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# EMAN

## Eastern Mediterranean Approach for Control of Non Communicable Diseases



### Survey of Risk Factors for Chronic Non Communicable Diseases

State of Kuwait  
2015





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ISBN: 978-99966-63-12-3

The report has been filed in the National Library of Kuwait under the number

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Depository Number, 496/2015







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## PREFACE

Kuwait realized early the threat imposed by the non-communicable diseases (NCDs) on public health, quality of life and comprehensive development, thus it was pioneering in taking moves and adopting initiatives to combat NCDs particularly following the adoption of the UN 2011 Political Declaration on NCDs, when Heads of State and Government adopted the Political Declaration on NCDs at the United Nations General Assembly and committed themselves to develop national plans to prevent and control NCDs. At the same time, WHO was requested to complete a number of global assignments that would accelerate national efforts.



Three years later, the good news is that there is now a global agenda in place based on nine concrete global targets for 2025, organized around the WHO Global NCD Action plan 2013-2020, which comprises a set of actions which, when performed collectively by Member States, international partners and WHO, will help to attain a global target of a 25 percent reduction in premature mortality from NCDs by 2025 and achieve the commitments made by the world leaders in September 2011.

Since its adoption, the UN 2011 Political Declaration on NCDs topped the list of priorities of the Kuwaiti government and became the focus of great cooperation between relevant government and no-government organizations.

The Ministry of Health has formed a higher committee, including representatives of various health sectors and civil society, to make surveys and evaluate the spread of the NCDs in Kuwait and set a national strategy based on the UN declaration to tackle the diseases. Kuwaiti government has also taken a number of bold initiatives to deal with the risk factors or the main causes of the NCDs. The government has ordered bakeries to reduce salt in bread by 20 percent with a view to prevent high blood pressure and other vascular diseases in Kuwait. Kuwait also bans selling of alcohol and has recently banned smoking in public areas as a commitment to the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) which aims to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke by enacting a set of universal standards stating the dangers of tobacco and limiting its use in all forms worldwide. The government has introduced a number of programs and activities into the educational system to fight the causes of NCDs, and is also expanding the implementation of the School Health programs which include awareness campaigns, physical activities, and program to change negative lifestyles.

The Ministry of Health periodically conducts surveys to review the situation of the NCDs in the country. I hope the survey results will help us to improve the health planning with the aim of controlling the risk factors for NCDs and improving the quality of life for present and future generations.

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## FOREWORD

It's my great pleasure to introduce this important second report about the Risk Factors for Chronic Noncommunicable Diseases in the State of Kuwait as a faithful continuation for the effort done to produce the first report in 2008.

We all know the importance of Noncommunicable diseases as the leading cause of death at global, regional and national levels. This makes the present work a very important contribution from the Ministry of Health in the state of Kuwait to the prevention and control of NCDs by approaching the root causes and the modifiable risk factors such as smoking, lack of sufficient physical activity and unhealthy diet.



This work reflects the commitment of the government of the State of Kuwait to tackle the growing burden of noncommunicable diseases and their negative effect on the social and economic development of the community in accordance with the United Nations Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases.

As we all know that the main burden of dealing with the above mentioned risk factors is carried out by the Primary Health Care system, so this survey has been achieved through the PHC facilities in collaboration with other facilities in the Ministry of Health under the supervision of the MOH higher committee for EMAN initiative with the continuous policy advice and technical assistance of WHO staff.

The project has been done using the WHO stepwise approach to surveillance (STEPS) for standardized data collection about noncommunicable diseases and their risk factors as a database of information for tackling the problem and planning the approach for management.

I hereby present my deep appreciation to all contributors of this work, especially the MOH higher committee for EMAN initiative and the WHO staff for their great effort and commitment to the work.

We look forward for more cooperation with WHO to carry on future studies and for the exchange of information and experiences to achieve the common goal of dealing with the risk factors and reducing the burden of noncommunicable diseases in our country and worldwide.

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## GLOSSARY

BMI	Body Mass Index
95% CI	95% Confidence Interval
CVD	Cardiovascular disease
DBP	Diastolic blood pressure
EDTA	Ethylenediaminetetraacetic Acid
EMAN	Eastern Mediterranean Approach to Noncommunicable diseases
EMRO	Eastern Mediterranean Regional Office
HbA1c	Glycosyated hemoglobin
HDL-C	High-density Lipoprotein Cholesterol
HPV	Human papillomavirus
IFG	Impaired Fasting Glucose
KCCC	Kuwait Cancer Control Center
KD	Kuwaiti Dinar
LDL-C	Low-density Lipoprotein Cholesterol
N	Population Number
n	number of respondents
n1	number of respondents in step 1 survey
n2	number of respondents in step 2 survey
NCDs	Noncommunicable diseases
PACI	Public Authority for Civil Information
Pap smear	Papanicolaou smear
PDA	Personal Digital Assistant
PHC	Primary Health Care
RIQAS	Randox International Quality Assessment Scheme
s1	step 1 survey
s2	step 2 survey
s3	step 3 survey
SBP	Systolic blood pressure
STEPS	WHO STEP-wise approach to surveillance
TC	Total Cholesterol
TG	Triglycerides
WHO	World Health Organization
WHR	Waist-hip ratio

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**SN. Khaled AINaksha**, Sheikh Soud AISabah health center  
**Ali Hussain AISarraf**, (Nutrition) Mubarak hospital  
**Amna Hussain Ismail**, (Nutrition) Hussain Makki hospital  
**Nouf Hussain AIAbdullah**, Mubarak hospital  
**Majdi Tawfik Mohammed Suleiman**, Mubarak hospital  
**Abrar Bader Abbas**, Mubarak hospital  
**Mahmood Mukhtar Garagh**, Rhumaiithiya health center  
**Hanadi Falah AIRasheedi**, Rhumaiithiya health center  
**Fatma Bader Haider Saraj**, Rhumaiithiya health center  
**Laila Saleh Ali**, Salam health center (LAB)

### **Farwanyia Health Region**

**Dr. Nouriya Ibrahim**, Head of Farwaniya team – Rabya health center  
**Dr. Fatma Ali AISultan**, Khaitan North health center  
**Dr. Mohammed Tariq AIJabary**, Andalous & Riggae health center  
**Dr. Abeer AbdulRahman AIEssa**, Head of Nahda health center  
**SN. Ramadan Ahmed Abdullah**, Ardiya South health center  
**SN. Hanan Mohammed Bujarwa**, Ardiya South health center  
**Dr. Hessa Turki AIWazzan**, Rabya health center  
**Zahra Murtada**, (Nutrition) Rabya health center  
**Haifa Mohammed AIOtaibi**, Farwaniya hospital  
**Nermeen Mamdouh Nashid**, Chest hospital  
**Khoulood Jabbar Aboud**, Rabya health center (LAB)  
**Bidoor Thaeer Thamer AIMutairi**, Farwaniya hospital  
**Raeed Falah Doghaiman AIRasheedi**, Rabya health center  
**Huda Ali Dashti**, Rabya health center

### **Ahmadi Health Region**

**Dr. Hamdiya AIFadhli**, Head of Ahmedi team - AIDaher health center  
**Dr. Ahmed Mohammed Amin Ali**, Fahaheel health center  
**Dr. Bidoor MohiAIDeen AbuSalem**, Mangaf health center  
**SN. Ghalia Saad AISugoor**, Ali Sabah Al-Salem health center  
**SN. Abeer Abbas**, Qurain health center  
**Zainab Dashti**, (Nutrition) Agela health center  
**Ayesha Badar**, (Nutrition) Agela health center  
**Noora AILahdaan**, Adan hospital  
**Hiba Mohammed Marzouk**, Adan hospital

**Mansour Nooruddin Mohammed**, Beneider health center (LAB)  
**Yousef Abdulkareem Khalaf Karam**, Beneider health center (LAB)  
**Sarah Suleiman AIYaqoob**, Fahad AlAhmed health center  
**Mesuib Salem AlAzmi**, AlDaher health center  
**Nawal Nizhan AlAzmi**, AlDaher health center  
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### **Jahra Health Region**

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**Dr. Wajdi Mohammed Ezzat AlAwadi**, Saad Al-Abdulla B2 health center  
**Dr. Wajdi AbdulJawad Abdulmoti Nasereddin**, AlWaha health center  
**Dr. Saleem Nawaf Saleem Suroor**, Jahra health center  
**SN. Mariam AlSaeed Abdulkareem**, Naseem health center  
**SN. Munifa Hamoud Madlool AlShimmari**, Palluative Care hospital  
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# **KUWAIT STEPS 2014 FACT SHEET**

# Kuwait STEPS Survey 2014

## Fact Sheet

The STEPS survey of noncommunicable disease (NCD) risk factors in Kuwait was carried out from March 2014 to September 2014. Kuwait carried out Step 1, Step 2 and Step 3. Socio demographic and behavioural information was collected in Step 1. Physical measurements such as height, weight and blood pressure were collected in Step 2. Biochemical measurements were collected to assess blood glucose and cholesterol levels in Step 3. The survey was a population-based survey of adults aged 18-69. A simple random sample design was used to produce representative data for that age range in Kuwait. A total of 4391 adults participated in the survey. The overall response rate was (89%).

Results for adults aged 18-69 years (incl. 95% CI)	Both Sexes	Males	Females
<b>Step 1 Tobacco Use</b>			
Percentage who currently smoke tobacco	20.5% 19.1-21.9	39.2% 36.6-41.7	3.3% 2.6-4.0
Percentage who currently smoke tobacco daily	18.0% 16.7-19.4	35.4% 32.9-37.9	2.0% 1.5-2.6
For those who smoke tobacco daily			
Average age started smoking (years)	17.1 16.8-17.5	16.9 16.5-17.2	21.2 19.2-23.2
Percentage of daily smokers smoking manufactured cigarettes	88.5% 85.9-91.1	89.9% 87.3-92.5	64.6% 50.4-78.7
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	18.9 17.8-20.0	19.5 18.4-20.6	8.4 5.2-11.6
<b>Step 1 Alcohol Consumption</b>			
Percentage who are lifetime abstainers	97.9% 97.4-98.4	95.9% 94.9-96.9	99.8% 99.6-100.0
Percentage who are past 12 month abstainers, and who drank previously	0.8% 0.5-1.2	1.7% 1.0-2.3	0.1% 0.0-0.2
Percentage who currently drink (drank alcohol in the past 30 days)	0.8% 0.5-1.1	1.5% 0.9-2.2	0.1% 0.0-0.2
Percentage who engage in heavy episodic drinking (6 or more drinks on any occasion in the past 30 days)	0.3% 0.1-0.5	0.6% 0.2-1.0	--- ---
<b>Step 1 Fruit and Vegetable Consumption (in a typical week)</b>			
Mean number of days fruit consumed	3.6 3.6-3.7	3.8 3.7-3.9	3.5 3.4-3.6
Mean number of servings of fruit consumed on average per day	1.3 1.2-1.4	1.4 1.3-1.5	1.2 1.1-1.3
Mean number of days vegetables consumed	5.0 4.9-5.1	4.9 4.8-5.1	5.0 4.9-5.1
Mean number of servings of vegetables consumed on average per day	1.8 1.8-1.9	1.9 1.8-2.1	1.8 1.7-1.9
Percentage who ate less than 5 servings of fruit and/or vegetables on average per day	83.8% 82.6-85.0	81.4% 79.4-83.4	86.0% 84.6-87.4
<b>Step 1 Physical Activity</b>			
Percentage with insufficient physical activity (defined as < 150 minutes of moderate-intensity activity per week, or equivalent)*	62.6% 60.9-64.2	51.4% 48.8-54.0	72.8% 71.0-74.6
Median time spent in physical activity on average per day (minutes) (presented with inter-quartile range)	1.4 0.0-42.9	17.1 0.0-60.0	0.0 0.0-21.4
Percentage not engaging in vigorous activity	84.2% 83.0-85.5	76.6% 74.4-78.9	91.2% 90.0-92.3
<b>Step 1 Cervical Cancer Screening</b>			
Percentage of women aged 30-49 years who have ever had a screening test for cervical cancer			17.6% 15.4-19.8

