - 64	148	4.7%	4.7%	18.2%	34.5%	1.4%	19.6%	0.7%	16.2%
65 and older	100	18.0%	29.0%	22.0%	15.0%	0.0%	11.0%	1.0%	4.0%
Total	1087	3.1%	6.2%	16.9%	41.7%	3.4%	15.9%	2.3%	10.5%
Both Sexes									
18 - 24	254	2.0%	3.1%	13.4%	52.0%	1.6%	7.1%	12.2%	8.7%
25 - 34	411	1.2%	5.4%	15.8%	45.5%	2.9%	11.4%	1.5%	16.3%
35 - 44	387	1.0%	1.6%	12.7%	51.4%	10.3%	12.4%	0.8%	9.8%
45 - 54	511	0.6%	1.8%	11.0%	43.4%	9.2%	20.0%	1.6%	12.5%
55 - 64	250	3.2%	3.2%	15.6%	30.8%	4.8%	20.0%	0.8%	21.6%
65 and older	187	12.3%	23.0%	22.5%	16.6%	4.3%	13.4%	1.1%	7.0%
Total	2000	2.4%	4.8%	14.3%	42.4%	6.2%	14.5%	2.6%	12.9%

Azerbaijanis represented 90.8% of the respondents followed by Talish, Lezgis, Avars and Russians (see Table 5).

Table 5. Ethnic composition of the survey participants.

Ethnicity	N	Percent
Azerbaijani	1815	90.8
Talish	71	3.6
Lezgi	49	2.5
Avar	19	1.0
Russian	15	0.8
Ingiloy	12	0.6
Akhiska Turkish	7	0.4
Other	12	0.6
Total	2000	100.0

Around 74% of the respondents were currently married. However, the proportion of currently married was higher for men than for women (77.7% vs. 70.7%). Furthermore, the remaining respondents were overall single or never married (14.7%), divorced or separated (2.7%), and widowed (8.7%). The proportion of widows was almost 5 times higher in women than in men, and tended to increase with age (see Table 6).

Table 6. Marital status of the respondents.

Age Group	N	Single/ Never married	Currently married/ Living together	Divorced/ Separated	Widowed	Refused
Men						
18 – 24	121	82.6%	17.4%	0.0%	0.0%	0.0%
25 – 34	211	21.3%	78.7%	0.0%	0.0%	0.0%
35 – 44	168	7.1%	88.7%	4.2%	0.0%	0.0%
45 – 54	224	2.2%	95.5%	1.3%	0.9%	0.0%
55 – 64	102	2.0%	95.1%	1.0%	2.0%	0.0%
65 and older	87	1.1%	71.3%	2.3%	25.3%	0.0%
Total	913	18.1%	77.7%	1.4%	2.8%	0.0%
Women						
18 – 24	133	54.1%	45.9%	0.0%	0.0%	0.0%
25 – 34	200	14.5%	79.0%	5.0%	1.5%	0.0%
35 – 44	219	5.0%	85.8%	6.4%	2.7%	0.0%
45 – 54	287	5.2%	78.0%	4.5%	12.2%	0.0%
55 – 64	148	1.4%	74.3%	0.7%	23.6%	0.0%
65 and older	100	0.0%	28.0%	3.0%	68.0%	1.0%
Total	1087	11.9%	70.7%	3.8%	13.5%	0.1%
Both Sexes						
18 – 24	254	67.7%	32.3%	0.0%	0.0%	0.0%
25 – 34	411	18.0%	78.8%	2.4%	0.7%	0.0%
35 – 44	387	5.9%	87.1%	5.4%	1.6%	0.0%
45 – 54	511	3.9%	85.7%	3.1%	7.2%	0.0%
55 – 64	250	1.6%	82.8%	0.8%	14.8%	0.0%
65 and older	187	0.5%	48.1%	2.7%	48.1%	0.5%
Total	2000	14.7%	73.9%	2.7%	8.7%	0.0%

One in every five respondents was a government employee with significantly higher proportion of those working for the government among men as compared to women (22.1% vs. 19.8% respectively). Approximately six times as many men as women were either non-government employees or self-employed. Around 42% of the female respondents were housewives. One in every six respondents was unemployed despite being able to work. The share of such persons was two times greater among men than among women (23.0% vs. 11.4%) and was decreasing with age (see Table 7).

Table 7. Employment status of the respondents.

Age Group	N	Refused	Government employee	Non-government employee	Self-employed	Student	Retired	Homemaker	Unemployed (able to work)	Unemployed (unable to work)	Other
Men											
18 – 24	121	0.0%	7.4%	18.2%	19.0%	9.9%	0.8%	0.0%	43.0%	1.7%	0.0%
25 – 34	211	0.0%	18.5%	27.0%	21.3%	0.5%	1.4%	0.0%	28.4%	1.9%	0.9%
35 – 44	168	0.6%	22.0%	22.0%	19.6%	0.0%	3.0%	0.0%	27.4%	4.2%	1.2%
45 – 54	224	0.0%	29.0%	22.3%	21.4%	0.0%	6.7%	0.0%	16.5%	4.0%	0.0%
55 – 64	102	0.0%	45.1%	10.8%	8.8%	0.0%	17.6%	0.0%	14.7%	2.9%	0.0%
65 and older	87	0.0%	6.9%	2.3%	1.1%	0.0%	88.5%	0.0%	0.0%	1.1%	0.0%
Total	913	0.1%	22.1%	19.6%	17.4%	1.4%	13.0%	0.0%	23.0%	2.8%	0.4%
Women											
18 – 24	133	0.0%	5.3%	3.8%	0.0%	18.0%	0.8%	42.9%	27.8%	1.5%	0.0%
25 – 34	200	0.0%	22.0%	5.5%	1.5%	0.0%	0.5%	52.0%	17.0%	1.5%	0.0%
35 – 44	219	0.0%	17.4%	4.6%	4.1%	0.0%	1.8%	59.8%	10.0%	2.3%	0.0%
45 – 54	287	0.0%	24.0%	2.8%	4.2%	0.0%	12.9%	44.3%	9.4%	2.4%	0.0%
55 – 64	148	0.0%	21.6%	0.7%	3.4%	0.0%	50.0%	20.3%	2.7%	1.4%	0.0%
65 and older	100	0.0%	3.0%	0.0%	0.0%	0.0%	92.0%	4.0%	0.0%	1.0%	0.0%
Total	1087	0.0%	17.8%	3.2%	2.7%	2.2%	19.2%	41.7%	11.4%	1.8%	0.0%
Both Sexes											
18 – 24	254	0.0%	6.3%	10.6%	9.1%	14.2%	0.8%	22.4%	35.0%	1.6%	0.0%
25 – 34	411	0.0%	20.2%	16.5%	11.7%	0.2%	1.0%	25.3%	22.9%	1.7%	0.5%
35 – 44	387	0.3%	19.4%	12.1%	10.9%	0.0%	2.3%	33.9%	17.6%	3.1%	0.5%
45 – 54	511	0.0%	26.2%	11.4%	11.7%	0.0%	10.2%	24.9%	12.5%	3.1%	0.0%
55 – 64	250	0.0%	31.2%	4.8%	5.6%	0.0%	36.8%	12.0%	7.6%	2.0%	0.0%
65 and older	187	0.0%	4.8%	1.1%	0.5%	0.0%	90.4%	2.1%	0.0%	1.1%	0.0%
Total	2000	0.1%	19.8%	10.7%	9.4%	1.9%	16.4%	22.7%	16.7%	2.3%	0.2%

The mean household size was 4.9 and the mean number of people older than 18 living in respondent’s household was 3.6.

Around three fourths of the households had both their expenditure and income within the range of 100 to 800 AZN (see Table 8).

Table 8. Distribution of the households by average monthly expenditure and income.

	Expenditure		Income	
	N	Percent	N	Percent
1201AZN and more	23	1.2	21	1.1
801-1200AZN	117	5.9	69	3.5
401-800AZN	533	26.7	361	18.1
251-400AZN	516	25.8	517	25.9
101-250AZN	499	25.0	672	33.6
86-100AZN	137	6.9	181	9.1
Below 85AZN	25	1.3	54	2.7
Don't know	125	6.3	26	1.3
Refused	25	1.3	99	5.0
Total	2000	100.0	2000	100.0

4.3. Tobacco use

One in every two men was a current smoker, whereas less than 1% of women reported smoking at the time of the interview. Considering very low prevalence of smoking among female respondents, furthermore more detailed information related to smoking is presented only on men. Among the men the highest prevalence of smoking was observed in 35-44 years old (61.3%) with substantial decline after 54 years of age (see Table 9).

Table 9. Current smokers among male responders by age groups.

Age Group	Men		
	N	N Current smoker	% Current smoker (95% CI)
18 – 24	121	41	33.9%
25 – 34	211	125	59.2%
35 – 44	168	103	61.3%
45 – 54	224	132	58.9%
55 – 64	102	37	36.3%
65 and older	87	14	16.1%
Total	913	452	49.5%

Daily smoking habit was assessed among current smokers, by asking them whether they smoked on daily basis or not. Overall 46.1% of men reported daily smoking and additional 3.4% were non-daily smokers (see Table 10). The prevalence of daily smoking was highest among 35-44 years old (58.3%). The results showed that 93.1% (421 out of 452) of the current smokers were daily smokers.

Table 10. Distribution of the respondents according to their smoking status (daily, non-daily, non-smokers) by age.

Age Group	N	% Daily smoker	% Non-daily smoker	% Non-smoker
Men				
18 – 24	121	32.2%	1.7%	66.1%
25 – 34	211	52.6%	6.6%	40.8%
35 – 44	168	58.3%	3.0%	38.7%
45 – 54	224	56.3%	2.7%	41.1%
55 – 64	102	32.4%	3.9%	63.7%
65 and older	87	16.1%	0.0%	83.9%
Total	913	46.1%	3.4%	50.5%

Mean age of initiating daily smoking was 19 years. The time of smoking initiation tends to increase with respondents' age except for the eldest age group (see Table 11).

Table 11. Mean age of initiation daily smoking among male current daily smokers, by age groups.

Age Groups	Men	
	N	Mean
18 – 24	39	17
25 – 34	109	18
35 – 44	98	19
45 – 54	121	19
55 - 64	31	22
65 and older	12	17
Total	410	19

The mean duration of smoking among current daily smokers was 22 years (see Table 12).

Table 12. Mean duration of smoking (in years) among male current daily smokers, by age groups.

Age Groups	Men	
	N	Mean
18 - 24	39	5
25 - 34	109	12
35 - 44	98	21
45 - 54	121	30
55 - 64	31	37
65 and older	12	54
Total	410	22

All except three current daily smokers reported using manufactured cigarettes. One respondent smoked both manufactured cigarettes and hand-rolled cigarettes, and three respondents smoked only cigars (see Table 13).

Table 13. Number and percentage of current daily smokers by use of tobacco products.

Type	Current smoker N=425	
	N*	%
Manufactured cigarettes	413	97.2%
Hand-rolled cigarettes	1	0.2%
Cigars	3	0.7%
Missing	9	2.1%

* - one respondent reported using two tobacco products simultaneously

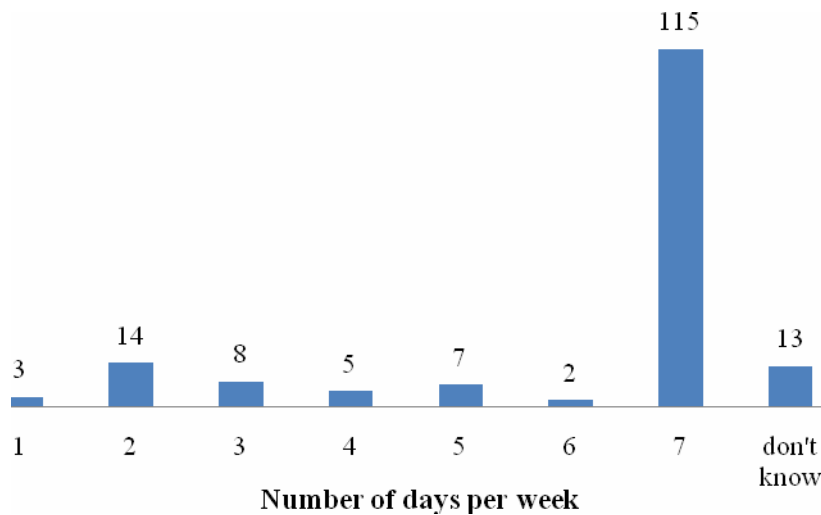
The daily smokers smoked on average 20 cigarettes a day with the highest mean in 45-54 years old and the lowest in 18-24 years old (20 and 14 cigarettes respectively) (see Table 14).

Table 14. Mean number of manufactured cigarette used per day by daily smokers, by age groups.

Age Groups	Men	
	N	Mean
18 – 24	38	14
25 – 34	110	19
35 – 44	94	21
45 – 54	123	24
55 – 64	30	20
65 and older	14	15
Total	409	20

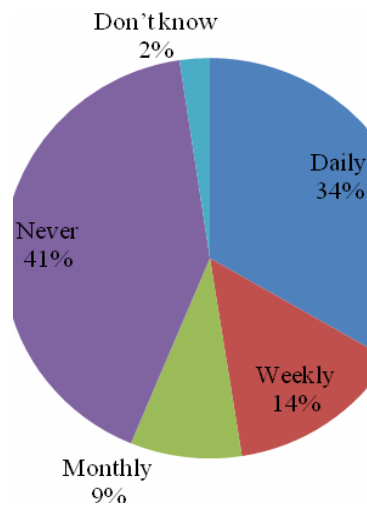
The respondents were asked whether they smoked inside their home. Around 39% of all daily current smokers reported smoking inside their home. Sixty-nine percent of those smoking inside their home did it every day (see Figure 2).

Figure 2. Distribution of respondents by number of days per week they smoke inside their home



The current smokers were asked how often they smoked in public places such as restaurants, café, public transport, bus stop etc. Forty-one percent of the respondents reported never smoking in public places, whereas 34% said that they did it on a daily basis (see Figure 3).

Figure 3. Distribution of current smokers by frequency of smoking in public places.



Around 8.6% (133 out of 1543) of the non-smoking respondents and those who do not smoke daily ever smoked daily in the past. The mean age when the ex-smokers quitted smoking was 39 for men (see Table 15).

Table 15. Mean age the ex-smokers quitted smoking, by age groups.

Age Groups	Men	
	N	Mean
18 – 24	11	20
25 – 34	19	26
35 – 44	17	30
45 – 54	24	37
55 – 64	24	46
65 and older	32	54
Total	127	39

Only 4 respondents (0.2%) reported that they used some smokeless tobacco products, and none of them used it daily. Additional 3 respondents (0.2%) said that they ever used smokeless tobacco daily in the past.

The survey also sought information from the participants on their exposition to environmental tobacco smoke (ETS) or passive smoking. While very few women reported smoking, the findings indicate that they are more likely than men to be exposed to ETS at home (40.2% vs. 30.2%). ETS exposure at work and public places was higher in men, which can be explained by a higher share of employed people among the male respondents and women traditionally less likely to visit public places, especially in rural areas. Overall almost 60% of the respondents reported being exposed to ETS either at home, work or public places during the last 7 days with men being exposed more frequently than women (67.5% and 52.3% respectively). For both sexes the exposure is more likely to happen at public places than at home or work (59.2% vs. 35.6% and 34.9%). When examined by age groups, ETS exposure tended to be greater in younger ages (see Table 16).

Table 16. Percentage of respondents exposed to ETS at home, work and public places during the last 7 days.

Age Groups	N	Men	Women	Both Sexes
		% Exposed at home		
18 – 24	244	47.8%	49.6%	48.8%
25 – 34	398	35.6%	42.5%	38.9%
35 – 44	379	27.0%	41.7%	35.4%
45 – 54	492	24.1%	37.3%	31.5%
55 – 64	245	26.5%	38.1%	33.5%
65 and older	165	19.5%	28.9%	24.2%
Total	1923	30.2%	40.2%	35.6%
	N	% Exposed at workplace		
18 – 24	94	55.1%	15.6%	36.2%
25 – 34	185	67.6%	16.9%	46.5%
35 – 44	166	53.9%	17.8%	34.3%
45 – 54	247	57.4%	12.9%	33.6%
55 – 64	126	50.0%	6.7%	29.4%
65 and older	55	18.2%	9.1%	14.5%
Total	873	55.0%	13.8%	34.9%
	N	% Exposed at public places		
18 – 24	152	80.2%	40.9%	63.2%
25 – 34	254	85.4%	49.5%	70.9%
35 – 44	248	72.3%	42.6%	56.9%
45 – 54	331	82.3%	38.3%	60.1%
55 – 64	154	60.8%	35.0%	47.4%
65 and older	77	50.0%	27.3%	40.3%
Total	1216	76.2%	40.5%	59.2%
	N	% Exposed at home, workplace and/or public places		
18 – 24	247	74.1%	61.1%	67.2%
25 – 34	400	75.4%	57.0%	66.5%
35 – 44	382	65.5%	53.9%	58.9%
45 – 54	494	71.1%	50.7%	59.7%
55 – 64	246	62.6%	50.3%	55.3%
65 and older	166	38.6%	39.8%	39.2%
Total	1935	67.5%	52.9%	59.6%

4.4. Alcohol consumption

To evaluate the quantity and frequency of alcohol consumption, the survey participants were asked about their drinking practices in the past year, month and week prior to being surveyed. Approximately 34% of all respondents (687 out of 2000) reported ever consuming an alcoholic drink in their lives with the remaining 66% being lifetime abstainers. The proportion of lifetime abstainers was significantly greater among women than among men (90.2% vs. 36.5% respectively). In regards to alcohol drinkers, 14.3% of the total respondents were reportedly current drinkers in the past 30 days, whereas 9.3% drank in the past 12 months but not currently. The

proportions of current (past 30 days) and non-current drinkers were significantly higher among male respondents than female respondents (29.0% and 18.4% vs. 1.9% and 1.7% respectively). Finally, 10.8% of all respondents reported ever drinking but not in the past 12 months. Again, the share of such respondents was substantially greater among men than women (16.1% vs. 6.3% respectively). When examined by age groups, the proportion of current drinkers was increasing with the age until 65 years, after which significant decrease was observed (see Table 17).

Table 17. Alcohol consumption status of the respondents by age groups and gender.

Age Group	N	% (95% CI) Current drinker (past 30 days)	% (95% CI) Drank in past 12 months, not current	% (95% CI) Past 12 months abstainer	% (95% CI) Lifetime abstainer
Men					
18 – 24	121	9.9%	18.2%	12.4%	59.5%
25 – 34	211	28.9%	20.4%	15.6%	35.1%
35 – 44	168	36.3%	22.6%	14.9%	26.2%
45 – 54	224	37.5%	17.0%	14.7%	30.8%
55 – 64	102	38.2%	16.7%	16.7%	28.4%
65 and older	87	9.2%	11.5%	27.6%	51.7%
Total	913	29.0%	18.4%	16.1%	36.5%
Women					
18 – 24	133	0.8%	2.3%	4.5%	92.5%
25 – 34	200	1.5%	2.5%	6.0%	90.0%
35 – 44	219	2.7%	0.5%	8.2%	88.6%
45 – 54	287	1.7%	1.7%	8.0%	88.5%
55 – 64	148	3.4%	1.4%	4.7%	90.5%
65 and older	100	1.0%	2.0%	2.0%	95.0%
Total	1087	1.9%	1.7%	6.3%	90.2%
Both Sexes					
18 – 24	254	5.1%	9.8%	8.3%	76.8%
25 – 34	411	15.6%	11.7%	10.9%	61.8%
35 – 44	387	17.3%	10.1%	11.1%	61.5%
45 – 54	511	17.4%	8.4%	11.0%	63.2%
55 – 64	250	17.6%	7.6%	9.6%	65.2%
65 and older	187	4.8%	6.4%	13.9%	74.9%
Total	2000	14.3%	9.3%	10.8%	65.7%

Among drinkers in the past 12 months, including current (30 days) drinkers, the proportion of those who reportedly consumed alcohol on a daily basis was relatively low (1.7%). The proportion of drinkers consuming alcohol for at least once a week was 10.8% of all respondents who had ever drunk in the past 12 months prior to the survey. No women reported alcohol consumption at least once a week, whereas the share of such persons among male respondents was 11.7%. The vast majority (86.8%) of the respondents who reported drinking in the past 12 months consumed alcohol from 1-3 days a month to less than once a month. Such pattern of drinking was equally prevalent among men and women (86.6% and 89.8% respectively). Interestingly, the proportion of daily male drinkers was increasing with age with the peak among the eldest group (see Table 18).

Table 18. Frequency of alcohol consumption among those respondents who have drunk in the last 12 months, by age groups and gender.