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

# Kuwait STEPS Survey 2014

## Fact Sheet

Results for adults aged 18-69 years (incl. 95% CI)	Both Sexes	Males	Females
<b>Step 2 Physical Measurements</b>			
Mean body mass index - BMI (kg/m <sup>2</sup> )	29.4 29.2-29.5	29.0 28.7-29.2	29.7 29.5-30.0
Percentage who are overweight (BMI ≥ 25 kg/m <sup>2</sup> )	77.2% 75.8-78.7	78.4% 76.2-80.6	76.1% 74.3-77.9
Percentage who are obese (BMI ≥ 30 kg/m <sup>2</sup> )	40.2% 38.5-41.8	36.3% 33.7-38.8	44.0% 41.9-46.1
Average waist circumference (cm)		93.6 92.8-94.5	88.4 87.8-89.1
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP	120.7 120.2-121.2	124.6 123.8-125.4	117.0 116.3-117.6
Mean diastolic blood pressure - DBP (mmHg), including those currently on medication for raised BP	77.5 77.2-77.9	79.4 78.9-80.0	75.7 75.2-76.1
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	25.1% 23.6-26.7	27.7% 25.3-30.2	22.6% 20.8-24.5
Percentage of those with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) who are not currently on medication for raised BP	47.4% 52.1-62.6	57.3% 30.8-40.2	35.5% 43.8-51.1
<b>Step 3 Biochemical Measurement</b>			
Mean fasting blood glucose, including those currently on medication for raised blood glucose (mmol/L)	5.7 5.6-5.8	5.8 5.7-6.0	5.6 5.5-5.7
Percentage with impaired fasting glycemia defined as plasma venous value ≥6.1 mmol/L and <7.0 (mmol/L)	6.1% 5.1-7.0	7.6% 6.0-9.3	4.7% 3.7-5.7
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose plasma venous value ≥ 7.0 (mmol/L)	14.6% 13.2-15.9	15.8% 13.5-18.1	13.4% 11.8-15.1
Mean total blood cholesterol, including those currently on medication for raised cholesterol (mmol/L)	5.0 5.0-5.1	5.1 5.0-5.1	5.0 5.0-5.0
Percentage with raised total cholesterol (≥ 5.0 mmol/L or currently on medication for raised cholesterol)	55.9% 54.0-57.9	58.6% 55.5-61.7	53.5% 51.0-55.9
<b>Cardiovascular disease (CVD) risk</b>			
Percentage aged 40-69 years with a 10-year CVD risk ≥ 30%, or with existing CVD**	11.3% 9.1-13.5	14.4% 10.5-18.3	8.6% 6.2-11.1
<b>Summary of combined risk factors</b>			
<ul style="list-style-type: none"> <li>• current daily smokers</li> <li>• less than 5 servings of fruits &amp; vegetables per day</li> <li>• insufficient physical activity</li> <li>• overweight (BMI ≥ 25 kg/m<sup>2</sup>)</li> <li>• raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)</li> </ul>			
Percentage with none of the above risk factors	1.2% 0.8-1.7	1.0% 0.4-1.5	1.5% 0.9-2.1
Percentage with three or more of the above risk factors, aged 18 to 44 years	51.6% 49.4-53.8	53.9% 50.5-57.3	49.1% 46.4-51.8
Percentage with three or more of the above risk factors, aged 45 to 69 years	74.7% 71.7-77.6	72.7% 68.0-77.3	76.3% 72.7-80.0
Percentage with three or more of the above risk factors, aged 18 to 69 years	57.9% 56.1-59.7	58.7% 55.8-61.5	57.1% 54.8-59.4

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



# EXECUTIVE SUMMARY

## 1. INTRODUCTION

This second national cross-sectional survey on noncommunicable disease (NCD) risk factors in the State of Kuwait was conducted during the period February 2013 – September 2014. Preparation for the survey was carried out between February and September 2013 and included establishment of the Coordinating Committee under the Ministry of Health; preparation and adjustment of the WHO STEPS Instrument; sampling; equipment procurement; selection of the project team; and training of data collectors. Field data collection was performed between March and September 2014. Data analysis and report preparation were carried out from October 2014 to May 2015.

The goal of the survey was to evaluate the prevalence of the main NCD risk factors to enable more efficient planning of NCD control and prevention activities and policies.

The main objectives of the survey were:

- to determine the prevalence of behavioral risk factors for NCD in the population aged 18–69 years;
- to determine the prevalence of biological risk factors for NCD – hypertension, hypercholesterolemia and hyperglycemia – in the population aged 18–69 years;
- to determine the difference in the prevalence of risk factors between sexes and age groups.

Based on simple sampling methodology for NCD surveillance, 4391 subjects were randomly selected, in order to ensure the equivalent distribution of participants according to age and sex, and factoring in an estimated 12.5% non-response rate. A total of 3918 subjects aged 18–69 years participated in the survey and the response rate was 89.2%.

Of the total number of respondents (n=3918), 20.5% reported being current smokers and 18.0% daily smokers. Men smoked more than women (39.2% vs 3.3%). The mean age of starting smoking was 17.1 years for both sexes (16.9 years for men and 21.2 years for women). Manufactured cigarettes were used by smokers in 88.5% of cases. The mean number of cigarettes smoked (daily) among daily smokers was 18.9 cigarettes/day.

The vast majority (97.9%) of respondents were lifetime alcohol abstainers, whereas 0.8% were past 12-months abstainers. Past 30-days drinkers amounted to 0.8% of respondents and only 0.3% were episodically heavy drinkers, all were men.

Fruit and vegetables consumption was generally low: 83.8% of respondents reported consumption of fewer than five servings of fruit and vegetables per day, thus being at higher risk for NCD. The proportion was higher for women in comparison with men (86.0% vs. 81.4%). Consumption of both fruit and vegetables was less frequent in younger age groups. Households most often used vegetable oil for the preparation of meals (93.0%).

Three fifths (62.6%) did not meet WHO recommendations on physical activity for health (with significant difference between men (51.4%), and women (72.8%)). The highest percentage of those not meeting WHO recommendations was identified in the 60–69 years age group (78.8%). The total median time spent carrying out physical activity constituted 1.4 minutes per day (higher among men (17.1 minutes) than women (0.0 minutes)).

Less than a fifth (17.6%) of women aged 30–49 years reported having been screened for cervical cancer.

More than half of respondents reported receiving healthy lifestyle advice from a doctor or a health worker during the past three years, regarding reducing fat in diet (51.3%), starting or practicing physical activity (54.6%), and maintaining a healthy body weight or to reduce weight (52.4%).

As a result of physical measurements, about eight in every ten respondents (77.2%) were overweight or obese (body mass index  $\geq 25$  kg/m<sup>2</sup>), with no differences between sexes. Two fifths of respondents (40.2%) were obese (body mass index  $\geq 30$  kg/m<sup>2</sup>), and the proportion of obese women (44.0%) was 1.2 times higher than that of men (36.3%). Mean body mass index recorded was 29.4 kg/m<sup>2</sup>, and mean waist circumference was 88.4 cm for women and 93.6 cm for men. The waist–hip circumference ratio was equal to 0.9 for men and 0.8 for women, at the lower limit of obesity.

Mean systolic and diastolic blood pressure (including individuals taking medication for hypertension) was 120.7 mmHg and 77.5 mmHg, being significantly higher in men when compared with women. A quarter of respondents (25.1%) had hypertension (systolic blood pressure  $\geq 140$  and diastolic blood pressure  $\geq 90$  mmHg), with significantly higher proportion among men (27.7% vs 22.6%). Almost half (47.4%) of respondents with increased blood pressure were not taking any medication, with the proportion of men (57.3%) being higher than that of women (35.5%).

The survey revealed that the proportion of respondents with impaired fasting glycemia ( $\geq 6.1$  mmol/L and  $< 7.0$  mmol/L) was 6.1% and this proportion was higher among men (7.6%) than women (4.7%). Mean fasting blood glucose was 5.7 mmol/L, with no difference between men and women. More than one in 10 individuals (14.6%) had diabetes or reduced tolerance to glucose (fasting blood glucose  $\geq 7.0$  mmol/L or taking antidiabetic medication), and this proportion was higher among men (15.8%) than women (13.4%). It was also established that just more than half (55.9%) had a raised total cholesterol level ( $\geq 5$  mmol/L or taking medication for hypercholesterolemia), with a significant difference between man and women (58.6% vs. 53.5%).

In conclusion, the survey showed that about three fifths of respondents (57.9%) had three or more risk factors for NCDs, and this increases proportionally with age (51.6% of 18-44 years old and 74.7% for 45-69 years old). Only 1.2% of the population studied had none of the five risk factors for NCDs.

## 1.1. BACKGROUND

### 1.1.1. Noncommunicable diseases (NCDs) worldwide

Noncommunicable diseases represent a leading threat to human health and economic development. NCDs are the leading cause of death globally, causing more deaths than all other causes combined. In 2008, NCDs – in particular cardiovascular disease (CVD), cancer, diabetes and chronic respiratory disease – were responsible for more than 60% of population mortality globally. The burden of NCDs is rapidly increasing, especially in developing countries, and their social, economic and health consequences will be significant. Over 80% of deaths resulting from CVDs and diabetes, almost 90% of deaths from chronic obstructive pulmonary disease and more than two thirds of deaths from cancer occur in low- and middle-income countries.

However, the existing evidence demonstrates that the NCD epidemic could be reduced by controlling the four main behavioural risk factors for NCDs: tobacco use, physical inactivity, harmful use of alcohol, and unhealthy diet.

Tobacco – including both tobacco use and second-hand smoke – is responsible for more than 6 million deaths annually. Smoking is estimated to cause about 71% of lung cancer, 42% of chronic respiratory disease and 10% of CVD. The proportion of mortality attributable to tobacco is higher among men than among women.

About 4.5% of the global burden of disease and injury is attributable to alcohol. Alcohol contributes to traumatic outcomes that kill or disable people at a relatively young age, resulting in the loss of many years of life, as well as disability and deaths. Harmful use of alcohol causes about 3.8% of all deaths each year. More than half of these deaths occur from NCDs, including liver cirrhosis, cancer and CVD. Harmful use of alcohol is the leading risk factor for death in men aged 15–59 years.

Low consumption of fruit and vegetables is associated with higher risk for CVDs, and stomach and colorectal cancers. High salt consumption is an important determinant of high blood pressure and CVD risk. High consumption of saturated fat and trans-fat is associated with increased risk for heart disease and stroke.

Raised blood pressure is the leading risk factor for global disease burden. It is estimated to cause 9.4 million deaths every year – more than half of the estimated 17 million annual deaths from all CVDs. Raised blood cholesterol is estimated to cause 2.6 million deaths annually. Both are major risk factors for CVD and stroke.

Physically inactive people have a 20–30% increased risk for all-cause mortality. Raised body mass index (BMI) increases the risk for heart disease, strokes, diabetes and certain cancers.

### **1.1.2. NCDs in the State of Kuwait**

The State of Kuwait is a developing country with a population of 4039425, of which 68.9% expatriates in 2014. It is situated in North-western part of Arabian Gulf, has common borders with Iraq and Saudi Arabia and a land area of 17828 km<sup>2</sup>. Administratively, it consists of six governorates; namely Capital, Hawally, Ahmadi, Jahra, Farwaniya and Mubarak Al-Kabeer.

According to the National Center of Health Information, 2013, the following diseases were the leading causes of death in the State of Kuwait :

- Diseases of the circulatory system (63.5 per 100 000 population)
- Injuries and poisoning (21.2 per 100 000 population)
- Neoplasms (20.2 per 100 000 population)
- Diseases of the respiratory system (14.1 per 100 000 population)
- Diseases of endocrinal system including diabetes (4.4 per 100 000 population).

Cervical cancer age standardized incidence rate for cancer cervix among Kuwaiti females was 2.8 per 100 000 according to Kuwait Cancer Registry. The incidence of cervical cancer has increased between 2005 and 2009, with this type of cancer found to be the most common among women in 2011, when it accounted for 39.3% of all cancer cases. As is the case in other countries, the majority of cervical cancers occur in middle-aged women with approximately 75% of cases occurring in women aged 30–60 years.

### **1.1.3. Prevalence of NCD risk factors in the State of Kuwait**

NCD risk factors were previously assessed in the following surveys carried out in the State of Kuwait:

- World Health Survey (2013)
- STEPS (2008)
- Global School Health Survey (2011)
- Smoking and Tobacco Survey
- Nutritional Surveillance

## **1.2. GOAL AND OBJECTIVES**

### **1.2.1. Survey goal**

The general goal of the survey was to determine the prevalence of major risk factors for NCDs using WHO-approved methods for the evaluation of the baseline situation and more efficient planning of activities for the prevention and control of NCDs.

### **1.2.2. Survey objectives**

The objectives of the survey were:

- to determine the prevalence of behavioural risk factors for NCDs in the population aged 18–69 years;
- to determine the prevalence of biological risk factors for NCDs – hypertension, hypercholesterolemia and hyperglycemia – in the population aged 18–69 years;
- to determine the difference in the prevalence of risk factors between sexes, areas of residence and across age groups.