Age Groups	N	% Daily	% 5-6 days a week	% 1-4 days per week	% 1-3 days per month	% < once a month	Don't know
Men							
18 – 24	34	0.0%	0.0%	2.9%	23.5%	67.6%	5.9%
25 – 34	104	0.0%	0.0%	5.8%	53.8%	40.4%	0.0%
35 – 44	99	1.0%	0.0%	10.1%	43.4%	42.4%	3.0%
45 – 54	122	2.5%	0.0%	12.3%	54.1%	29.5%	1.6%
55 – 64	56	5.4%	1.8%	14.3%	39.3%	39.3%	0.0%
65 and older	18	5.6%	0.0%	11.1%	27.8%	55.6%	0.0%
Total	433	1.8%	0.2%	9.7%	46.2%	40.4%	1.6%
Women							
18 – 24	4	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%
25 – 34	8	0.0%	0.0%	0.0%	0.0%	87.5%	12.5%
35 – 44	7	0.0%	0.0%	0.0%	14.3%	71.4%	14.3%
45 – 54	10	0.0%	0.0%	0.0%	10.0%	90.0%	0.0%
55 – 64	7	0.0%	0.0%	0.0%	42.9%	57.1%	0.0%
65 and older	3	0.0%	0.0%	0.0%	33.3%	66.7%	0.0%
Total	39	0.0%	0.0%	0.0%	15.4%	74.4%	10.3%
Both Sexes							
18 – 24	38	0.0%	0.0%	2.6%	21.1%	65.8%	10.5%
25 – 34	112	0.0%	0.0%	5.4%	50.0%	43.8%	0.9%
35 – 44	106	0.9%	0.0%	9.4%	41.5%	44.3%	3.8%
45 – 54	132	2.3%	0.0%	11.4%	50.8%	34.1%	1.5%
55 – 64	63	4.8%	1.6%	12.7%	39.7%	41.3%	0.0%
65 and older	21	4.8%	0.0%	9.5%	28.6%	57.1%	0.0%
Total	472	1.7%	0.2%	8.9%	43.6%	43.2%	2.3%

Among current drinkers, which represented 14.3% of all respondents, the mean number of drinking occasions in the past 30 days prior to being surveyed was 3. Those respondents were asked about average number of alcoholic drinks consumed at one occasion during the past 30 days. The average number of standard drinks was 5 with men reported significantly higher number than women (5 vs. 2 respectively) (see Table 19).

Table 19. Mean number of standard drinks consumed on a drinking occasion among current (past 30 days) drinkers.

Age Groups	Men		Women		Both Sexes	
	N	Mean	N	Mean	N	Mean
18 – 24	12	4	1	1	13	3
25 – 34	61	4	3	2	64	4
35 – 44	61	6	6	2	67	6
45 – 54	84	6	5	4	89	6
55 – 64	39	3	5	2	44	3
65 and older	8	3	1	2	9	3
Total	265	5	21	2	286	5

Furthermore, the respondents were asked about the maximum number of drinks consumed on one occasion in the past 30 days. The mean number among all current drinkers was 9 drinks with men reporting three times higher number than women (9 vs. 3 respectively) (see Table 20).

Table 20. Mean maximum number of drinks consumed on one occasion among current (past 30 days) drinkers.

Age Groups	Men		Women		Both Sexes	
	N	Mean	N	Mean	N	Mean
18 – 24	12	10	1	1	13	9
25 – 34	61	7	3	2	64	7
35 – 44	61	10	6	2	67	9
45 – 54	84	12	5	4	89	11
55 – 64	39	6	4	5	43	6
65 and older	8	4	0	NA	8	4
Total	265	9	19	3	284	9

Almost all (96%) current drinkers said that usually consumed alcohol with meals, the remaining respondents reported consuming it sometimes or rarely with meals (1% and 3% respectively). All women who reported drinking alcohol in the past 30 days consumed it usually with meals (see Table 21).

Table 21. Percentage of current (past 30 days) drinkers who reported drinking alcohol usually, sometimes, rarely or never with meals.

Age Groups	N	Men				Women				Both Sexes			
		% Usually with meals	% Sometimes with meals	% Rarely with meals	% Never with meals	% Usually with meals	% Sometimes with meals	% Rarely with meals	% Never with meals	% Usually with meals	% Sometimes with meals	% Rarely with meals	% Never with meals
18 – 24	13	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
25 – 34	64	91.8%	3.3%	4.9%	0.0%	100.0%	0.0%	0.0%	0.0%	92.2%	3.1%	4.7%	0.0%
35 – 44	67	96.7%	0.0%	3.3%	0.0%	100.0%	0.0%	0.0%	0.0%	97.0%	0.0%	3.0%	0.0%
45 – 54	89	98.8%	0.0%	1.2%	0.0%	100.0%	0.0%	0.0%	0.0%	98.9%	0.0%	1.1%	0.0%
55 – 64	44	89.7%	2.6%	7.7%	0.0%	100.0%	0.0%	0.0%	0.0%	90.9%	2.3%	6.8%	0.0%
65 and older	9	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Total	286	95.5%	1.1%	3.4%	0.0%	100.0%	0.0%	0.0%	0.0%	95.8%	1.0%	3.1%	0.0%

The survey participants were asked about frequency and quantity of drinks consumed in the past 7 days. Overall, only 3.5% of all current drinkers reported to drink alcohol on four or more days in the past 7 days. Among male current drinkers, 3.9% drank alcohol on at least 4 days in the past 7 days, whereas no women reported consuming alcohol on at least four days. One in every four male current drinkers had at least 5 drinks on any day in the past 7 days, and around one in every 20 male current drinkers took 20 or more drinks in that period. None of the female current drinkers took 15 or more drinks in the past 7 days. Only one woman out of 21 current drinkers had 4 or more drinks on any days in the past 7 days (see Table 22).

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

Men				
Age Groups	N	% Drank on 4+ days	% 5+ drinks on any day	% 20+ drinks in 7 days
18 – 24	12	0.0%	16.7%	0.0%
25 – 34	61	0.0%	14.8%	1.6%
35 – 44	61	3.4%	34.4%	3.3%
45 – 54	84	5.0%	31.0%	8.3%
55 – 64	39	11.4%	17.9%	7.7%
65 and older	8	0.0%	12.5%	0.0%
Total	265	3.9%	24.9%	4.9%
Women				
Age Groups	N	% Drank on 4+ days	% 4+ drinks on any day	% 15+ drinks in 7 days
18 – 24	1	0.0%	0.0%	0.0%
25 – 34	3	0.0%	0.0%	0.0%
35 – 44	6	0.0%	0.0%	0.0%
45 – 54	5	0.0%	20.0%	0.0%
55 – 64	5	0.0%	0.0%	0.0%
65 and older	1	0.0%	0.0%	0.0%
Total	21	0.0%	4.8%	0.0%
Both Sexes				
Age Groups	N	% Drank on 4+ days		
18 – 24	13	0.0%		
25 – 34	64	0.0%		
35 – 44	67	3.0%		
45 – 54	89	4.5%		
55 – 64	44	9.1%		
65 and older	9	0.0%		
Total	286	3.5%		

4.5. Nutrition

The respondents were asked about the number of days they consumed fruits or vegetables in a typical week. The mean numbers were 4 and 5 days, respectively for fruits and vegetable, with no differences between sexes (see Table 23). Around 30% of the respondents reported daily consumption of fruits, whereas vegetables were reportedly consumed daily by 52% of the respondents.

Table 23. Mean number of days fruits or vegetables consumed in a typical week.

Age Groups	Men		Women		Both Sexes	
	N	Mean	N	Mean	N	Mean
Fruits						
18 – 24	121	4	133	5	254	5
25 – 34	211	4	200	5	411	4
35 – 44	168	4	219	4	387	4
45 – 54	224	4	287	4	511	4
55 – 64	102	4	148	4	250	4
65 and older	87	4	100	4	187	4
Total	913	4	1087	4	2000	4
Vegetables						
18 – 24	121	5	133	6	254	5
25 – 34	211	5	200	5	411	5
35 – 44	168	5	219	5	387	5
45 – 54	224	5	287	5	511	5
55 – 64	102	5	148	5	250	5
65 and older	87	5	100	5	187	5
Total	913	5	1087	5	2000	5

The survey participants were asked about the number of servings of fruits or vegetables consumed a day. The mean number was 2 for both fruits and vegetables with no significant differences between men and women. The younger age groups tend to consume slightly more fruits or vegetables than elder groups. Furthermore, when combined consumption of fruits and vegetables was assessed, the results showed that men and women tend to eat equal amount of fruits and vegetables (4.6 servings vs. 4.3 servings). Men aged 18-24 years and 55-64 years reported higher consumptions than their female peers (see Table 24).

Table 24. Mean number of servings of fruits or vegetables consumed by the respondents on average day.

Age Groups	Men		Women		Both Sexes	
	N	Mean	N	Mean	N	Mean
Fruits						
18 – 24	115	3.1	126	2.9	241	3.0
25 – 34	194	2.4	186	2.7	380	2.5
35 – 44	151	2.2	192	2.3	343	2.2
45 – 54	202	2.4	269	2.1	471	2.2
55 – 64	97	2.5	138	2.0	235	2.2
65 and older	77	2.2	90	2.3	167	2.2
Total	836	2.4	1001	2.3	1837	2.4
Vegetables						
18 – 24	114	3.3	129	2.5	243	2.9
25 – 34	208	2.3	196	2.5	404	2.4
35 – 44	166	2.2	207	2.1	373	2.1
45 – 54	217	2.4	279	2.1	496	2.2
55 – 64	101	2.4	146	2.1	247	2.2
65 and older	87	2.3	94	2.5	181	2.4
Total	893	2.4	1051	2.3	1944	2.3
Fruits and/or vegetables						
18 – 24	121	6.0	133	5.2	254	5.6

25 – 34	211	4.5	200	4.9	411	4.7
35 – 44	168	4.1	219	4.0	387	4.0
45 – 54	224	4.5	287	4.0	511	4.2
55 – 64	102	4.7	148	3.9	250	4.2
65 and older	87	4.2	99	4.4	186	4.4
Total	913	4.6	1086	4.3	1999	4.5

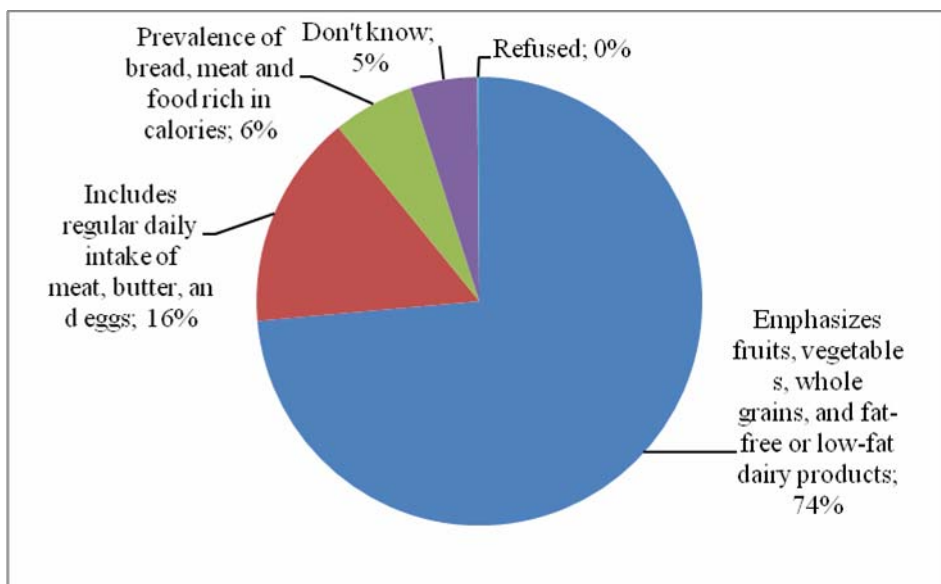
In terms of the amount of daily fruit and/or vegetable consumption the majority of the respondents (78.8%) reported to consume less than 5 servings per day with no significant differences among age groups and sexes. Less than 1% of the respondents do not eat fruits and/or vegetables. Around 21% of the study participants consumed five or more servings on average per day. When examined by age groups, younger and older respondents tended to have more fruits and/or vegetables in comparison to middle aged respondents (see Table 25).

Table 25. Amount of fruit and/or vegetable consumption.

Age Groups	N	% no fruits and/or vegetables	% < 5 servings	% ≥ 5 servings
Men				
18 – 24	120	0.0%	72.3%	27.7%
25 – 34	211	0.0%	75.8%	24.2%
35 – 44	168	1.2%	80.4%	18.5%
45 – 54	223	0.5%	76.9%	22.6%
55 – 64	101	0.0%	80.0%	20.0%
65 and older	86	0.0%	75.9%	24.1%
Total	909	0.3%	76.9%	22.7%
Women				
18 – 24	133	0.0%	76.2%	23.8%
25 – 34	200	0.0%	76.9%	23.1%
35 – 44	216	0.0%	80.6%	19.4%
45 – 54	286	0.4%	83.1%	16.5%
55 – 64	148	0.0%	83.1%	16.9%
65 and older	98	0.0%	76.3%	23.7%
Total	1081	0.1%	80.0%	19.9%
Both Sexes				
18 – 24	253	0.0%	74.3%	25.7%
25 – 34	411	0.0%	76.3%	23.7%
35 – 44	384	0.5%	80.5%	19.0%
45 – 54	509	0.4%	80.4%	19.2%
55 – 64	249	0.0%	81.9%	18.1%
65 and older	184	0.0%	76.1%	23.9%
Total	1990	0.2%	78.6%	21.2%

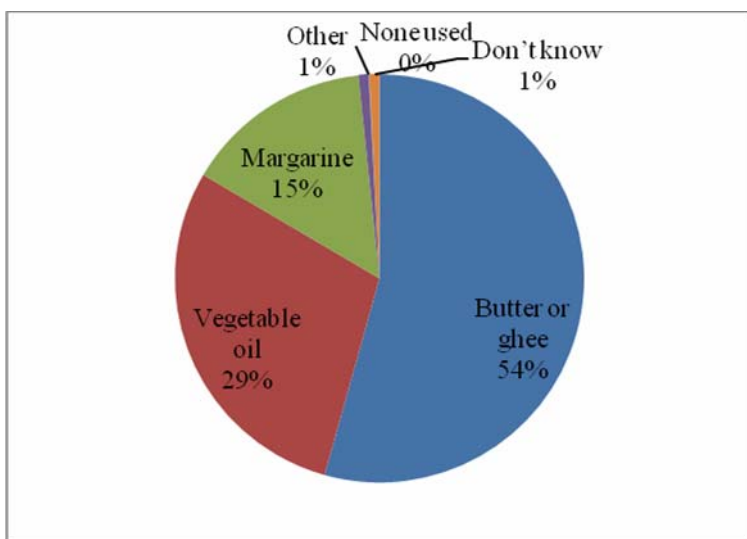
The respondents were asked to provide their definition of healthy diet. The vast majority of them (74%) correctly emphasized consumption of fruits, vegetables, whole grains and fat-free or low-fat dairy products, 16% mentioned importance of regular daily intake of meat, butter and eggs, and 6% stressed out consumption of bread, meat and food rich in calories (see Figure 4).

Figure 4. Respondents' opinion about healthy diet.



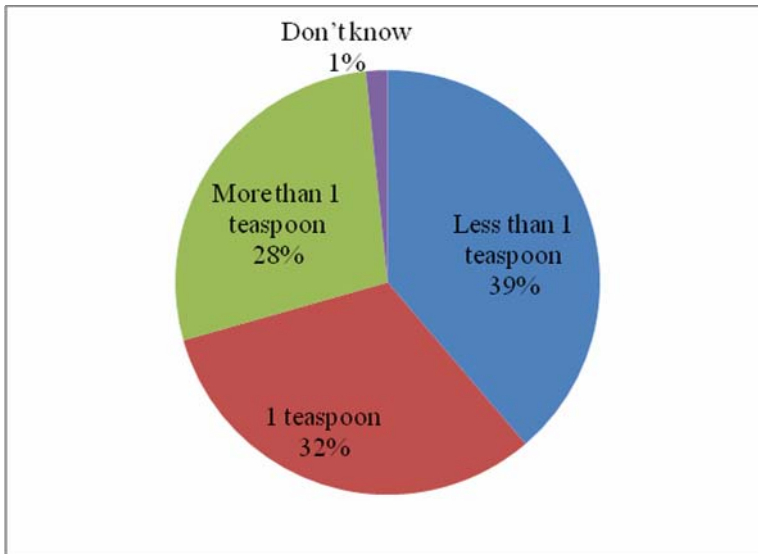
The respondents were asked about the type of oil or fat most often used for meal preparation in their households. The result showed that butter or ghee was most commonly used (54%), followed by vegetable oil (29%) and margarine (15%) (see Figure 5).

Figure 5. Type of oil or fat most often used for meal preparation in the households.



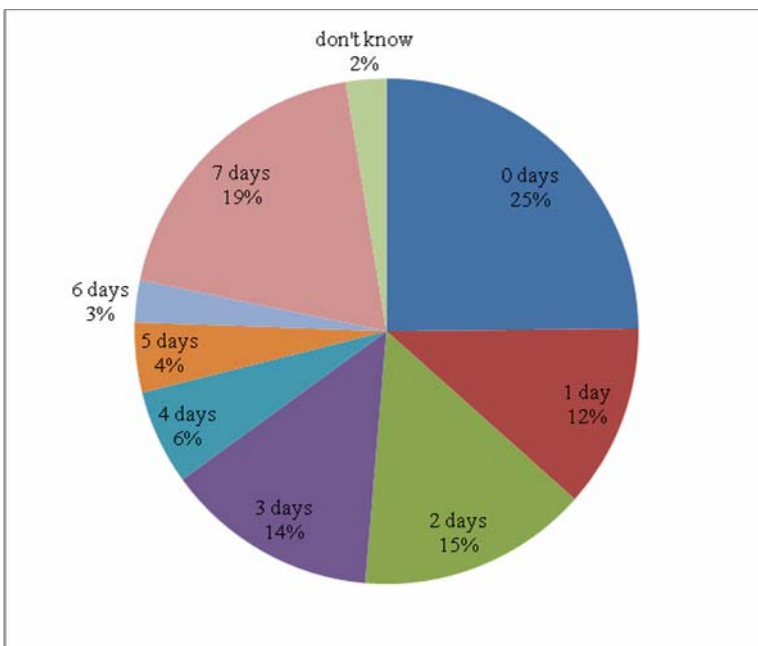
The survey participants were asked about their salt consumption. Approximately 39% of the respondents reported consuming less than one teaspoon of salt a day, 32% said that they consumed one teaspoon and 28% consumed more than one teaspoon a day (see Figure 6).

Figure 6. Respondents' daily salt consumption.



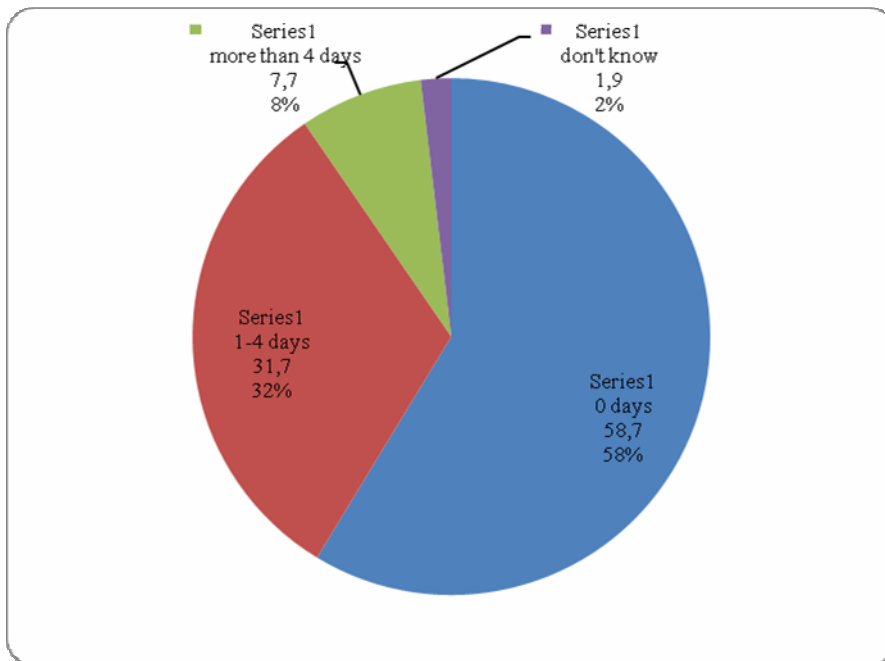
To estimate additional salt consumption, the survey participants were asked about the number of days per week they consumed pickled food. The results showed that around a quarter of all respondents did not eat pickled food, whereas 19% of them consumed it daily (see Figure 7).

Figure 7. The number of days per week the respondents consumed pickled food.



The participants were asked about the number of days in the past month they drank regular soda containing sugar. Approximately 59% of the respondents reported no soda consumption in the past month. Less than 8% of them drank soft drinks on more than 4 days during that period (see Figure 8).

Figure 8. The number of days sugar-containing soft drinks consumed in the past 30 days.



4.6. Physical activity

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

Overall, 44.1% of the respondents were reported as having high level of physical activity with greater proportion of men having high physical activity than women (50.9% vs. 38.3% respectively). Around 43% of the respondents had moderate level and 13% low level of physical activity. Greater share of women had moderate and low level of activity than men (46.6% and 15.1% vs. 38.4% and 10.6% respectively). When examined by age groups, the level of physical activity tended to decline with age (see Table 26).

Table 26. Percentage of respondents classified into three categories of total physical activity, by age groups and gender.