### **1.2.3. Rationale for the survey**

There was a need for comprehensive and up-to-date data on NCD risk factors in order to evaluate the effectiveness of ongoing public health policies and to develop further NCD prevention and control interventions.

The survey was conducted in accordance with WHO methodology that provides comparable and reliable information on the prevalence of risk factors for NCDs in different countries across the world.

The WHO STEPS (STEP-wise approach to surveillance) survey is an important tool for estimating the prevalence of NCD risk factors and it provides the necessary evidence for an NCD epidemiological surveillance system.

## 2. METHODOLOGY

### 2.1. Survey design

The second cycle of the survey on the prevalence of NCD risk factors was conducted with the purpose of updating the information for the development of the National action plan for the implementation of the national strategy on prevention and control of NCDs for the years 2014–2020.

The survey was carried out using three consecutive steps, according to the WHO concept of using a step-wise approach to the surveillance of NCD risk factors and considering local necessities and resources.

**STEP 1** comprised a questionnaire survey – the WHO STEPS Instrument for Chronic Disease Risk Factor Surveillance (Annex 1). This was face-to-face interview, using a questionnaire to collect demographic information, as well as information on tobacco use, alcohol consumption, diet (including fruit and vegetable consumption, oil and fat consumption, meal consumption outside home and dietary salt), physical activity, history of high blood pressure and/or raised cholesterol, history of diabetes and of CVDs, lifestyle counselling, cervical cancer screening and health care access.

**STEP 2** comprised a series of physical measurements of overweight and obesity using specific tests and devices (body weight and height, waist and hip circumference), blood pressure and heart rate.

**STEP 3** comprised a series of biochemical measurements. Venous blood samples were collected for lipid profile and fasting glucose after a 12-hour fast (no food or drink, except water) in serum/plasma separator and Sodium fluoride vacutainer tubes. For HbA1c, a whole blood was collected in EDTA tube. All samples were analyzed within 6 hours of collection using an Autoanalyzer Architect.

The WHO STEPS Instrument for Chronic Disease Risk Factor Surveillance-version 2, was translated into Arabic and used to take into consideration specific characteristics/ requirements within the country.

## 2.2. Survey population and sampling

A total of 4391 individuals were randomly selected to participate in the survey. They were all Kuwaitis aged 18–69 years, and the group comprised both sexes, as well as residents of all governorates.

For calculating the survey size, the prevalence of overweight and obesity of 50.0% was assumed to get the largest sample size assuming a 95% confidence interval (CI) ( $Z=1.96$ ), a 5% acceptable margin of error, a simple sampling design effect coefficient of 1, and equal representation of sexes in each age group (five age groups for each sex or a total of ten groups). Calculations resulted in a sample size of 3842 individuals, which was further increased by 12.5% (4391) to account for contingencies such as non-response and recording errors (see Formula 1, using the Microsoft Excel® random sample tool).

### Formula (1): Sample size calculation

$$n = (Z)^2 \cdot \frac{p(1-p)}{e^2}$$

$$n = (1.96)^2 \cdot \frac{0.5(1-0.5)}{0.05^2} = 384.16$$

1.  $n \times \text{design effect} \times \text{age-sex factor} = 384 \times 1 \times 10 = 3841.6$
2.  $n/\text{probability of non-response} = 3841.6/0.88 = 4390.4 \approx 4391$ .

A simple random sampling procedure was carried out to select randomly participants from among the target population from the database of the Public Authority of Civil Information (PACI). It was decided that the age groups during the sampling selection phase to be five groups for each sex, as follows; 18-, 25-, 35-, 45- and 55-69 years. However, after discussion with Dr. Savin, it was agreed to present the age groups in the results section as four, namely; 18-, 30-, 45- and 60-69 years.

## 2.3. Ethical consideration

Ethical approval for the survey was obtained from the National Ethics Committee. A written informed consent was taken from each participant after informing him/her about the goal, objective, relative risk and benefits of the participation in the survey (Annex 4).

## **2.4 Training**

### **Training of members of the project team with collaboration of WHO headquarters and EMRO:**

A three day workshop on planning and implementation of the STEPwise approach to surveillance and NCD risk factors was carried out in Kuwait in March 2013. The workshop was run by Dr. Regina Gothold, the technical officer, surveillance and population-based prevention unit, department for prevention of noncommunicable diseases, noncommunicable diseases and mental health cluster, WHO. She presented an overview, the rationale of the WHO STEPwise approach to surveillance, STEPS planning, the role and responsibilities, STEPS sampling (design, calculation of sample size and sampling spreadsheet), data collection procedure (introduction to eSTEPS, interview taking, approaching selected households), and data management, analysis and reporting.

### **Training of field data collection teams in survey methodology**

All teams of the project received a 5-day training workshop from 10 to 14 February 2014, run by experts from the EMRO office. Members of project teams and heads of PHC centers attended this workshop which was run by Melina Cowan, MPH, technical officer, surveillance and population-based prevention unit, department for prevention of noncommunicable diseases, noncommunicable diseases and mental health cluster, WHO. The workshop included introduction to NCDs, interview techniques, and detailed procedures of the data collection. The core of the training was focused on the survey questionnaire, the skills required to use personal digital assistants (PDAs) for data entry and interactive sessions to introduce data collection methods for STEPS 1, 2 and 3 of the survey.

## **2.5. Place of the study**

The study had been conducted in the five health regions of Kuwait. A primary health care clinic was selected in each region characterized by being in the center of the region, easily accessible, with enough places to receive the participating subjects, facilities for blood sample aspiration and required personnel. A pre-determined schedule of appointments had been prepared to decrease the waiting time before the interviews. To assure good quality of data, the interview was personal. Also, each questionnaire was given a unique identifier, including self coded questions and information about the interviewers, data entry person, and the code and type of instruments used. Efficient

training programs for all working teams in the project had been conducted. Revision of the questionnaire for completion of data was performed. The electronic data entry file was pre-tested and proved to be valid. Data were re-collected from 5% of the participants and compared with those previously collected by another team. Electronic validation of data was finally conducted.

## **2.6. Preparation of the place for interview**

In each selected health center, two separate rooms were prepared (one for men and another for women) for interviewing recruited subjects, performing the physical measurements and aspiration of the required blood sample. For the ease of reaching the specified areas, boards and leading marks had been held on the rooms and throughout the ways from the gates to the examination rooms inside the centers. A pre-determined schedule of appointments had been prepared to decrease the waiting time of the interviewees.

## **2.7. Announcement for the survey**

Advertising campaign started on February 2014 and continued throughout data collection period aiming at raising public awareness. It was composed of:

- TV talk shows with the project manager and members of the committee to explain the importance of chronic diseases and encourage the population to participate. Announcement was made through the local TV channels.
- Advertisement in the newspapers at the beginning of data collection about the importance of the project was undertaken.
- Explanation boards had been held in the primary health care centers and pamphlets, containing knowledge about risk factors of chronic diseases especially smoking, physical inactivity, malnutrition, obesity, raised blood pressure, blood glucose and blood lipids, had been distributed to the visitors.
- Advertising media in cooperative societies had been used for the same purpose due to its importance as large sectors of the population attend these places frequently.

## **2.8. Recruitment of subjects**

In each health region, selected subjects received telephone calls from social workers/ administrative personnel asking them to visit the selected primary health care center to share in the study. During the call, subjects were informed about the aim of the study in brief. The procedures of the interview, physical measurements and sample aspiration were explained. Also they were informed about the name and place of the health center, the place of interviewing room, name of person responsible for receiving them, date and time of appointment and average duration that they would spend in the center. Subjects were asked to be fasting for 12 hours at the time of interview.

## **2.9. Pilot testing**

The trained data collectors carried out pre-testing, comprising all three survey steps. Over 80 individuals participated in the pre-testing phase. Five multidisciplinary field teams were assigned for field work. In each Health Region the team consists of a physician, nurse, social workers, dieticians and phlebotomists. The physician was the team leader coordinating the work of the team members. Each team distributed the questionnaire, performed physical measurements, and performed laboratory testing. The pretesting was aimed at validating the field data collectors' skills in using the survey questionnaire, performing physical measurements, laboratory testing, and using PDAs.

## **2.10. Data collection process**

Validated questionnaires version II (WHO STEPS Instrument for Chronic Disease Risk Factors Surveillance) – comprising core and expanded items as well as two optional modules on dietary salt and health care – were translated into Arabic, adapted to country specifics, translated back into English, reviewed and approved by the STEPS Coordinating Committee, and used for the survey data collection.

The survey data were collected between March and September 2014.

### **STEP 1: Questionnaire survey**

The questionnaire was used to collect data on respondent's demographic and socioeconomic status; tobacco use; alcohol consumption; diet, including fruit and vegetable consumption, oil and fat consumption, meal consumption outside the home, and dietary salt intake; physical activity; history of raised blood pressure, diabetes, raised cholesterol and/or CVDs; lifestyle advice; screening for cervical cancer; health care insurance coverage; and use of health services in relation to NCDs.

#### **Assessing tobacco use**

Tobacco use was assessed in terms of current and previous smoking status, duration of smoking, quantity of tobacco use, smokeless tobacco use, and exposure to second-hand smoking. Data collectors used show cards, depicting four types of commonly used tobacco products.

#### **Assessing alcohol consumption**

Alcohol consumption was assessed using the concept of a standard drink. A standard drink is any drink containing about 10 g of pure alcohol.

Respondents who reported using alcohol within the past month were classified as current drinkers. Three risk categories were used to classify respondents who consumed alcohol according to the average amount of alcohol consumed per day.

## Assessing diet

In order to assess the diet pattern of the surveyed population, the respondents were asked about frequency of fruit and vegetable consumption, mean number of portions of these foods consumed daily, type of oils and fat used for meal preparation, number of meals eaten outside the household per week and the amount of salt consumed daily. Consumption of fruit and vegetables was assessed in terms of the number of servings, with a serving being equal to 80 g. Show cards were used to collect data on fruit and vegetable consumption on a typical day. Oil and fat intake was assessed by asking about the type of oil or fat most frequently used for cooking.

Salt consumption was assessed by asking about frequency of addition of salt or a salty sauce to food during preparation, or before or while eating; and/or frequency of consumption of processed food high in salt. Participants were also asked about their perception of the quantity of salt they consumed and its link with health problems, as well as about the importance of reducing salt intake, and the measures undertaken to control it.

## Assessing physical activity

Physical activity was assessed based on intensity, duration and frequency of physical activity at work, in recreational settings and involving transportation (journeys), using a set of 16 questions. Data were collected on the number of days, hours and minutes of physical activity performed at work, involving transportation and in recreational settings for at least 10 minutes or more continuously each day. The complex questionnaire has the advantage of assessing not only the duration, but also the intensity of physical activity. Show cards were used to depict different types of physical activity.

The total time spent on physical activity per day at work, involving transport and in recreational activities was measured by using a continuous indicator: the metabolic equivalent (MET) time in minutes per week spent in physical activity. The population was classified into specific groups according to their amount of physical activity. METs are commonly used to express the intensity of physical activities, and are also used for the analysis of General Physical Activity Questionnaire (GPAQ) data. MET is the ratio of a person's working metabolic rate relative to their 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. For the analysis of GPAQ data, existing guidelines have been adapted. It was estimated that, compared with sitting quietly, a person's caloric consumption is four times as high as when being moderately active, and eight times as high as when being vigorously active. For the calculation of a person's total physical activity, the following values were used.

## MET values for the calculation of a person's total physical activity

### Domain MET value

Work Moderate MET value = 4.0

Vigorous MET value = 8.0

Transport Cycling and walking MET value = 4.0

Recreation Moderate MET value = 4.0

Vigorous MET value = 8.0

In order to calculate the categorical indicator for the recommended amount of physical activity for (good) health, the total time spent carrying out physical activity during a typical week and the intensity of the physical activity were taken into account.

According to WHO's global recommendations on physical activity for health, throughout a normal week adults should do at least the following amount of exercise (including activity for work, as well as during transport and leisure time):

- 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

For comparison purposes, tables presenting cut-offs from WHO recommendations were also used during the data analysis. The three levels of physical activity suggested in these recommendations for classifying populations are: (1) low, (2) moderate, and (3) high. The criteria for these levels are detailed in the remainder of this section.

**High-level** physical activity involves a person reaching any of the following criteria:

- vigorous-intensity activity at least three days per week, achieving at least 1500 MET minutes per week; or
- seven or more days of any combination of walking, moderate- or vigorous-intensity activities achieving a at least 3000 MET-minutes per week.