Age Groups	N	% Low	% Moderate	% High
Men				
18 – 24	121	5.0%	34.7%	60.3%
25 – 34	211	9.0%	31.8%	59.2%
35 – 44	168	13.1%	33.9%	53.0%
45 – 54	224	7.1%	35.3%	57.6%
55 – 64	102	16.7%	46.1%	37.3%
65 and older	87	19.5%	67.8%	12.6%
Total	913	10.6%	38.4%	50.9%
Women				
18 – 24	133	18.0%	50.4%	31.6%
25 – 34	200	16.0%	38.5%	45.5%
35 – 44	219	10.5%	39.7%	49.8%
45 – 54	287	16.7%	43.2%	40.1%
55 – 64	148	15.5%	50.0%	34.5%
65 and older	100	14.0%	78.0%	8.0%
Total	1087	15.1%	46.6%	38.3%
Both Sexes				
18 – 24	254	11.8%	42.9%	45.3%
25 – 34	411	12.4%	35.0%	52.6%
35 – 44	387	11.6%	37.2%	51.2%
45 – 54	511	12.5%	39.7%	47.7%
55 – 64	250	16.0%	48.4%	35.6%
65 and older	187	16.6%	73.3%	10.2%
Total	2000	13.1%	42.9%	44.1%

Overall, the amount of total physical activity was on average slightly more than 3 hours with men spending substantially greater time on physical activity than women (212 minutes vs. 139 minutes). When examined by age groups, the physical activity was lowest in the eldest age group (see Table 27).

Table 27. Mean and median minutes of total physical activity on average per day.

Age Groups	Men			Women			Both Sexes		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
18 – 24	121	239	180	133	117	80	254	175	120
25 – 34	210	271	180	200	152	120	411	213	150
35 – 44	168	212	150	219	182	130	387	195	135
45 – 54	224	228	180	287	148	120	511	183	120
55 – 64	102	154	90	148	124	80	250	136	85
65 and older	87	54	30	100	45	18	186	49	20
Total	913	212	140	1087	139	90	1999	172	120

The mean number of minutes spent on work-related physical activity was around 107 with men spending substantially longer time than women (128 minutes vs. 89 minutes). At least half of the

youngest responders and the responders above 55 years of age did not report any work-related activities at all (see Table 28).

Table 28. Mean and median minutes of work-related physical activity on average per day.

Age Groups	Men			Women			Both Sexes		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
18 – 24	121	112	0	133	68	30	254	89	0
25 – 34	211	166	60	200	108	60	411	137	60
35 – 44	168	149	75	219	127	90	387	136	90
45 – 54	224	143	60	287	92	60	511	115	60
55 – 64	102	86	0	148	68	0	250	76	0
65 and older	87	23	0	100	18	0	187	20	0
Total	913	128	30	1087	89	30	1999	107	30

Around 47% of the respondents reported neither work- nor recreation-related physical activity. Twenty-two percent of them had no transport-related physical activity such as walking or cycling. As expected, all types of activities tended to decline among eldest age groups (see Table 29).

Table 29. Percentage of respondents classified as doing no work-, transport- or recreation-related physical activity.

Age Groups	N	Men	Women	Both Sexes
		% no work-related physical activity		
18 – 24	254	52.1%	49.6%	50.8%
25 – 34	411	37.0%	37.0%	37.0%
35 – 44	387	42.9%	33.3%	37.5%
45 – 54	511	40.2%	41.1%	40.7%
55 – 64	250	57.8%	60.1%	59.2%
65 and older	187	81.6%	83.0%	82.4%
Total	2000	47.4%	46.3%	46.8%
	N	% no transport-related physical activity		
18 – 24	254	7.4%	25.6%	16.9%
25 – 34	411	13.3%	33.0%	22.9%
35 – 44	387	10.7%	24.7%	18.6%
45 – 54	511	14.7%	20.6%	18.0%
55 – 64	250	11.8%	26.4%	20.4%
65 and older	187	39.1%	52.0%	46.0%
Total	2000	14.7%	28.0%	21.9%
	N	% no recreation-related physical activity		
18 – 24	152	52.1%	49.6%	50.8%
25 – 34	254	37.0%	37.0%	37.0%
35 – 44	248	42.9%	33.3%	37.5%
45 – 54	331	40.2%	41.1%	40.7%
55 – 64	154	57.8%	60.1%	59.2%
65 and older	77	81.6%	83.0%	82.4%
Total	1216	47.4%	46.3%	46.8%

The mean sedentary time was more than three hours per day for both men and women. The time tended to increase with age (see Table 30).

Table 30. Mean and median time (in minutes) spent in sedentary activities on a typical day, by gender and age groups.

Age Groups	Men			Women			Both Sexes		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
18 – 24	120	139	120	133	164	120	253	152	120
25 – 34	211	142	120	200	158	120	411	150	120
35 – 44	168	157	120	219	157	120	387	157	120
45 – 54	224	165	120	287	170	120	511	168	120
55 – 64	101	171	120	148	184	120	249	178	120
65 and older	87	265	240	100	306	240	187	287	240
Total	911	165	120	1087	179	120	1998	173	120

4.7. Blood pressure and diabetes history

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

Seventeen percent of the respondents said that they never had their blood pressure measured, 56.4% replied that they did have their blood pressure measured but not diagnosed, whereas the remaining 19.0% and 7.6% said that they had been told by a health care worker about having hypertension within or not within the past 12 months respectively. More men than women said that their blood pressure had never been measured (20.4% and 14.2% respectively), whereas more women than reported being diagnosed with hypertension in the past 12 months (22.1% and 15.3% respectively). Not surprisingly, with increasing age more respondents had their blood pressure measured and had been diagnosed with hypertension (see Table 31).

Table 31. Blood pressure measurement and diagnosis among all respondents.

Age Groups	N	% Never measured	% Measured, not diagnosed	% Diagnosed, but not within past 12 months	% Diagnosed within past 12 months
Men					
18 – 24	121	40.5%	56.2%	0.8%	2.5%
25 – 34	211	23.7%	65.4%	2.8%	8.1%
35 – 44	168	16.7%	63.1%	6.0%	14.3%
45 – 54	224	20.1%	57.1%	7.1%	15.6%
55 – 64	102	11.8%	51.0%	9.8%	27.5%
65 and older	87	2.3%	43.7%	16.1%	37.9%
Total	913	20.4%	58.1%	6.2%	15.3%

Women					
18 – 24	133	30.1%	64.7%	0.8%	4.5%
25 – 34	200	16.5%	74.5%	3.5%	5.5%
35 – 44	219	13.2%	61.6%	5.9%	19.2%
45 – 54	287	11.5%	47.7%	12.9%	27.9%
55 – 64	148	7.4%	39.9%	12.2%	40.5%
65 and older	100	8.0%	32.0%	19.0%	41.0%
Total	1087	14.2%	55.0%	8.7%	22.1%
Both Sexes					
18 – 24	254	35.0%	60.6%	0.8%	3.5%
25 – 34	411	20.2%	69.8%	3.2%	6.8%
35 – 44	387	14.7%	62.3%	5.9%	17.1%
45 – 54	511	15.3%	51.9%	10.4%	22.5%
55 – 64	250	9.2%	44.4%	11.2%	35.2%
65 and older	187	5.3%	37.4%	17.6%	39.6%
Total	2000	17.0%	56.4%	7.6%	19.0%

Approximately 71% of the respondents previously diagnosed (within or not within past 12 months) with raised blood pressure took medicine for raised blood pressure. This proportion did not differ substantially between women and men (73.6% vs. 67.3%) but was increasing with age. In addition to medicines, 76.6% of such respondents were advised by their doctors or health workers to reduce salt intake, 36.5% were advised to lose weight, 20% were recommended to stop smoking, and 35.9% were advised to start or do more exercise. More men were advised to stop smoking and increasing exercise, whereas more women were recommended to reduce salt intake and lose weight. Generally, with increasing age the respondents were more likely to receive advice from their health providers on measures to reduce blood pressure (see Table 32).

Table 32. Percentage of respondents with diagnosed hypertension who were on medicines or received lifestyle advice from a doctor or health worker.

Age Groups	N	Men	Women	Both Sexes
% taking medicines				
18 – 24	10	0.0%	42.9%	30.0%
25 – 34	41	47.8%	55.6%	51.2%
35 – 44	89	52.9%	60.0%	57.3%
45 – 54	166	66.7%	73.0%	71.1%
55 – 64	116	76.3%	78.2%	77.6%
65 and older	107	85.1%	90.0%	87.9%
Total	529	67.3%	73.6%	71.3%
% advised to reduce salt intake				
18 – 24	10	66.7%	57.1%	60.0%
25 – 34	40	72.7%	55.6%	65.0%
35 – 44	88	61.8%	79.6%	72.7%
45 – 54	165	76.0%	80.9%	79.4%
55 – 64	115	63.2%	81.8%	75.7%
65 and older	107	80.9%	83.3%	82.2%
Total	525	71.6%	79.5%	76.6%

% advised to lose weight				
18 – 24	10	66.7%	0.0%	20.0%
25 – 34	41	30.4%	16.7%	24.4%
35 – 44	87	29.4%	39.6%	35.6%
45 – 54	166	31.4%	38.3%	36.1%
55 – 64	113	32.4%	53.9%	46.9%
65 and older	106	26.1%	38.3%	33.0%
Total	523	30.4%	40.1%	36.5%
% advised to stop smoking				
18 – 24	9	33.3%	0.0%	11.1%
25 – 34	39	52.2%	0.0%	30.8%
35 – 44	85	50.0%	0.0%	18.8%
45 – 54	159	56.0%	5.5%	21.4%
55 – 64	108	27.0%	11.3%	16.7%
65 and older	101	37.8%	3.6%	18.8%
Total	501	44.2%	5.1%	20.0%
% advised to start or do more exercise				
18 – 24	10	66.7%	14.3%	30.0%
25 – 34	41	39.1%	27.8%	34.1%
35 – 44	88	44.1%	24.1%	31.8%
45 – 54	163	49.0%	37.5%	41.1%
55 – 64	115	50.0%	40.3%	43.5%
65 and older	107	29.8%	20.0%	24.3%
Total	524	42.9%	31.7%	35.9%

Among the respondents previously diagnosed with raised blood pressure, 21.6% sought advice from traditional healers and 40.4% took herbal or traditional remedy with women and elder respondents using such practices more often (see Table 33).

Table 33. Percentage of respondents with diagnosed hypertension who have sought advice or received treatment from traditional healers.

Age Groups	N	Men	Women	Both Sexes
% saw a traditional healer				
18 – 24	11	0.0%	14.3%	9.1%
25 – 34	41	4.3%	11.1%	7.3%
35 – 44	89	23.5%	16.4%	19.1%
45 – 54	168	21.6%	27.4%	25.6%
55 – 64	116	13.2%	23.1%	19.8%
65 and older	107	21.3%	30.0%	26.2%
Total	532	17.8%	23.9%	21.6%
% currently taking herbal or traditional remedy				
18 – 24	11	25.0%	0.0%	9.1%
25 – 34	41	34.8%	16.7%	26.8%
35 – 44	89	29.4%	36.4%	33.7%
45 – 54	168	35.3%	44.4%	41.7%
55 – 64	116	39.5%	48.7%	45.7%
65 and older	107	42.6%	50.0%	46.7%
Total	532	36.5%	42.7%	40.4%

The majority of the respondents (62.3%) reported that their blood sugar had never been measured, around a third of all respondents said that their blood sugar was measured but they had not been diagnosed with diabetes. Overall, 4.3% of all respondents reported being diagnosed with diabetes, including 3.9% in the past 12 months and 0.4% not within the past 12 months. There was no significant difference between men and women in the percentage of respondents diagnosed with diabetes. The greatest proportion of persons with diagnosed diabetes was found among the eldest age group (see Table 34).

Table 34. Diabetes measurement and diagnosis among all respondents.

Age Groups	N	% Never measured	% Measured, not diagnosed	% Diagnosed, but not within past 12 months	% Diagnosed within past 12 months
Men					
18 – 24	121	79.3%	20.7%	0.0%	0.0%
25 – 34	211	67.3%	32.7%	0.0%	0.0%
35 – 44	168	61.9%	36.3%	0.6%	1.2%
45 – 54	224	64.7%	30.8%	0.0%	4.5%
55 – 64	102	39.2%	51.0%	0.0%	9.8%
65 and older	87	49.4%	39.1%	2.3%	9.2%
Total	913	62.4%	34.0%	0.3%	3.3%
Women					
18 – 24	133	85.7%	14.3%	0.0%	0.0%
25 – 34	200	72.5%	27.5%	0.0%	0.0%
35 – 44	219	67.6%	31.5%	0.0%	0.9%
45 – 54	287	55.7%	39.4%	0.0%	4.9%
55 – 64	148	39.2%	47.3%	2.7%	10.8%
65 and older	100	51.0%	33.0%	1.0%	15.0%
Total	1087	62.2%	33.0%	0.5%	4.3%
Both Sexes					
18 – 24	254	82.7%	17.3%	0.0%	0.0%
25 – 34	411	69.8%	30.2%	0.0%	0.0%
35 – 44	387	65.1%	33.6%	0.3%	1.0%
45 – 54	511	59.7%	35.6%	0.0%	4.7%
55 – 64	250	39.2%	48.8%	1.6%	10.4%
65 and older	187	50.3%	35.8%	1.6%	12.3%
Total	2000	62.3%	33.5%	0.4%	3.9%

Approximately 4 out of every 5 respondents diagnosed with diabetes reported that they had been registered in their local policlinic. Eleven percent of them were on insulin at the time of the interview and 87.1% took oral drugs in the past two weeks (see Table 35).

Table 35. Diabetes treatment results.

Age Groups	N	Men	Women	Both Sexes
% registered as a diabetic patient in local polyclinic				
18 – 24	0	.	.	.
25 – 34	0	.	.	.
35 – 44	5	66.7%	50.0%	60.0%
45 – 54	24	70.0%	64.3%	66.7%
55 – 64	30	90.0%	80.0%	83.3%
65 and older	26	100.0%	93.8%	96.2%
Total	85	84.8%	78.8%	81.2%
% currently taking insulin				
18 – 24	.	.	.	.
25 – 34	.	.	.	.
35 – 44	5	0.0%	0.0%	0.0%
45 – 54	24	0.0%	7.1%	4.2%
55 – 64	30	20.0%	10.0%	13.3%
65 and older	26	10.0%	18.8%	15.4%
Total	85	9.1%	11.5%	10.6%
% currently taking oral drugs				
18 – 24	.	.	.	.
25 – 34	.	.	.	.
35 – 44	5	66.7%	100.0%	80.0%
45 – 54	24	90.0%	78.6%	83.3%
55 – 64	30	80.0%	85.0%	83.3%
65 and older	26	100.0%	93.8%	96.2%
Total	85	87.9%	86.5%	87.1%

In addition to medical treatment, the respondents with known diabetes were advised to have special diet (87.1%), to lose weight (36.5%), to stop smoking (22.4%), and to start or do more exercise (32.9%). With regards to gender, men were more likely to receive advice on smoking and exercising (see Table 36).

Table 36. Percentage of respondents with diagnosed diabetes who received lifestyle advice from a doctor or health worker.

Age Groups	N	Men	Women	Both Sexes
% advised to have special diet				
18 – 24	0	.	.	.
25 – 34	0	.	.	.
35 – 44	5	33.3%	100.0%	60.0%
45 – 54	24	80.0%	85.7%	83.3%
55 – 64	30	100.0%	85.0%	90.0%
65 and older	26	100.0%	87.5%	92.3%
Total	85	87.9%	86.5%	87.1%
% advised to lose weight				
18 – 24	0	.	.	.
25 – 34	0	.	.	.

35 – 44	5	33.3%	100.0%	60.0%
45 – 54	24	40.0%	35.7%	37.5%
55 – 64	30	50.0%	45.0%	46.7%
65 and older	26	20.0%	18.8%	19.2%
Total	85	36.4%	36.5%	36.5%
% advised to stop smoking				
18 – 24	0	.	.	.
25 – 34	0	.	.	.
35 – 44	5	66.7%	0.0%	40.0%
45 – 54	24	60.0%	0.0%	25.0%
55 – 64	30	30.0%	15.0%	20.0%
65 and older	26	40.0%	6.3%	19.2%
Total	85	45.5%	7.7%	22.4%
% advised to start or do more exercise				
18 – 24	0	.	.	.
25 – 34	0	.	.	.
35 – 44	5	0.0%	50.0%	20.0%
45 – 54	24	60.0%	42.9%	50.0%
55 – 64	30	50.0%	25.0%	33.3%
65 and older	26	20.0%	18.8%	19.2%
Total	85	39.4%	28.8%	32.9%

Among the respondents previously diagnosed with diabetes, 23.5% sought advice from traditional healers and 40.4% took herbal or traditional remedy with women and elder respondents using such practices more often (see Table 37).

Table 37. Percentage of respondents with diagnosed diabetes who have sought advice or received treatment from traditional healers.

Age Groups	N	Men	Women	Both Sexes
% saw a traditional healer				
18 – 24	0	.	.	.
25 – 34	0	.	.	.
35 – 44	5	33.3%	50.0%	40.0%
45 – 54	24	30.0%	28.6%	29.2%
55 – 64	30	10.0%	25.0%	20.0%
65 and older	26	20.0%	18.8%	19.2%
Total	85	21.2%	25.0%	23.5%
% currently taking herbal or traditional remedy				
18 – 24	0	.	.	.
25 – 34	0	.	.	.
35 – 44	5	0.0%	50.0%	20.0%
45 – 54	24	40.0%	50.0%	45.8%
55 – 64	30	30.0%	30.0%	30.0%
65 and older	26	20.0%	25.0%	23.1%
Total	85	27.3%	34.6%	31.8%

4.8. Physical measurements

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

The men were substantially taller and heavier than women (171 cm and 77 kg vs. 160 cm and 71 kg respectively). The mean body mass index (BMI) was 27.1 with women having higher BMI than men (27.8 vs. 26.3 respectively) (see Table 38).

Table 38. Mean height, weight, and body mass index among all respondents.

Age Groups	N	Men	Women	Both Sexes
Mean height (cm)				
18 – 24	254	172	161	167
25 – 34	410	172	161	167
35 – 44	387	173	161	166
45 – 54	511	171	160	165
55 – 64	250	171	160	164
65 and older	186	167	158	162
Total	1998	171	160	165
Mean weight (kg)				
18 – 24	254	71	59	65
25 – 34	410	75	66	71
35 – 44	387	79	72	75
45 – 54	511	79	77	78
55 – 64	250	83	78	80
65 and older	185	77	71	74
Total	1997	77	71	74
Mean BMI (kg/m²)				
18 – 24	254	23.9	22.6	23.2
25 – 34	410	25.2	25.5	25.3
35 – 44	387	26.4	28.0	27.3
45 – 54	511	27.1	29.9	28.6
55 – 64	250	28.6	30.7	29.8
65 and older	185	27.6	28.7	28.2
Total	1997	26.3	27.8	27.1

All respondents (except pregnant women) were grouped into four categories according to BMI value. Underweight is defined as having a BMI less than 18.5kg/m², normal weight is defined as a BMI ranging from 18.5 to 24.9kg/m², overweight is defined as having a BMI greater than or equal to 25 kg/m² and below 30kg/m² whereas obesity is defined as having a BMI greater than or equal to 30 kg/m². The proportion of the respondents classified as overweight and obese was 37.2% and

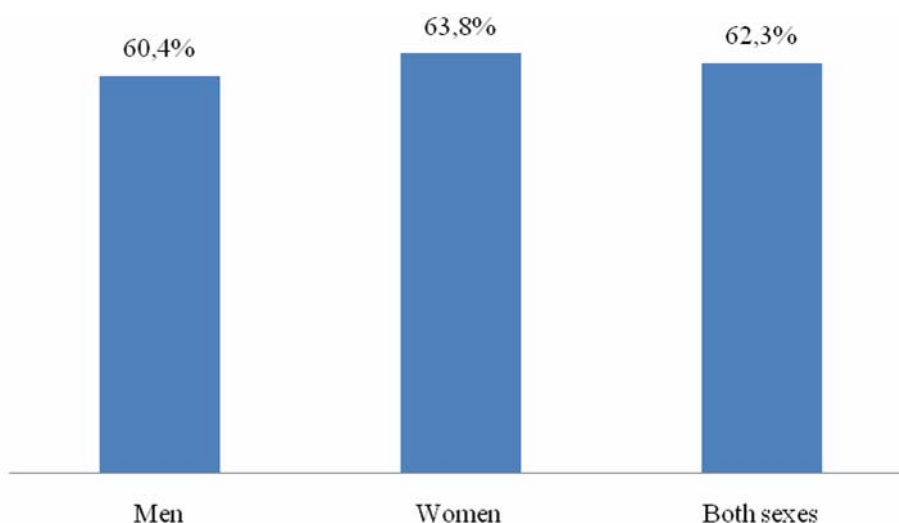
25.0% respectively. The obesity was substantially more prevalent among women than men (30.7% vs. 18.4%). The two youngest age groups of respondents (18-24 and 25-34 years) were found to have the least prevalent for overweight and obesity as compared to other age groups (see Table 39).

Table 39. Percentage of respondents in each BMI category.