**Moderate level** physical activity involves a person not meeting the criteria for the high-level category, but meeting any of the following criteria:

- three or more days of vigorous-intensity activity of at least 20 minutes per day; or
- five or more days of moderate-intensity activity or walking for at least 30 minutes per day; or
- five or more days of any combination of walking, moderate- or vigorous-intensity activities achieving at least 600 MET-minutes per week.

**Low level** physical activity involves a person not meeting any of the above-mentioned criteria for the moderate- or high-level categories.

## History of NCDs and their risk factors

History of diabetes, CVDs, raised blood pressure and raised cholesterol were assessed by asking whether specific measurements for these purposes had been performed by a doctor or health worker. Participants were also asked about any medication taken.

## Lifestyle advice

The participants were asked about any advice given by a doctor or a health worker during the past three years relating to reducing common risk factors for NCDs.

## Assessing cervical cancer screening status

Cervical cancer screening status was assessed by asking about whether eligible participants had undergone visual inspection with acetic acid (VIA) testing, a Pap smear and/or human papillomavirus (HPV) test. VIA is an inspection of the surface of the uterine cervix after acid acetic (essentially vinegar) has been applied to it. The Pap smear and HPV tests are medical procedures in which a sample of cells is collected from a woman's cervix and spread on a microscope slide. The cells are examined under a microscope after staining with Papanicolaou dye. This method is important in differential diagnosis of malignant, benign, precancerous and inflammatory lesions.

## STEP 2: Physical measurements

Body weight, height, waist circumference, hip circumference, blood pressure, and heart rate were measured in all survey participants, excluding pregnant women.

Body weight and height was measured with the electronic Growth Management Scale. This is a device suitable for survey purposes that is used to measure a combination of factors (body scale with height gauge) with laser. It measures body weight and height, and calculates BMI.

BMI is a ratio of body weight in kilograms to the square of body height in metres and is calculated according to Formula 2.

### Formula (2) Body mass index (BMI) calculation

$$\text{BMI} = \text{Body weight (kg)} / \text{Body height (m}^2\text{)}.$$

A BMI  $\geq 25$  and  $<30$  indicates that a person is overweight, while a BMI  $\geq 30$  indicates that a person is obese.

Waist and hip circumferences were measured by MioTape, a non-stretch tape with millimeter precision. Waist circumference was measured by placing a tape measure

around the abdomen at the midpoint between the lower margin of the last palpable rib and the top of iliac crest (hip bone). Hip circumference was measured by placing a tape measure around the bare abdomen at the maximum circumference over the buttocks. The waist–hip ratio (WHR) was computed using measurements of waist and hip circumferences among all respondents, excluding pregnant women. The WHO reference cut-off for WHRs was used to define obesity at above 0.90 for males and above 0.86 for females.

Blood pressure and heart rate measurements were taken three times on the right arm of the survey participants in a sitting position, using a mercury type of sphygmomanometers and stethoscopes with a universal cuff. The mean of three measurements was taken for analysis. The measurements were taken after the participant had rested for 15 minutes, and each with three minutes of rest between measurements.

Percentage of raised blood pressure was defined as:

- systolic blood pressure (SBP)  $\geq 140$  mmHg and/or diastolic blood pressure (DBP)  $\geq 90$  mmHg, or currently taking medication for raised blood pressure.

The percentage of respondents with treated and/or controlled raised blood pressure among those with raised blood pressure (SBP  $\geq 140$  and or DBP  $\geq 90$  mmHg) or currently taking medication for raised blood pressure was categorized as follows:

- % taking medication and SBP  $< 140$  mmHg and DBP  $< 90$  mmHg
- % taking medication and SBP  $\geq 140$  mmHg and/or DBP  $\geq 90$  mmHg
- % not taking medication and SBP  $\geq 140$  mmHg and/or DBP  $\geq 90$  mmHg

### **STEP 3: Laboratory analysis**

The Biochemistry Laboratory of Kuwait Cancer Control Center was chosen to be the main Laboratory for the Eastern Mediterranean Approach for the Control of Non-Communicable Diseases (EMAN) 2014 survey. Before sample collection, instructions were explained to participants and phlebotomists. In summary, venous blood samples were collected for lipid profile and fasting glucose after a 12-hour fast (no food or drink, except water) in serum/plasma separator and Sodium fluoride vacutainer tubes. For HbA1c, a whole blood was collected in EDTA tube. All samples were analyzed within 6 hours of collection using an Autoanalyzer Architect after an acceptable internal quality control. Of note, The Biochemistry Laboratory is part of an External Quality Control Program (RIQAS).

## Methodology:

Lipid profile: A lipid profile is a direct measure of three blood components: cholesterol (TC), triglycerides (TG), and high-density lipoproteins (HDL-Cholesterol). The lipid profile is used as part of a cardiac risk assessment to determine an individual's risk of heart disease and to help make decisions about what treatment may be best if there is borderline or high risk. The principle underlying method for lipid profile is an enzymatic assay. LDL-C level is calculated using Friedewald equation from the three directly measured lipids.

### Formula (3): Low density lipoprotein (LDL-C) level calculation

$$\text{LDL-C} = \text{TC} - \text{HDL-C} - (\text{TG}/2.2)$$

This calculation is valid only when Triglyceride is < 4.5 mmol/L and patients are fasting, because eating increases Triglyceride levels.

**Glucose:** Glucose is measured by hexokinase enzymatic methods. Blood glucose determination is the most frequently performed clinical chemistry test, used as an aid in the diagnosis and treatment of diabetes. Laboratory results were assessed and categorized according to the definition shown in the table (1)

**HbA1c:** A sandwich immunoassay is the method of choice for the determination of percent hemoglobin A1c (% HbA1c) in human whole blood. HbA1c is a form of hemoglobin that is measured primarily to identify the average plasma glucose concentration over the past 3 months. It has been firmly established as an index of long-term blood glucose concentration and as a measure of risk for development of microvascular complications in patients with diabetes mellitus. In 2009, an International Expert Committee advised that a value of more than 6.5% of HbA1c could be used for the diagnosis of diabetes mellitus .

**Table (1): Biochemical indicators**

Biochemical indicators	Normal	At Risk	Increased
Glucose mmol/L	<5.6	≥5.6 & <6.1	≥6.1 or using glucose lowering medications
Cholesterol mmol/L	<5	≥5.0 & <6.1	≥6.2 or using cholesterol lowering medications
HDL-Cholesterol mmol/L	Male >1.03 Female >1.29		

## **CVD Risk**

A 10-year CVD risk of  $\geq 30\%$  is defined according to age, sex, blood pressure, smoking status (current smokers or those who quit smoking less than one year before the assessment), total cholesterol, and diabetes (previously diagnosed or a fasting plasma glucose concentration  $>7.0$  mmol/L).

In this report, the percentage of respondents aged 40-69 years with a 10-year-CVD Risk  $\geq 30\%$  or with existing CVD, was calculated according to WHO/ISH risk prediction chart for EMR B of WHO/ISH risk prediction charts for 14 WHO epidemiological sub-regions:

[http://ish-world.com/downloads/activities/colour\\_charts\\_24\\_Aug\\_07.pdf](http://ish-world.com/downloads/activities/colour_charts_24_Aug_07.pdf)

## **Data entry and cleaning**

The survey data were collected entirely using PDAs. Data from 51 PDAs used by the data collection teams were downloaded into a database, completing the data entry process. The data were converted into Microsoft Excel® format. Each survey respondent had a unique identifier comprised governorate, serial number within governorate besides the individual's civil ID number. Next, the survey data were compiled into a single file, and the accuracy of recording respondents' age and sex, among other variables, was established within a week using range and logic checking functions. This phase of data cleaning was carried out in headquarter, Geneva during the visit of Kuwaiti team with Dr. Savin.

## **Weighting of data**

Because the data comprised a sample of the target population, it was necessary to weight the data. Thus, sample weighting and adjustments were carried out to correct differences in the age, sex distribution of the sample vs. the target population and probabilities of selection. The sample weight for each case in the survey sample accounts for: 1) the probability of selection with the target population, 2) non-response, and 3) the age and sex distribution of the target population. The product of the sample weight and the population adjustment weight was used in all weighted analysis.

## **Data analysis**

Statistical analysis of the survey data was performed by a statistical analysis team of the Kuwait Ministry of Health in collaboration with WHO technical office. Data analysis was performed using EpiInfo version 3.5.4, using appropriate methods for the sample design of the survey. Some new EpiInfo syntax programs were added related particularly to LDL, CVD Risk, and optional questions such as tobacco policy and expanded questions of diet.

The **prevalence** and **measures of central tendency** of NCD risk factors were estimated. Outcome measures (prevalence and mean variance) and differences between groups (age, sex and urban/rural groups) were calculated with a 95% CI. Margins of error in prevalence and in arithmetic mean values are represented by numeric values for the lower and upper limits of a 95% CI as well as inter-quartile range for the median values.

Results of the survey on the prevalence of NCD risk factors, and the measures of central tendency can be considered representative for the target population, since they were adjusted using population and sample weights.



## 2.11. RESPONSE RATE

The planned sample of the study was 4391 participants. The results showed a high response rate in the first and the second steps (89.2%). Women were more likely to participate than men (95.8% compared with 80.0%). The least to share in the survey were those in the youngest age group 18-29 years (79.0%) while those aged 45-59 years had the highest response rate (98.4%).

**Table (2): Response rates of the three STEPS, by age group and sex**

Age group (years) and sex	Population	Eligible	S1 & S2 Respondents		S3 Respondents	
	N	n	n1 & n2	%	n3	%
<b>Men</b>						
18-29	137,627	770	525	68.2	342	44.4
30-44	110,666	605	507	83.8	364	60.2
45-59	63,757	360	347	96.4	241	66.9
60-69	17,790	87	79	90.8	49	56.3
<b>18-69</b>	<b>329,840</b>	<b>1822</b>	<b>1458</b>	<b>80.0</b>	<b>996</b>	<b>54.7</b>
<b>Women</b>						
18-29	135,041	884	781	88.3	482	54.5
30-44	120,986	1017	1014	99.7	685	67.4
45-59	77,361	532	531	99.8	386	72.6
60-69	25,555	136	134	98.5	99	72.8
<b>18-69</b>	<b>358,943</b>	<b>2569</b>	<b>2460</b>	<b>95.8</b>	<b>1652</b>	<b>64.3</b>
<b>Both Sexes</b>						
18-29	272,668	1654	1306	79.0	824	49.8
30-44	231,652	1622	1521	93.8	1049	64.7
45-59	141,118	892	878	98.4	627	70.3
60-69	43,345	223	213	95.5	148	66.4
<b>18-69</b>	<b>688,783</b>	<b>4391</b>	<b>3918</b>	<b>89.2</b>	<b>2648</b>	<b>60.3</b>

The response rate for the third step dropped to 60.3% (64.3% for women and 54.7% for men). The lowest response rate for step three was that of the age group 18-29 years (49.8%) and the highest rate was that of the age group 45-59 years (70.3%).