Age Groups	N	% Underweight BMI <18.5	% Normal weight BMI 18.5-24.9	% Overweight BMI 25-29.9	% Obese BMI ≥30.0
Men					
18 – 24	121	2.5%	63.6%	28.1%	5.8%
25 – 34	210	1.9%	47.6%	36.7%	13.8%
35 – 44	168	1.2%	35.7%	48.2%	14.9%
45 – 54	224	0.4%	32.6%	42.9%	24.1%
55 – 64	102	2.0%	15.7%	49.0%	33.3%
65 and older	87	1.1%	25.3%	51.7%	21.8%
Total	912	1.4%	38.2%	42.0%	18.4%
Women					
18 – 24	122	9.8%	72.1%	16.4%	1.6%
25 – 34	189	6.9%	47.6%	32.3%	13.2%
35 – 44	219	1.8%	30.1%	36.1%	32.0%
45 – 54	286	0.7%	19.6%	36.4%	43.4%
55 – 64	148	3.4%	12.2%	38.5%	45.9%
65 and older	98	4.1%	26.5%	31.6%	37.8%
Total	1062	3.8%	32.4%	33.1%	30.7%
Both Sexes					
18 – 24	243	6.2%	67.9%	22.2%	3.7%
25 – 34	399	4.3%	47.6%	34.6%	13.5%
35 – 44	387	1.6%	32.6%	41.3%	24.5%
45 – 54	510	0.6%	25.3%	39.2%	34.9%
55 – 64	250	2.8%	13.6%	42.8%	40.8%
65 and older	185	2.7%	25.9%	41.1%	30.3%
Total	1974	2.7%	35.1%	37.2%	25.0%

The percentage of the respondents having above-normal weight (BMI ≥ 25) was 62.3% with little difference between men and women (60.4% and 63.8% respectively) (see Figure 9).

Figure 9. Percentage of the respondents being classified as overweight (BMI ≥ 25).



Among physical measures taken was waist circumference. The results revealed that the mean waist circumference was 90.2 and 86.8 cm respectively for men and women. The circumference tended to increase with age (see Table 40).

Table 40. Mean waist circumference among all respondents (excluding pregnant women).

Age Groups	Men		Women	
	N	Mean	N	Mean
18 – 24	121	81.8	122	71.4
25 – 34	211	85.4	189	79.0
35 – 44	168	90.9	219	86.5
45 – 54	224	93.8	286	92.8
55 – 64	102	96.1	148	95.5
65 and older	87	95.3	100	91.6
Total	913	90.2	1064	86.8

The survey found that the mean blood pressure among all respondents, including those currently on medications for raised blood pressure, was 137 mmHg for the systolic and 84 mmHg for the diastolic with no substantial gender differences (see Table 41).

Table 41. Mean blood pressure among all respondents.

Age Groups	N	Men	Women	Both Sexes
Mean systolic blood pressure				
18 - 24	253	124	119	121
25 - 34	407	126	120	123
35 - 44	385	136	131	133
45 - 54	510	141	144	143
55 - 64	249	148	151	150
65 and older	187	163	164	163
Total	1991	137	137	137
Mean diastolic blood pressure				
18 - 24	252	77	75	76
25 - 34	411	79	77	78
35 - 44	386	85	83	84
45 - 54	511	87	87	88
55 - 64	249	88	88	89
65 and older	187	91	91	91
Total	1996	84	83	84

In total, respondents with mild to severe raised blood pressure (SBP \geq 140 and/or DBP \geq 90mmHg) and severe raised blood pressure (SBP \geq 160 and/or DBP \geq 100 mmHg) were on average 40.6% and 20.7% respectively. When those currently on medication for hypertension were excluded, these proportions were respectively 30.7% and 12.4%. The share of respondents with mild to severe and severe raised blood pressure or currently taking medication was respectively 43.6% and 28.8% (see Table 42).

Table 42. Percentage of the respondents with raised blood pressure.

Age Groups	N	Men	Women	Both Sexes
SBP>=140 and/or DBP>=90, all respondents				
18 – 24	254	16.8%	12.1%	14.3%
25 – 34	411	21.9%	11.7%	17.0%
35 – 44	387	37.1%	28.9%	32.5%
45 – 54	511	47.1%	54.4%	51.2%
55 – 64	250	60.8%	67.3%	64.7%
65 and older	187	81.6%	84.0%	82.9%
Total	2000	40.3%	40.8%	40.6%
SBP>=160 and/or DBP>=100, all respondents				
18 – 24	254	2.5%	3.8%	3.2%
25 – 34	411	5.2%	1.5%	3.4%
35 – 44	387	18.1%	12.4%	14.8%
45 – 54	511	24.2%	26.1%	25.3%
55 – 64	250	32.7%	40.8%	37.5%
65 and older	187	57.5%	61.0%	59.4%
Total	2000	20.0%	21.4%	20.7%
SBP>=140 and/or DBP>=90, excluding those on medication				
18 – 24	254	16.8%	11.6%	14.1%
25 – 34	411	20.6%	10.7%	15.8%
35 – 44	387	31.3%	23.8%	27.2%
45 – 54	511	40.7%	41.4%	41.1%
55 – 64	250	49.3%	53.5%	51.6%
65 and older	187	70.2%	69.6%	69.9%
Total	2000	32.7%	28.8%	30.7%
SBP>=140 and/or DBP>=90 or currently on medication				
18 – 24	254	16.5%	13.5%	15.0%
25 – 34	411	24.6%	15.0%	20.0%
35 – 44	387	38.7%	35.2%	36.7%
45 – 54	511	49.6%	58.5%	54.6%
55 – 64	250	63.7%	72.3%	68.8%
65 and older	187	83.9%	86.0%	85.0%
Total	2000	42.3%	44.7%	43.6%
SBP>=160 and/or DBP>=100, excluding those on medication				
18 – 24	254	2.5%	3.9%	3.2%
25 – 34	411	5.0%	1.6%	3.4%
35 – 44	387	13.4%	7.0%	9.9%
45 – 54	511	19.6%	16.7%	18.1%
55 – 64	250	20.8%	23.3%	22.2%
65 and older	187	42.6%	41.3%	41.9%
Total	2000	13.5%	11.2%	12.4%
SBP>=160 and/or DBP>=100 or currently on medication				
18 – 24	254	2.5%	6.0%	4.3%
25 – 34	411	10.0%	6.5%	8.3%
35 – 44	387	22.6%	21.0%	21.7%
45 – 54	511	31.7%	41.1%	37.0%
55 – 64	250	43.1%	54.7%	50.0%
65 and older	187	69.0%	73.0%	71.1%
Total	2000	26.0%	31.2%	28.8%

Overall, 872 out of 2000 respondents had raised blood pressure or were taking medicines for hypertension. Of them, 7.3% were on medication and had their blood pressure controlled, 35.9% were taking drugs for raised blood pressure but did not have it controlled, and, finally, 56.8% were not taking any anti-hypertensive medicines and did not have their blood pressure under control. Of those 872, around half of women were on medication, whereas only a third of men were on treatment. When examined by age groups, the share of patients on treatment tended to increase with age. Interestingly, the share of treated patients with blood pressure under control was the greatest among 25-34 years old (see Table 43).

Table 43. Percentage of respondents with treated and/or controlled raised blood pressure among those with raised blood pressure or currently on medication for raised blood pressure

Age Groups	N	% On medication and SBP<140 and/or DBP<90	% On medication and SBP≥140 and/or DBP≥90	% Not on medication and SBP≥140 and/or DBP≥90
Men				
18 – 24	20	0.0%	0.0%	100.0%
25 – 34	52	11.5%	9.6%	78.8%
35 – 44	65	3.1%	24.6%	72.3%
45 – 54	111	5.4%	25.2%	69.4%
55 – 64	65	4.6%	40.0%	55.4%
65 and older	73	2.7%	52.1%	45.2%
Total	386	4.9%	29.3%	65.8%
Women				
18 – 24	18	11.1%	5.6%	83.3%
25 – 34	30	23.3%	10.0%	66.7%
35 – 44	77	18.2%	24.7%	57.1%
45 – 54	168	7.1%	42.9%	50.0%
55 – 64	107	7.5%	49.5%	43.0%
65 and older	86	2.3%	60.5%	37.2%
Total	486	9.3%	41.2%	49.6%
Both Sexes				
18 – 24	40	5.3%	2.6%	92.1%
25 – 34	83	15.9%	9.8%	74.4%
35 – 44	147	11.3%	24.6%	64.1%
45 – 54	295	6.5%	35.8%	57.7%
55 – 64	171	6.4%	45.9%	47.7%
65 and older	158	2.5%	56.6%	40.9%
Total	894	7.3%	35.9%	56.8%

Interestingly, that among 377 respondents taking medication for raised blood pressure only 64 or 17.0% had their blood pressure controlled. This indicates to inadequate management of hypertensive patients by health care system.

Mean heart rate was 81 and 84 beats per minute respectively for men and women (see Table 44).

Table 44. Mean heart rate (beats per minute).

Age Groups	Men		Women	
	N	Mean	N	Mean
18 - 24	121	82	132	86
25 - 34	210	81	200	84
35 - 44	168	81	216	85
45 - 54	224	81	287	85
55 - 64	102	82	148	83
65 and older	87	82	99	83
Total	912	81	1082	84

4.9. Biochemical measurements

The mean fasting glucose for the sample was 5.5 mmol/l with no substantial differences between men and women (see Table 45).

Table 45. Mean fasting glucose among all respondents.

Age Groups	N	Men	Women	Both Sexes
Mean fasting glucose (mmol/l)				
18 - 24	254	4.8	5.0	4.9
25 - 34	409	5.0	5.1	5.0
35 - 44	385	5.3	5.3	5.3
45 - 54	510	5.6	5.5	5.5
55 - 64	249	5.8	6.2	6.1
65 and older	187	6.1	6.6	6.4
Total	1994	5.4	5.5	5.5
Mean fasting glucose (mg/dl)				
18 - 24	254	87	90	89
25 - 34	409	90	91	91
35 - 44	385	96	96	96
45 - 54	510	100	100	100
55 - 64	249	105	112	109
65 and older	187	110	119	115
Total	1994	97	100	98

Since capillary whole blood was used for glucose measurement, the following cut-off values for categorization of the respondents into blood glucose level categories were used:

- Normal < 100 mg/dl (<5.6 mmol/l)
- Impaired fasting glucose \geq 100 mg/dl (\geq 5.6 mmol/l) and <110 mg/dl (<6.1 mmol/l)
- Diabetes \geq 110 mg/dl (\geq 6.1 mmol/l)

Overall, 20.2% of the respondents had impaired fasting glycaemia, and 11.0% were found to have hyperglycemia.

Table 46. Categorization of respondents into blood glucose level categories.

Age Groups	N	Men	Women	Both Sexes
% Impaired fasting glucose level				
18 - 24	254	10.3%	16.2%	13.4%
25 - 34	409	14.8%	18.6%	16.7%
35 - 44	385	15.6%	22.2%	19.4%
45 - 54	509	21.1%	25.7%	23.7%
55 - 64	249	20.6%	29.8%	26.1%
65 and older	187	22.6%	22.6%	22.6%
Total	1993	17.3%	22.7%	20.2%
% Hyperglycemia				
18 - 24	254	1.7%	3.1%	2.4%
25 - 34	409	4.4%	4.5%	4.5%
35 - 44	385	7.5%	7.1%	7.3%
45 - 54	509	12.8%	11.4%	12.0%
55 - 64	249	21.6%	25.5%	23.9%
65 and older	187	17.9%	32.3%	25.4%
Total	1993	9.9%	11.9%	11.0%

4.10. Summary of combined risk factors

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

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

The survey found that only 3.6 % of the respondents did not have any risk factor for NCDs, whereas 52.5% had 1-2 risk factors and the remaining 43.9% had a combination of 3-5 risk factors. Substantially greater proportion of men than women had 3-5 risk factors combined (48.6% and 39.9% respectively), which may be primarily explained by higher prevalence of daily smoking among men (see Table 47).

Table 47. Summary of combined risk factors for NCDs.

Age Groups	N	% with 0 risk factors	% with 1-2 risk factors	% with 3-5 risk factors
Men				
18 – 24	118	9.3%	72.0%	18.6%
25 – 34	208	2.4%	62.5%	35.1%
35 – 44	168	0.6%	45.8%	53.6%
45 – 54	223	1.3%	42.6%	56.1%
55 – 64	102	0.0%	37.3%	62.7%
65 and older	87	0.0%	24.1%	75.9%
Total	906	2.2%	49.2%	48.6%
Women				
18 – 24	132	12.1%	78.8%	9.1%
25 – 34	197	9.6%	72.1%	18.3%
35 – 44	216	3.7%	65.3%	31.0%
45 – 54	287	2.4%	46.7%	50.9%
55 – 64	147	1.4%	34.7%	63.9%
65 and older	96	0.0%	22.9%	77.1%
Total	1075	4.8%	55.3%	39.9%
Both Sexes				
18 – 24	250	10.8%	75.6%	13.6%
25 – 34	405	5.9%	67.2%	26.9%
35 – 44	384	2.3%	56.8%	40.9%
45 – 54	510	2.0%	44.9%	53.1%
55 – 64	249	0.8%	35.7%	63.5%
65 and older	183	0.0%	23.5%	76.5%
Total	1981	3.6%	52.5%	43.9%

5. Discussion

This is the first nationwide representative survey using the WHO standardized protocol to report the prevalence and risk factors of NCDs in Azerbaijan.

5.1. Noncommunicable diseases

5.1.1. Hypertension

The mean systolic and diastolic blood pressures were found at 137 and 84 mmHg respectively. The survey revealed that the prevalence of hypertension (systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg or currently on medication for raised blood pressure) among the entire sample was very high at 43.6%. There was no significant difference in hypertension prevalence between men and women. The prevalence of self-reported hypertension was only 61% of the actual level (26.6% of the entire sample), which indicates to the poor screening practices at primary health care level to detect hypertension among population. Around 71.3% of those with

self-reported hypertension were taking medicines, and only 17.0% of them had their blood pressure controlled, which points to the poor management of hypertension. The awareness of patients about lifestyle modifications to address raised blood pressure was also not adequate. In particular, only 36.5% of them received advice to lose weight, whereas more than 80% of them were overweight. Similarly, only 20.0% and 35.9% of the respondents with hypertension were advised to quit smoking and to do more exercise respectively. These findings revealed that awareness raising efforts to modify lifestyle factors contributing to hypertension were generally insufficient.

5.1.2. Diabetes

The survey revealed high level of hyperglycemia among the survey participants (11.0%) with mean capillary fasting blood glucose level of 5.5 mmol/l (98 mg/dl). Hyperglycemia was more prevalent among women than men (11.9% and 9.9% respectively). The prevalence of self-reported diabetes was much lower (4.3%). As with hypertension, these findings indicate to poor screening efforts to detect elevated blood glucose levels with 62.3% of the respondents reporting never having their blood glucose measured. Around 19% of diabetes patients were not registered at local polyclinic and therefore were not eligible for the benefits available through the State Program on Diabetes. The analysis of data revealed that the counseling service for diabetes patients were not adequate with only 36.5% of the patients advised to lose weight, 22.4% advised to stop smoking and 32.9% recommended doing more physical exercise.

5.2. Risk factors for NCDs

5.2.1. Tobacco use

The overall self-reported prevalence of smoking was 22.9% with very high prevalence among men (49.5%) and low prevalence among women (0.5%). However, the possibility on underreporting among female respondents cannot be excluded. The vast majority of smoking men smoked daily (93.1%). The mean age of initiating smoking among men was 19 years. The mean duration of smoking was 22 years. Almost all smokers smoked manufactured cigarettes with mean consumption of 20 cigarettes per day. The survey revealed high prevalence (59.6%) of exposure to environmental tobacco smoke (ETS) or passive smoking with most common exposure site being public places. More than 40% of women reported passive smoking at home. These findings indicate to the need in additional educational and legislative efforts to reduce exposure to ETS.

The findings correspond to the results of Demographic and Health Survey (DHS) conducted in 2006, which reported that about half of men aged 15-49 were smokers. The State Statistical Committee (SSC) data from 2009 reported 17.1% prevalence of smoking among population above 15 years of age, which is less than the findings of the present survey. NCD survey confirms SSC

data on very low prevalence of smoking among women. However, all comparisons with DHS and SSC data need to be interpreted with caution due to different age of study populations.

5.2.2. Alcohol consumption

The prevalence of current alcohol drinking (in the past 30 days) was substantially higher among men (29.0%) than among women (1.9%). Additional 18.4% of men were not current drinkers but reportedly drank in the past 12 months. The frequency of drinking in vast majority of those men ranged from 1-3 times a month (46.2%) to less than a month (40.4%). Only 3.9% of current male drinkers drank on four or more days in the past 7 days, around one in every four drank five or more drinks on any day, and less than 5% had 20 or more drinks in past week. Overall, these findings indicate that anti-alcohol strategies should primarily target specific groups among male population.

DHS from 2006 reported that 47.6% of men 25-44 years of age were current drinkers, whereas the NCD survey found that only 32.2% of the same aged men reported drinking in the past 30 days prior to survey. As for the frequency of drinking, according to DHS and NCD, alcohol from 1-3 days a month to less than once a month was consumed by 86.3% and 90.1% of male respondents of 25-44 years of age respectively.

5.2.3. Nutrition

Azerbaijan has moderate climate favorable for agriculture. Fresh fruits and vegetables, both locally produced and imported, are available all year long. However, there is a great variability in prices between harvest and non-harvest seasons, which are summer-fall and winter-spring, respectively. Price seasonality affects affordability of fruits and vegetables, which may explain their low consumption reported by the respondents, since the survey was conducted in winter-spring. This notion is supported by a big discrepancy between high percentage of respondents, who indicated that high consumption of fruits and vegetables constituted healthy diet (74%), and low percentage of those, who actually reported their high consumption (21%).

In addition to low consumption of fruits and vegetables, the majority of households used saturated oil such as butter and ghee for cooking, which also contributes to unhealthy dietary practices.

5.2.4. Physical activity

Approximately 15.1% of women were classified as having low level of physical activity, whereas only 10.6% were classified in the same category. Accordingly, men reported to spend more time on physical activity than women (212 and 139 minutes on average). Significantly higher proportion of women had no transport-related activity (walking or cycling) (28.0% and 14.7% respectively), which may be explained by lower employment level among women that reduces the need in walking to work and back. Almost half of the respondents did not have any recreation-related

activity, including those in the youngest age group. These findings indicate to the need for increasing opportunity for adult population to engage in sports and other leisure activities.

5.2.5. Excessive body weight

Approximately 62% of the respondents had above normal weight defined as body mass index (BMI) equal or greater than 25. No significant differences in the share of such respondents among sexes. However, the prevalence of obesity was substantially higher among women than men (30.7% and 18.4% respectively). These findings emphasize the need in improving dietary practices and increasing the level of physical activity to reduce the prevalence of excessive body weight in population.

5.3. Combined risk factors

Finally, the survey revealed that more than 96% of the respondents had at least one risk factor for NCDs. Almost one in every two men had three or more such factors. Especially alarming is the fact that even the youngest age group almost nine out of 10 respondents were not free of risk factors. These findings indicate that if no actions are taken the epidemic on NCDs will continue to grow in the future.

5.4. Limitations and strengths

Findings of this survey, on one hand, were subject to limitations seen in any interview surveys, including recall bias, under-reporting and unwillingness to report, and interviewers' bias. For instance, questions on alcohol and cigarette consumption were likely to induce underreporting from some respondents, whereas the estimation of the amount of alcohol, cigarettes, and fruits and vegetables might be under or over reporting. In addition, the fact that the proportion of men enrolled in the survey was lower than that of the parent population suggested that interviewers came across more eligible women than men.

On the other hand, the use of the WHO standardized survey protocol, thorough training of data collectors, and the close supervision of the survey team members during data collection, were undertaken in order to minimize biases and enhance the survey output quality. Furthermore, this survey used a sampling design that allowed deriving representative estimates for the whole country.

6. Recommendations and conclusions

The survey revealed that almost every adult respondent has at least one risk factor and almost a half has a combination of 3-5 factors, which puts them under a great risk of developing NCD. Moreover, substantial share of the respondents already had hypertension or diabetes, which are among the major contributors to national mortality. High prevalence of the risk factors among young adults indicates that an epidemic of NCD will only grow in the future. The findings emphasize the need for development of a comprehensive and integrated strategy for prevention and control of NCD. The strategy should address the following four main goals:

1. To develop and strengthen the institutional management and implementation structure for noncommunicable disease. This will require establishment of a special unit at the Ministry of Health that will be responsible for formulation of national NCD-related policies as well as for coordination of efforts of other stakeholders, both public and private, in their implementation.
2. To develop surveillance system for NCD risk factors and select diseases to measure changes over time and to evaluate effectiveness of NCD prevention and control programs.
3. To stall the epidemic of NCD through the population reduction in the main risk factors of smoking, poor diet, physical inactivity and harmful alcohol use and the aggressive management of high risk individuals.
4. To strengthen and equip health delivery systems to provide affordable, equitable and quality management of noncommunicable diseases to all population.

The development and endorsement of the strategy should be followed by development of a National NCD action plan that will define priorities, resources, time frame and responsible bodies for the implementation of various components of the NCD strategy.

Finally, it is important to disseminate the results of the NCD survey to all stakeholders and the public through all channels of mass media in order to raise awareness on the threat of NCD and facilitate prompt actions on the recommendations set forth in this report.

7. References

¹The World Health Report 2002: Reducing Risks, Promoting Healthy Life. World Health Organization. 2002.

²The State Statistical Committee of the Republic of Azerbaijan. Main causes of death among population. <http://www.azstat.org/statinfo/healthcare/en/002.shtml>. Accessed on May 1, 2011.

³Central Election Commission of the Republic of Azerbaijan. www.infocenter.gov.az