# RESULTS

### 3. RESULTS

Results will be demonstrated in the following sections and sub-sections:

#### **Section 1 (Step 1):**

##### **Sub-section A: Socio-demographic characteristics**

- Age and sex
- Education
- Governorate of residence
- Marital status
- Occupation
- Family income

##### **Sub-section B: Behavioral measures:**

- Tobacco use
- Alcohol consumption
- Dietary pattern
- Physical activity

##### **Sub-section C: Clinical history**

- Present history of hypertension
- Present history of diabetes
- Present history of hypercholesterolemia
- Present history of cardiovascular disease
- Present history of lifestyle advice
- Present history of cervical cancer screening

#### **Section 2 (Step 2): Physical measurements**

- Blood pressure
- Heart rate
- Height, weight, and body mass index (BMI)
- Prevalence of overweight and obesity
- Waist and hip circumference

#### **Section 3 (Step 3): Biochemical measurements**

- Fasting blood glucose
- Prevalence of diabetes (including survey diagnosed)
- Glycosylated hemoglobin
- Total blood cholesterol
- High density lipoprotein cholesterol (HDL-C)
- Low density lipoprotein cholesterol (LDL-C)
- Triglycerides (TG)

#### **Section 4: Risk factors**

- Cardiovascular disease (CVD) risk
- Combined risk factors

# **STEP 1**

## **A) SOCIO-DEMOGRAPHIC CHARACTERISTICS**

### 3.1. Section (1): Step 1

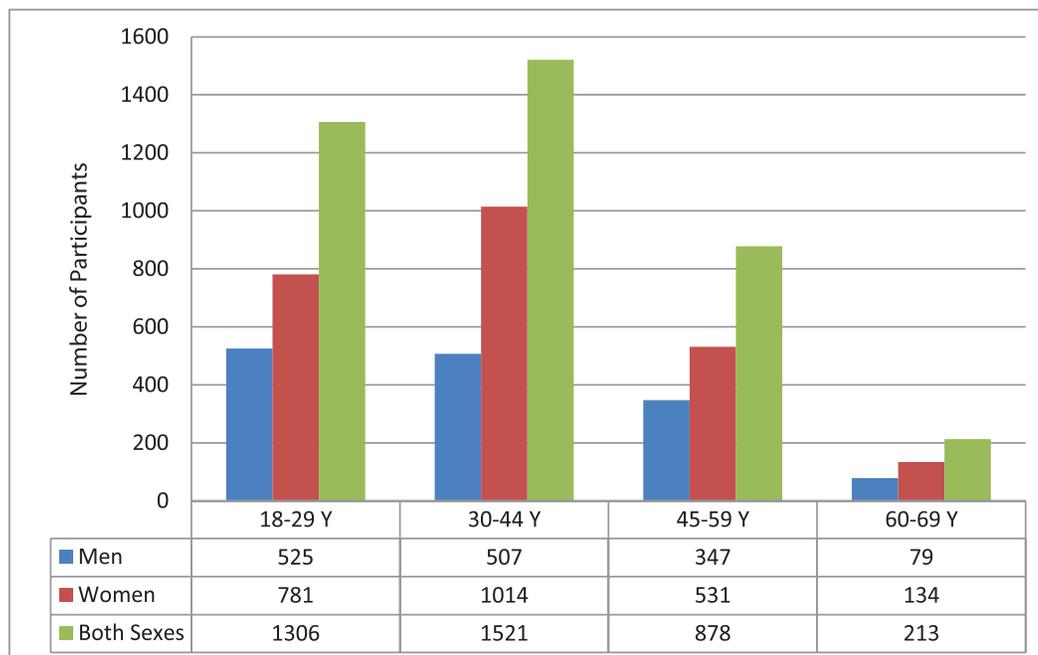
#### 3.1.1. Sub-Section (1): Socio-demographic characteristics

##### 3.1.1.1. Age and sex

**Table (3)** and **figure(1)** show age groups and sex of the sample. The highest proportion was noticed for the age group 30-44 years (38.8%) followed by those aged 18-29 years (33.3%), then those of the age group 45-59 years (22.4%). The age group 60-69 years constituted the lowest proportion (5.4%). Women (62.8%) outnumbered men (37.2%), with a female to male ratio of 1.7:1. The highest age group presented among women was in those aged 30-44 years, while that of men was in those aged 18-29 years (36.0%).

**Table (3): Percentage distribution of the survey sample, by age group and sex**

Age group (years)	Men		Women		Both Sexes	
	n	%	n	%	n	%
18-29	525	36.0	781	31.7	1306	33.3
30-44	507	34.8	1014	41.3	1521	38.9
45-59	347	23.8	531	21.6	878	22.4
60-69	79	5.4	134	5.4	213	5.4
<b>18-69</b>	<b>1458</b>	<b>100.0</b>	<b>2460</b>	<b>100.0</b>	<b>3918</b>	<b>100.0</b>



**Figure (1): Distribution of the survey sample, by age group and sex**

### 3.1.1.2. Education

**Table (4)** shows the mean number of years of education of the participants. The overall mean number of years of education was 13.8 years. Men had a higher mean number of years of education than that of women (14.2 vs. 13.5 years). The eldest participating group (60-69 years) had the lowest mean of years of education (9.1 years), with a mean of 11.8 years of education for men and 7.4 years for women. Generally, women tended to have a slightly higher mean of education years up to the age of 30 years while men had apparently higher mean years of education above this age.

**Table (4): Mean number of years of education of participants, by age group and sex**

Age group (years)	Men		Women		Both Sexes	
	n	Mean	n	Mean	n	Mean
18-29	524	14.3	777	14.6	1301	14.5
30-44	505	14.5	1005	14.3	1510	14.4
45-59	346	14.3	524	11.9	870	12.9
60-69	78	11.8	133	7.4	211	9.1
<b>18-69</b>	<b>1453</b>	<b>14.2</b>	<b>2439</b>	<b>13.5</b>	<b>3892</b>	<b>13.8</b>

**Table (5)** shows the highest level of education achieved by the survey participants. Just more than a third of the studied sample (35.7%) had completed their college/university level, while more than a quarter (27.5%) had a higher level of education. The majority (96.7%) of the respondents held at least an educational certificate while the rest (3.3%) either had no formal school teaching (2.4%) or just only spent some years in the primary school (0.9%). Less than a fifth (19.3%) completed their high school education while only 12.1% held an intermediate school certificate. Women tended to be less educated than men, where 4.7% of them did not hold any educational certificate compared with 0.7% of men. Those holding a primary or intermediate school certificate constituted 16.9% of men and 12.7% of women. Women tended to be more educated at college/university level than men, where 41.4% of them hold college/university educational certificates compared with 26.0% of men.

**Table (5): Highest level of education achieved by participants, according to age group and sex**

Age group (years) and sex	n	No formal schooling	Less than primary	Primary	Intermediate	Secondary (High school)	College/ University	Post graduate degree
<b>Men</b>								
18-29	514	0.2	0.2	0.2	10.7	30.2	28.0	30.5
30-44	463	0.2	0.0	0.6	17.5	21.2	25.7	34.8
45-59	317	0.6	0.9	1.3	17.4	22.4	25.2	32.2
60-69	73	0.0	2.7	17.8	27.4	21.9	16.4	13.7
<b>18-69</b>	<b>1367</b>	<b>0.3</b>	<b>0.4</b>	<b>1.5</b>	<b>15.4</b>	<b>24.9</b>	<b>26.0</b>	<b>31.5</b>
<b>Women</b>								
18-29	763	0.4	0.1	1.0	4.2	19.9	45.0	29.4
30-44	959	0.7	0.4	1.0	9.7	10.7	49.8	27.5
45-59	516	7.0	2.5	4.3	17.6	22.3	27.1	19.2
60-69	127	30.7	6.3	15.0	19.7	7.9	13.4	7.1
<b>18-69</b>	<b>2365</b>	<b>3.6</b>	<b>1.1</b>	<b>2.5</b>	<b>10.2</b>	<b>16.1</b>	<b>41.4</b>	<b>25.2</b>
<b>Both Sexes</b>								
18-29	1277	0.3	0.2	0.7	6.8	24.0	38.1	29.8
30-44	1422	0.6	0.3	0.9	12.2	14.1	42.0	29.9
45-59	833	4.6	1.9	3.1	17.5	22.3	26.4	24.1
60-69	200	19.5	5.0	16.0	22.5	13.0	14.5	9.5
<b>18-69</b>	<b>3732</b>	<b>2.4</b>	<b>0.9</b>	<b>2.1</b>	<b>12.1</b>	<b>19.3</b>	<b>35.7</b>	<b>27.5</b>

### 3.1.1.3. Governorate of residence

**Table (6)** shows percentage distribution of the studied respondents according to their governorate of residence, by age group and sex. The highest percentage was observed as regards the Capital (23.3%), followed by Hawally (21.7%), then Ahmadi (17.3%), Farwaniya (16.8%) then Jahra (12.7%) and lastly Mubarak AlKabeer (8.1%). Men were more represented in Hawally, Jahra and Farwaniya, while women were more represented in Capital, Ahmadi and Mubarak AlKabeer governorates.

**Table (6): Percentage distribution of respondents according to governorate of residence, by age group and sex**

Age group (years) and sex	n	Capital	Hawally	Ahmadi	Jahra	Farwaniya	Mubarak
<b>Men</b>							
18-29	525	20.6	24.6	10.1	15.6	18.9	10.3
30-44	507	16.2	26.0	14.2	16.0	23.7	3.9
45-59	347	30.0	25.9	11.5	8.4	16.4	7.8
60-69	79	34.2	22.8	11.4	11.4	17.7	2.5
<b>18-69</b>	<b>1458</b>	<b>22.0</b>	<b>25.3</b>	<b>11.9</b>	<b>13.8</b>	<b>19.9</b>	<b>7.1</b>
<b>Women</b>							
18-29	781	25.5	19.5	17.4	11.0	16.9	9.7
30-44	1014	21.2	20.5	23.9	11.9	14.0	8.5
45-59	531	26.6	18.1	20.3	12.1	13.4	9.6
60-69	134	26.9	20.1	13.4	20.1	17.2	2.2
<b>18-69</b>	<b>2460</b>	<b>24.0</b>	<b>19.6</b>	<b>20.5</b>	<b>12.1</b>	<b>15.0</b>	<b>8.8</b>
<b>Both Sexes</b>							
18-29	1306	23.5	21.5	14.5	12.9	17.7	10.0
30-44	1521	19.5	22.4	20.6	13.3	17.2	7.0
45-59	878	27.9	21.2	16.9	10.6	14.6	8.9
60-69	213	29.6	21.1	12.7	16.9	17.4	2.3
<b>18-69</b>	<b>3918</b>	<b>23.3</b>	<b>21.7</b>	<b>17.3</b>	<b>12.7</b>	<b>16.8</b>	<b>8.1</b>

### 3.1.1.4. Marital status

**Table (7)** shows distribution of the studied respondents according to marital status, sex and age group. The highest proportions of the respondents were married (69.2%), followed by single (22.8%), while both divorced and widowed were equally represented (3.1% each). The percentage of married men was higher than that of women (72.4% compared with 67.3%) and the reverse was observed for the divorced respondents (1.2% compared with 4.2%). The proportions of single persons decreased with age while those of the separated and widowed increased with age.

**Table (7): Percentage distribution of participants by marital status, age group and sex**

Age group (years) and sex	n	Never married	Currently married	Separated	Divorced	Widowed
<b>Men</b>						
18-29	525	58.3	39.2	1.0	1.5	0.0
30-44	507	7.5	89.7	1.4	1.4	0.0
45-59	347	1.7	94.2	2.0	0.6	1.4
60-69	79	0.0	86.1	2.5	0.0	11.4
<b>18-69</b>	<b>1458</b>	<b>24.0</b>	<b>72.4</b>	<b>1.4</b>	<b>1.2</b>	<b>1.0</b>
<b>Women</b>						
18-29	781	49.0	46.9	1.0	2.6	0.5
30-44	1012	12.3	79.6	2.4	4.7	1.0
45-59	531	5.6	77.4	2.4	6.4	8.1
60-69	134	3.7	53.0	3.7	0.7	38.8
<b>18-69</b>	<b>2458</b>	<b>22.1</b>	<b>67.3</b>	<b>2.0</b>	<b>4.2</b>	<b>4.4</b>
<b>Both Sexes</b>						
18-29	1306	52.8	43.8	1.0	2.1	0.3
30-44	1519	10.7	83.0	2.0	3.6	0.7
45-59	878	4.1	84.1	2.3	4.1	5.5
60-69	213	2.3	65.3	3.3	0.5	28.6
<b>18-69</b>	<b>3916</b>	<b>22.8</b>	<b>69.2</b>	<b>1.8</b>	<b>3.1</b>	<b>3.1</b>

### 3.1.1.5. Occupation

**Table (8)** shows the percentages of participants in paid employment and those who are unpaid. More than two thirds of the total study sample (69.9%) were government employees, followed by those engaged in unpaid work (26.0%). Non-government employees (3.4%) and self-employed subjects (0.7%) were less represented. There were higher percentages of men who were government and non-government employees as well as self-employed (70.4%, 5.4% and 1.1% respectively) than those of women (69.6%, 2.2% and 0.5% respectively). On the contrary, women were more engaged in unpaid work than were men (27.7% compared with 23.1%).

**Table (8): Percentage distribution of participants according to employment status, by age group and sex**

Age Group (years) and sex	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
<b>Men</b>					
18-29	523	65.6	5.5	0.4	28.5
30-44	507	90.1	5.5	0.6	3.7
45-59	347	61.4	4.3	1.4	32.9
60-69	79	15.2	8.9	7.6	68.4
<b>18-69</b>	<b>1456</b>	<b>70.4</b>	<b>5.4</b>	<b>1.1</b>	<b>23.1</b>
<b>Women</b>					
18-29	781	71.1	2.8	0.3	25.9
30-44	1013	87.2	2.1	0.2	10.6
45-59	531	47.8	1.9	1.1	49.2
60-69	134	14.9	0.0	1.5	83.6
<b>18-69</b>	<b>2459</b>	<b>69.6</b>	<b>2.2</b>	<b>0.5</b>	<b>27.7</b>
<b>Both Sexes</b>					
18-29	1304	68.9	3.9	0.3	26.9
30-44	1520	88.2	3.2	0.3	8.3
45-59	878	53.2	2.8	1.3	42.7
60-69	213	15.0	3.3	3.8	77.9
<b>18-69</b>	<b>3915</b>	<b>69.9</b>	<b>3.4</b>	<b>0.7</b>	<b>26.0</b>

**Table (9)** shows distribution of participants who were engaged in unpaid work according to the type of work and age groups. About one quarter (26.0%) had unpaid work. Out of those 36.2% were home-makers while 30.7% were retired. Students constituted 27.9% while unemployed formed 5.0%. Most of the latter were able to work. Retired, students, unemployed whether able or unable to work were more likely encountered among men (53.6%, 39.3%, 6.0% and 0.6% respectively) than women (19.5%, 22.3%, 4.1% and 0.1% respectively).

**Table (9): Percentage distribution of participants according to engagement in unpaid work and unemployment, by age group and sex**

Age Group (years) and sex	n	Non-paid	Student	Home Maker	Retired	Unemployed	
						Able to work	Not able to work
<b>Men</b>							
18-29	149	0.0	87.2	0.0	1.3	10.1	1.3
30-44	19	0.0	10.5	5.3	63.2	21.1	0.0
45-59	114	0.0	0.0	0.9	99.1	0.0	0.0
60-69	54	0.0	0.0	0.0	98.1	1.9	0.0
<b>18-69</b>	<b>336</b>	<b>0.0</b>	<b>39.3</b>	<b>0.6</b>	<b>53.6</b>	<b>6.0</b>	<b>0.6</b>
<b>Women</b>							
18-29	202	0.0	72.3	13.9	2.5	10.9	0.5
30-44	107	0.0	5.6	75.7	13.1	5.6	0.0
45-59	261	0.0	0.0	67.0	33.0	0.0	0.0
60-69	112	0.9	0.0	74.1	25.0	0.0	0.0
<b>18-69</b>	<b>682</b>	<b>0.1</b>	<b>22.3</b>	<b>53.8</b>	<b>19.5</b>	<b>4.1</b>	<b>0.1</b>
<b>Both Sexes</b>							
18-29	351	0.0	78.6	8.0	2.0	10.5	0.9
30-44	126	0.0	6.3	65.1	20.6	7.9	0.0
45-59	375	0.0	0.0	46.9	53.1	0.0	0.0
60-69	166	0.6	0.0	50.0	48.8	0.6	0.0
<b>18-69</b>	<b>1018</b>	<b>0.1</b>	<b>27.9</b>	<b>36.2</b>	<b>30.7</b>	<b>4.7</b>	<b>0.3</b>

### 3.1.1.6. Family Income

The mean annual per capita income was 9450.5 KD and the median value was 7260 KD with IQR (4320-12000) KD. **Table (10)** shows monthly reported household earnings of participants in KD. Just more than a third of the study sample (33.7%) had monthly reported household earnings of 1500-1999 KD. The least proportion (5.6%) of the participants reported 500-749 KD monthly household income. Those reported earning of 750 to less than 1000 KD represented 8.4%. Nearly quarter reported earning of 1000 to less than 1500 KD and 2000 or more KD monthly (23.8% and 28.5% respectively).

**Table (10): Percentage distribution of participants according to monthly reported household earnings of participants in KD, by age group and sex**

Age Group (years) and sex	n	Household earning in KD				
		500-749	750-999	1000-1499	1500-1999	2000 KD & over
<b>Men</b>						
18-29	53	7.5	1.9	17.0	34.0	39.6
30-44	52	1.9	5.8	28.8	40.4	23.1
45-59	22	4.5	9.1	9.1	40.9	36.4
60-69	8	0.0	0.0	50.0	50.0	0.0
<b>18-69</b>	<b>135</b>	<b>4.4</b>	<b>4.4</b>	<b>22.2</b>	<b>38.5</b>	<b>30.4</b>
<b>Women</b>						
18-29	112	5.4	11.6	25.9	30.4	26.8
30-44	166	5.4	7.2	25.3	30.7	31.3
45-59	60	10.1	10.1	23.2	34.8	21.7
60-69	17	0.0	23.5	11.8	41.2	23.5
<b>18-69</b>	<b>364</b>	<b>6.0</b>	<b>9.9</b>	<b>24.5</b>	<b>31.9</b>	<b>27.7</b>
<b>Both Sexes</b>						
18-29	165	6.1	8.5	23.0	31.5	30.9
30-44	218	4.6	6.9	26.1	33.0	29.4
45-59	91	8.8	9.9	19.8	36.3	25.3
60-69	25	0.0	16.0	24.0	44.0	16.0
<b>18-69</b>	<b>499</b>	<b>5.6</b>	<b>8.4</b>	<b>23.8</b>	<b>33.7</b>	<b>28.5</b>



## **STEP 1**

### **B) Behavioral Measures**

### 3.1.2. Sub-Section (2): Behavioural measures

#### 3.1.2.1. Tobacco use:

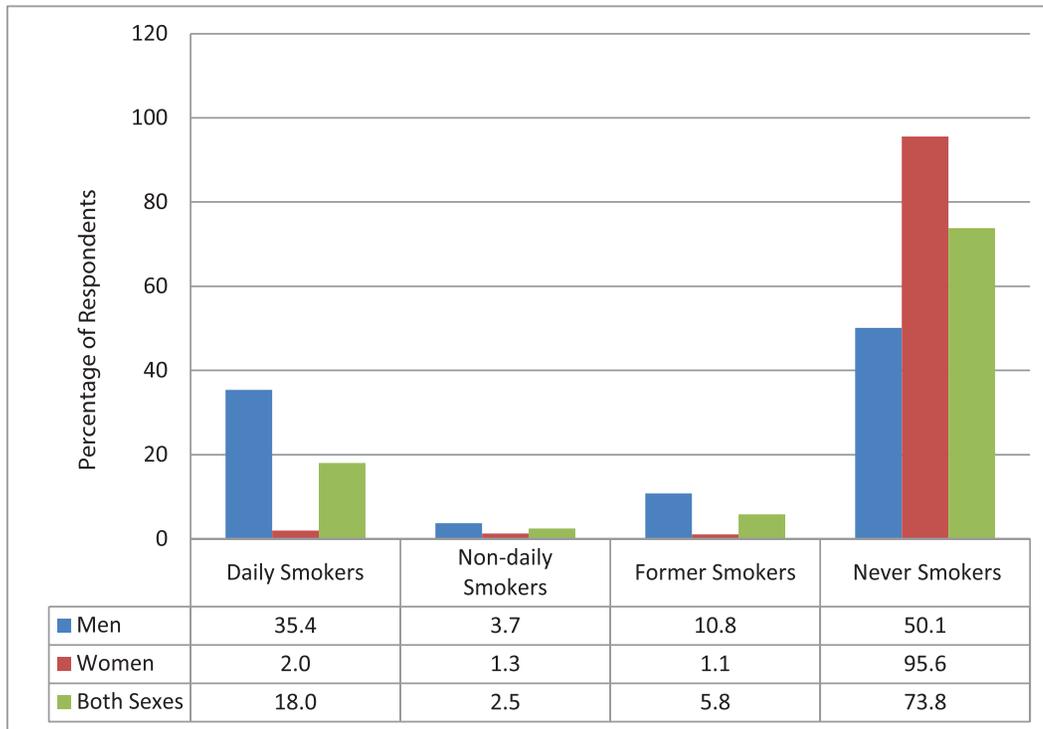
##### 3.1.2.1.1. Current smoking

In order to assess the prevalence of smoking habits in Kuwait, respondents were asked about their current and past status of smoking. Results showed that the overall prevalence of current smoking was (20.5%). **Table (11)** shows percentage distribution of the respondents according to smoking status. The proportion of smoking among men was nearly twelve times that of women (39.2 vs. 3.3%). Men had higher proportions of smoking than women in all age groups. Regarding age specific smoking rate, it is noticed that the highest rate was among 30-44 years old (23.0%) followed by 18-29 years old subjects (22.3%). The overall prevalence of daily smoking was 18.0%, being substantially higher among men (35.4%) when compared with women (2.0%). There was a decreasing trend of the prevalence rate of daily smoking as the age advances after age of 30 years among the whole sample, particularly among men.

**Figure (2)** illustrates the percentage distribution of the respondents according to smoking status, by sex.

**Table (11): Percentage distribution of the respondents according to smoking status, by age groups and sex**

Age Group (years) and sex	n	Current smokers						Non-smokers			
		Daily		Non-daily		Total		% Former smoker		% Never smoker	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>											
18-29	525	37.5	33.4-41.7	3.6	2.0-5.2	41.1	36.9-45.4	5.3	3.4-7.3	53.5	49.3-57.8
30-44	507	39.8	35.6-44.1	4.5	2.7-6.3	44.4	40.1-48.7	10.1	7.4-12.7	45.6	41.2-49.9
45-59	347	28.5	23.8-33.3	2.6	0.9-4.3	31.1	26.3-36.0	19	14.9-23.2	49.9	44.6-55.1
60-69	79	16.5	8.3-24.6	3.8	0.0-8.0	20.3	11.4-29.1	27.8	18.0-37.7	51.9	40.9-62.9
<b>18-69</b>	<b>1458</b>	<b>35.4</b>	<b>32.9-37.9</b>	<b>3.7</b>	<b>2.8-4.7</b>	<b>39.2</b>	<b>36.6-41.7</b>	<b>10.8</b>	<b>9.2-12.3</b>	<b>50.1</b>	<b>47.5-52.6</b>
<b>Women</b>											
18-29	781	1.7	0.8-2.6	1.4	0.6-2.2	3.1	1.9-4.3	1.5	0.7-2.4	95.4	93.9-96.9
30-44	1013	2.4	1.4-3.3	1.1	0.4-1.7	3.5	2.3-4.6	0.8	0.2-1.3	95.8	94.5-97.0
45-59	531	2.4	1.1-3.8	1.9	0.7-3.0	4.3	2.6-6.1	1.1	0.2-2.0	94.5	92.6-96.5
60-69	134	0.7	0.0-2.2	0	0.0-0.0	0.7	0.0-2.2	0.7	0.0-2.2	98.5	96.5-100.0
<b>18-69</b>	<b>2459</b>	<b>2.0</b>	<b>1.5-2.6</b>	<b>1.3</b>	<b>0.8-1.8</b>	<b>3.3</b>	<b>2.6-4.0</b>	<b>1.1</b>	<b>0.7-1.6</b>	<b>95.6</b>	<b>94.7-96.4</b>
<b>Both Sexes</b>											
18-29	1306	19.8	17.4-22.1	2.5	1.6-3.4	22.3	19.8-24.7	3.5	2.4-4.5	74.3	71.7-76.8
30-44	1520	20.3	18.0-22.6	2.7	1.8-3.7	23.0	20.6-25.4	5.2	3.9-6.5	71.8	69.2-74.3
45-59	878	14.2	11.8-16.7	2.2	1.2-3.2	16.4	13.9-19.0	9.2	7.2-11.2	74.4	71.3-77.4
60-69	213	7.2	3.6-10.8	1.6	0.0-3.3	8.8	4.8-12.7	11.9	7.3-16.4	79.4	73.7-85.0
<b>18-69</b>	<b>3917</b>	<b>18.0</b>	<b>16.7-19.4</b>	<b>2.5</b>	<b>1.9-3.0</b>	<b>20.5</b>	<b>19.1-21.9</b>	<b>5.8</b>	<b>5.0-6.6</b>	<b>73.8</b>	<b>72.3-75.3</b>



**Figure (2): Percentage distribution of the respondents according to smoking status, by sex**

**Table (12)** shows the percentage of current smokers who smoke daily, by age group and sex. The majority (87.9%) of the current smokers were smoking daily. This was more evident among men than women (90.5% compared with 60.6%). No clear pattern could be demonstrated by age for either men or women.

**Table (12): Percentage of current smokers who smoke daily, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29	216	91.2	87.4-95.0	24	54.2	33.8-74.5	240	88.7	84.8-92.6
30-44	225	89.8	85.8-93.7	35	68.6	52.9-84.3	260	88.1	84.2-92.0
45-59	108	91.7	86.4-96.9	23	56.5	35.8-77.2	131	86.6	80.9-92.3
60-69	16	81.3	62.1-100.0	1	100.0	100.0-100.0	17	82.2	63.9-100.0
<b>18-69</b>	<b>565</b>	<b>90.5</b>	<b>88.0-92.9</b>	<b>83</b>	<b>60.6</b>	<b>49.7-71.5</b>	<b>648</b>	<b>87.9</b>	<b>85.5-90.4</b>

**Table (13)** shows mean age of initiation and duration, in years, of smoking among current daily smokers. The overall mean age at first smoking among current daily smokers was 17.1 years. Men started smoking at earlier ages than women (16.9 vs. 21.2 years), even when different age groups were considered.

Concerning the duration of smoking, the overall mean duration was 16.8 years. However, the mean duration of women was lower than that of men (15.1 vs. 16.9 years).

**Table (13): Mean age of initiation and duration, in years, of smoking among current daily smokers, by age group and sex**

Age Group (years) and sex	n	Mean age started smoking		Mean duration of smoking	
		Mean age	95% CI	Mean duration	95% CI
<b>Men</b>					
18-29	193	15.9	15.5-16.4	8.8	8.2-9.4
30-44	201	17.2	16.6-17.7	18.7	18.0-19.4
45-59	95	18.7	17.7-19.7	30.9	29.6-32.1
60-69	13	18.1	15.2-21.0	45.1	42.0-48.2
<b>18-69</b>	<b>502</b>	<b>16.9</b>	<b>16.5-17.2</b>	<b>16.9</b>	<b>16.0-17.7</b>
<b>Women</b>					
18-29	12	17.3	15.6-19.1	6.2	3.9-8.4
30-44	22	22.9	20.3-25.5	12.9	10.3-15.5
45-59	13	23.7	18.7-28.7	26.7	21.5-31.9
60-69	1	15.0	---	49.0	---
<b>18-69</b>	<b>48</b>	<b>21.2</b>	<b>19.2-23.2</b>	<b>15.7</b>	<b>12.0-19.3</b>
<b>Both Sexes</b>					
18-29	205	16.0	15.5-16.4	8.7	8.2-9.3
30-44	223	17.5	17.0-18.0	18.4	17.7-19.1
45-59	108	19.2	18.2-20.2	30.5	29.2-31.7
60-69	14	17.9	15.2-20.6	45.3	42.4-48.3
<b>18-69</b>	<b>550</b>	<b>17.1</b>	<b>16.8-17.5</b>	<b>16.8</b>	<b>15.9-17.7</b>

**Table (14)** shows the percentage of daily smokers and current smokers who use manufactured cigarettes, according to age group and sex. The overall proportion of use of manufactured cigarettes was 88.5% among the daily smokers. Daily smokers men tended to use manufactured cigarettes more than women (89.9% compared with 64.6%).

The overall proportion of use of manufactured cigarettes was 83.0% among the current smokers. Again, current smokers men tended to use manufactured cigarettes more than women (86.3% compared with 46.5%).

**Table (14): Percentage of daily smokers and current smokers who use manufactured cigarettes, according to age group and sex**

Age Group (years) and sex	Among daily smokers			Among current smokers		
	n	%	95% CI	n	%	95% CI
<b>Men</b>						
18-29	197	91.4	87.4-95.3	213	88.3	83.9-92.6
30-44	202	93.1	89.6-96.6	223	88.8	84.6-92.9
45-59	99	77.8	69.6-86.0	106	75.5	67.3-83.7
60-69	12	91.7	76.0-100.0	15	80.0	59.7-100.0
<b>18-69</b>	<b>510</b>	<b>89.9</b>	<b>87.3-92.5</b>	<b>557</b>	<b>86.3</b>	<b>83.4-89.1</b>
<b>Women</b>						
18-29	12	66.7	39.0-94.3	23	47.8	27.0-68.7
30-44	23	69.6	50.1-89.1	34	50.0	32.8-67.2
45-59	13	61.5	34.1-89.0	23	43.5	22.8-64.2
60-69	1	0.0	---	1	0.0	---
<b>18-69</b>	<b>49</b>	<b>64.6</b>	<b>50.4-78.7</b>	<b>81</b>	<b>46.5</b>	<b>35.3-57.8</b>
<b>Both Sexes</b>						
18-29	209	90.4	86.5-94.4	236	85.6	81.2-90.0
30-44	225	91.7	88.2-95.2	257	85.8	81.6-90.0
45-59	112	76.2	68.4-84.1	129	70.8	62.9-78.6
60-69	13	85.6	67.0-100.0	16	75.7	54.8-96.6
<b>18-69</b>	<b>559</b>	<b>88.5</b>	<b>85.9-91.1</b>	<b>638</b>	<b>83.0</b>	<b>80.1-85.8</b>

**Table (15)** shows mean amount of tobacco used by daily smokers according to type, and age group and sex. The overall mean number of manufactured cigarettes used by the daily smokers was 18.9 cigarettes/day, being higher among men than among women by 2.3 folds (19.5 vs. 8.4). The overall mean number of hand-rolled cigarettes used by the daily smokers was 0.5 cigarettes/day, being higher among men than among women by 5 folds (0.5 vs. 0.1). However, there was an descending trend of the mean number of hand-rolled cigarettes used as the age advances, particularly among men. The overall mean number of shisha units used was 0.4/day. Women used more shisha units than men (0.8 vs. 0.4 shisha unit/day). Regarding cigars, cheerots, and cigarillos the overall mean number was 0.4, being higher among men (0.4) than among women (0.1/day) with no pattern with age. Neither pipes nor other types of tobacco were used by women.

**Table (15): Mean amount of tobacco used by daily smokers by type, age group and sex**

Age Group (years) and sex	Manufactured cig.			Hand-rolled cig.			Pipes of tobacco			Cigars, cheerots, cigarillos			Shisha sessions			Other type of tobacco		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
<b>Men</b>																		
18-29	197	17.9	16.4-19.5	195	0.7	0.1-1.2	197	0.1	0.0-0.1	196	0.5	0.0-1.1	197	0.3	0.2-0.5	196	0	---
30-44	202	21.9	20.1-23.8	199	0.4	0.0-0.8	202	0.1	0.0-0.2	200	0.3	0.0-0.8	202	0.3	0.2-0.5	201	0.1	0.0-0.1
45-59	99	18.3	15.5-21.1	96	0.2	0.0-0.7	97	0.1	0.0-0.1	97	0.3	0.0-0.7	96	0.6	0.3-0.8	97	0.1	0.0-0.2
60-69	12	18.3	9.9-26.6	12	0.1	0.0-0.2	12	0.1	0.0-0.2	12	1.7	0.0-4.8	12	0.6	0.0-1.2	12	0	---
<b>18-69</b>	<b>510</b>	<b>19.5</b>	<b>18.4-20.6</b>	<b>502</b>	<b>0.5</b>	<b>0.2-0.8</b>	<b>508</b>	<b>0.1</b>	<b>0.0-0.1</b>	<b>505</b>	<b>0.4</b>	<b>0.1-0.8</b>	<b>507</b>	<b>0.4</b>	<b>0.3-0.5</b>	<b>506</b>	<b>0</b>	<b>0.0-0.1</b>
<b>Women</b>																		
18-29	12	5.8	2.6-8.9	11	0.5	0.0-1.3	12	0	---	11	0.1	0.0-0.3	12	0.9	0.4-1.4	11	0	---
30-44	23	9	4.1-14.0	23	0	---	24	0	---	24	0.3	0.0-0.7	24	0.9	0.1-1.7	24	0	---
45-59	13	11.2	3.2-19.2	13	0	---	13	0	---	13	0	---	13	0.7	0.0-1.4	13	0	---
60-69	1	0	---	1	0	---	1	0	---	1	0	---	1	0	---	1	0	---
<b>18-69</b>	<b>49</b>	<b>8.4</b>	<b>5.2-11.6</b>	<b>48</b>	<b>0.1</b>	<b>0.0-0.4</b>	<b>50</b>	<b>0</b>	<b>---</b>	<b>49</b>	<b>0.1</b>	<b>0.0-0.3</b>	<b>50</b>	<b>0.8</b>	<b>0.4-1.2</b>	<b>49</b>	<b>0</b>	<b>---</b>
<b>Both Sexes</b>																		
18-29	209	17.5	15.9-19.0	206	0.7	0.1-1.2	209	0	0.0-0.1	207	0.5	0.0-1.1	209	0.3	0.2-0.5	207	0	---
30-44	225	21.2	19.4-23.0	222	0.3	0.0-0.8	226	0.1	0.0-0.2	224	0.3	0.0-0.7	226	0.4	0.2-0.5	225	0	0.0-0.1
45-59	112	17.6	15.0-20.3	109	0.2	0.0-0.6	110	0	0.0-0.1	110	0.3	0.0-0.6	109	0.6	0.4-0.8	110	0.1	0.0-0.2
60-69	13	17	8.9-25.1	13	0.1	0.0-0.2	13	0.1	0.0-0.2	13	1.6	0.0-4.5	13	0.5	0.0-1.1	13	0	---
<b>18-69</b>	<b>559</b>	<b>18.9</b>	<b>17.8-20.0</b>	<b>550</b>	<b>0.5</b>	<b>0.2-0.7</b>	<b>558</b>	<b>0.1</b>	<b>0.0-0.1</b>	<b>554</b>	<b>0.4</b>	<b>0.1-0.7</b>	<b>557</b>	<b>0.4</b>	<b>0.3-0.5</b>	<b>555</b>	<b>0</b>	<b>0.0-0.1</b>

**Table (16)** shows the percentage of current smokers using each type of tobacco product, according to age group and sex. Overall, 81.7% of the current smokers consumed manufactured cigarettes, 25.6% smoked Shisha, 3.7% smoked either cigars, cheerots, or cigarillos, 3.5% smoked hand-rolled cigarettes. Only 1.9% smoked pipes of tobacco or other types of tobacco products (0.6%). All the percentages were higher among men except for shisha, where more women (58.6%) compared with men (22.6%). No special age pattern was observed.

**Table (16): Percentage of current smokers using each type of tobacco product, according to age group and sex**

Age Group (years) and sex	n	Manuf. cigs.		Hand-rolled cigs.		Pipes of tobacco		Cigars, cheroots, cigarillos		Shisha		Others	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>													
18-29	216	87	82.5-91.5	4.6	1.8-7.4	2.3	0.3-4.3	3.7	1.2-6.2	19	13.7-24.2	0	---
30-44	225	88	83.7-92.3	2.7	0.6-4.8	1.3	0.0-2.8	3.1	0.8-5.4	22.7	17.2-28.2	0.9	0.0-2.1
45-59	108	74.1	65.8-82.4	1.9	0.0-4.4	1.9	0.0-4.4	5.6	1.2-9.9	28.7	20.1-37.3	1.9	0.0-4.4
60-69	16	75	53.7-96.3	12.5	0.0-28.8	6.3	0.0-18.1	6.3	0.0-18.1	43.8	19.4-68.1	0	---
<b>18-69</b>	<b>565</b>	<b>85.1</b>	<b>82.1-88.0</b>	<b>3.7</b>	<b>2.1-5.3</b>	<b>2</b>	<b>0.8-3.2</b>	<b>3.8</b>	<b>2.2-5.4</b>	<b>22.6</b>	<b>19.1-26.0</b>	<b>0.6</b>	<b>0.0-1.2</b>
<b>Women</b>													
18-29	24	45.8	25.5-66.2	0	---	4.2	0.0-12.3	4.2	0.0-12.3	75	57.3-92.7	0	---
30-44	35	48.6	31.7-65.5	0	---	2.9	0.0-8.5	2.9	0.0-8.5	57.1	40.4-73.9	0	---
45-59	23	43.5	22.8-64.2	4.3	0.0-12.9	0	---	0	---	43.5	22.8-64.2	0	---
60-69	1	0	---	0	---	0	---	0	---	0	---	0	---
<b>18-69</b>	<b>83</b>	<b>45.4</b>	<b>34.3-56.5</b>	<b>1.2</b>	<b>0.0-3.7</b>	<b>2.5</b>	<b>0.0-6.0</b>	<b>2.5</b>	<b>0.0-6.0</b>	<b>58.6</b>	<b>47.7-69.5</b>	<b>0</b>	<b>---</b>
<b>Both Sexes</b>													
18-29	240	84.2	79.7-88.8	4.6	1.9-7.3	2.2	0.3-4.0	3.7	1.3-6.2	22.8	17.6-28.1	0	---
30-44	260	84.9	80.7-89.2	2.5	0.5-4.4	1.2	0.0-2.6	3.1	1.0-5.2	25.4	20.1-30.7	0.8	0.0-2.0
45-59	131	69.7	61.8-77.5	1.6	0.0-3.8	2.2	0.0-4.7	4.8	1.0-8.5	30.8	22.9-38.8	1.6	0.0-3.8
60-69	17	71.2	49.8-92.7	11.9	0.0-27.4	5.9	0.0-17.2	5.9	0.0-17.2	41.6	18.0-65.1	0	---
<b>18-69</b>	<b>648</b>	<b>81.7</b>	<b>78.8-84.7</b>	<b>3.5</b>	<b>2.0-5.0</b>	<b>1.9</b>	<b>0.8-3.0</b>	<b>3.7</b>	<b>2.2-5.2</b>	<b>25.6</b>	<b>22.2-29.0</b>	<b>0.6</b>	<b>0.0-1.1</b>

**Table (17)** shows the percentage distribution of daily smokers according to the quantity of manufactured and hand-rolled cigarettes per day, by age and sex. Overall, just less than a half (47.7%) smoked between 15 and 24 manufactured and hand-rolled cigarettes per day, followed by 25 or more cigarettes per day (28.2%), then 10 to 14 cigarettes per day (13.8%). The same pattern was observed in relation to men. Among women, the highest percentage was observed in relation to 5 to 9 cigarettes per day (31%), followed by 15-24 cigarettes per day (22.6%), then less than 5 cigarettes per day (17.7%), then 10-14 cigarettes per day (16.4%) and lastly 25 or more cigarettes per day (12.4%).

**Table (17): Percentage distribution of daily smokers according to the quantity of manufactured and hand-rolled cigarettes per day, by age group and sex.**

Age Group (years) and sex	n	<5 cigarettes		5-9 cigarettes		10-14 cigarettes		15-24 cigarettes		≥ 25 cigarettes	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>											
18-29	181	5.5	2.2-8.9	5	1.8-8.2	13.8	8.8-18.9	55.2	48.0-62.5	20.4	14.5-26.3
30-44	186	2.2	0.1-4.2	4.3	1.4-7.2	15.1	9.9-20.2	41.9	34.8-49.1	36.6	29.6-43.5
45-59	74	2.7	0.0-6.4	5.4	0.2-10.6	6.8	1.0-12.5	50	38.6-61.4	35.1	24.2-46.1
60-69	11	9.1	0.0-26.1	9.1	0.0-26.1	27.3	0.9-53.7	27.3	0.9-53.7	27.3	0.9-53.7
<b>18-69</b>	<b>452</b>	<b>3.9</b>	<b>2.1-5.8</b>	<b>4.9</b>	<b>2.9-6.9</b>	<b>13.7</b>	<b>10.5-16.9</b>	<b>48.7</b>	<b>44.0-53.4</b>	<b>28.8</b>	<b>24.6-33.0</b>
<b>Women</b>											
18-29	7	28.6	0.0-64.0	28.6	0.0-64.0	28.6	0.0-64.0	14.3	0.0-41.7	0	---
30-44	16	6.3	0.0-18.8	43.8	18.0-69.5	18.8	0.0-39.0	18.8	0.0-39.0	12.5	0.0-29.7
45-59	8	25	0.0-56.8	12.5	0.0-36.8	0	---	37.5	2.0-73.0	25	0.0-56.8
60-69	0	0	---	0	---	0	---	0	---	0	---
<b>18-69</b>	<b>31</b>	<b>17.7</b>	<b>2.8-32.5</b>	<b>31</b>	<b>13.7-48.2</b>	<b>16.4</b>	<b>2.3-30.6</b>	<b>22.6</b>	<b>6.8-38.3</b>	<b>12.4</b>	<b>0.2-24.5</b>
<b>Both Sexes</b>											
18-29	188	6.1	2.7-9.5	5.6	2.3-8.8	14.2	9.2-19.2	54.2	47.1-61.4	19.9	14.2-25.7
30-44	202	2.3	0.3-4.4	6.1	2.9-9.2	15.2	10.2-20.2	40.9	34.0-47.8	35.5	28.8-42.2
45-59	82	4.5	0.1-8.8	6	0.9-11.1	6.2	0.9-11.5	49	38.1-59.9	34.3	24.0-44.7
60-69	11	9.1	0.0-26.1	9.1	0.0-26.1	27.3	0.9-53.7	27.3	0.9-53.7	27.3	0.9-53.7
<b>18-69</b>	<b>483</b>	<b>4.5</b>	<b>2.6-6.3</b>	<b>5.9</b>	<b>3.8-8.0</b>	<b>13.8</b>	<b>10.7-16.9</b>	<b>47.7</b>	<b>43.1-52.2</b>	<b>28.2</b>	<b>24.1-32.2</b>

### 3.1.2.1.2. Ex-smoking

**Table (18)** shows the percentage of respondents who are ex-daily smokers, and the mean duration, in years, since they quit smoking daily, by age group and sex. The overall proportion of ex-daily smoking was 5.5%. A higher percentage of men, who quit smoking, was observed, in comparison with women (10.9% vs. 0.6%) even for the different age groups. There was almost an increasing trend of proportion of ex-smoking as the age advances.

Concerning the duration since quitting daily smoking, it was found that the overall mean duration was 15.4 years, with sex difference of 2.5 folds in favour of men (16.2 years for men compared with 6.4 years for women). An increasing trend in the mean duration of quitting daily smoking was noticed as the age advances.

**Table (18): Percentage of respondents who are ex-daily smokers, and the mean duration, in years, since they quit smoking daily, by age group and sex**

Age Group (years)	Ex-daily smokers			Mean duration (years) since cessation		
	n	%	95% CI	n	Mean	95% CI
<b>Men</b>						
18-29	525	5.3	3.4-7.3	28	5.9	2.9-8.9
30-44	507	10.3	7.6-12.9	50	13.8	11.5-16.2
45-59	347	18.4	14.4-22.5	63	20.8	17.8-23.8
60-69	79	30.4	20.2-40.5	22	26.1	19.8-32.4
<b>18-69</b>	<b>1458</b>	<b>10.9</b>	<b>9.3-12.4</b>	<b>163</b>	<b>16.2</b>	<b>14.3-18.2</b>
<b>Women</b>						
18-29	781	0.6	0.1-1.2	9	4.4	1.0-7.9
30-44	1013	0.5	0.1-0.9	5	2.0	0.0-8.4
45-59	531	0.8	0.0-1.5	6	14.0	0.0-28.2
60-69	134	0.7	0.0-2.2	1	2.0	---
<b>18-69</b>	<b>2459</b>	<b>0.6</b>	<b>0.3-0.9</b>	<b>21</b>	<b>6.4</b>	<b>1.6-11.3</b>
<b>Both Sexes</b>						
18-29	1306	3.0	2.0-4.0	37	5.7	3.1-8.2
30-44	1520	5.2	3.9-6.5	55	13.2	10.9-15.5
45-59	878	8.7	6.8-10.7	69	20.3	17.4-23.3
60-69	213	12.9	8.2-17.6	23	25.2	18.9-31.5
<b>18-69</b>	<b>3917</b>	<b>5.5</b>	<b>4.7-6.3</b>	<b>184</b>	<b>15.4</b>	<b>13.5-17.3</b>

**Table (19)** shows the percentage of ever-daily smokers who are ex-daily smokers, according to age group and sex. The overall proportion of ex-daily smoking was 23.5% among ever daily smokers. No sex difference was observed (23.5% for men vs. 23.7% for women). However, there was an increasing trend of proportion of ex-smoking as the age advances.

**Table (19): Percentage of ever-daily smokers who are ex-daily smokers, according to age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29	225	12.4	8.1-16.8	18	27.8	6.5-49.0	243	13.2	9.0-17.5
30-44	254	20.5	15.5-25.4	29	17.2	3.1-31.4	283	20.3	15.5-25.0
45-59	163	39.3	31.7-46.8	17	23.5	2.8-44.2	180	38.1	30.9-45.2
60-69	37	64.9	49.4-80.3	2	50.0	0.0-100.0	39	64.2	49.1-79.3
<b>18-69</b>	<b>679</b>	<b>23.5</b>	<b>20.3-26.6</b>	<b>66</b>	<b>23.7</b>	<b>12.9-34.5</b>	<b>745</b>	<b>23.5</b>	<b>20.4-26.5</b>

### 3.1.2.1.3. Quitting smoking

**Table (20)** shows the percentage of current smokers who have tried to stop smoking and who have been advised by a doctor to stop smoking during the past 12 months prior to the survey, according to age group and sex. The overall proportion of those who have tried to stop smoking was 49.3% among current smokers. A higher percentage of men, who tried to quit smoking, was observed, in comparison with women (50.1% vs. 41.3%). Although there was no specific pattern when the groups were considered, more than half of respondents particularly men have tried to quit smoking.

Concerning those who have been advised by a doctor to quit smoking, the overall proportion was 53.0% among current smokers. Again, a higher percentage of men, who tried have been advised by doctor to quit smoking, was observed, in comparison with women (54.4% vs. 37.8%). There was no specific pattern when the groups were considered.

**Table (20): Percentage of current smokers who have tried to stop smoking and who have been advised by a doctor in the past 12 months to stop smoking, according to age group and sex**

Age Group (years) and sex	Tried to stop smoking			Advised by a doctor to stop smoking		
	n	%	95% CI	n	%	95% CI
<b>Men</b>						
18-29	216	55.6	48.9-62.2	208	54.3	47.5-61.1
30-44	225	45.8	39.2-52.3	221	50.2	43.6-56.8
45-59	108	47.2	37.8-56.7	105	61.0	51.6-70.3
60-69	16	37.5	13.7-61.3	14	78.6	57.0-100.0
<b>18-69</b>	<b>565</b>	<b>50.1</b>	<b>45.9-54.2</b>	<b>548</b>	<b>54.4</b>	<b>50.2-58.6</b>
<b>Women</b>						
18-29	24	37.5	17.7-57.3	23	30.4	11.2-49.6
30-44	35	37.1	20.8-53.5	35	37.1	20.8-53.5
45-59	23	47.8	27.0-68.7	22	50.0	28.7-71.3
60-69	1	100.0	---	1	0.0	---
<b>18-69</b>	<b>83</b>	<b>41.3</b>	<b>30.3-52.3</b>	<b>81</b>	<b>37.8</b>	<b>26.9-48.7</b>
<b>Both Sexes</b>						
18-29	240	54.3	48.0-60.7	231	52.7	46.2-59.2
30-44	260	45.1	39.0-51.3	256	49.2	43.0-55.4
45-59	131	47.3	38.7-55.9	127	59.4	50.8-68.0
60-69	17	40.6	17.3-64.0	15	74.1	52.0-96.2
<b>18-69</b>	<b>648</b>	<b>49.3</b>	<b>45.4-53.2</b>	<b>629</b>	<b>53.0</b>	<b>49.0-57.0</b>

### 3.1.2.1.4. Smokeless tobacco:

**Table (21)** shows the prevalence of current or ex-daily use of smokeless tobacco among all respondents, according to age group and sex. Only 0.5% of men used smokeless tobacco, such as snuff, chewing, and betel. None of women were using smokeless tobacco at the time of the survey. The overall prevalence of using smokeless tobacco was 0.2%, with an increasing prevalence with age except for those 60-69 years old group who had the highest prevalence (0.5%).

Only 0.7% of men were former daily smokeless tobacco users. None of women were ex-daily smokeless tobacco users. The overall prevalence of former daily smokeless tobacco users was 0.3%, without a specific pattern with age.

**Table (21): Prevalence of current or ex-daily use of smokeless tobacco among all respondents, according to age group and sex**

Age Group (years) and sex	n	Current users of smokeless tobacco		Ex-daily smokeless tobacco users	
		%	95% CI	%	95% CI
<b>Men</b>					
18-29	525	0.6	0.0-1.2	0.6	0.0-1.2
30-44	507	0.4	0.0-0.9	0.4	0.0-0.9
45-59	346	0.3	0.0-0.9	1.7	0.4-3.1
60-69	79	1.3	0.0-3.7	0.0	0.0-0.0
<b>18-69</b>	<b>1457</b>	<b>0.5</b>	<b>0.1-0.9</b>	<b>0.7</b>	<b>0.3-1.1</b>
<b>Women</b>					
18-29	781	0.0	---	0.0	---
30-44	1013	0.0	---	0.0	---
45-59	531	0.0	---	0.0	---
60-69	134	0.0	---	0.0	---
<b>18-69</b>	<b>2459</b>	<b>0.0</b>	<b>---</b>	<b>0.0</b>	<b>---</b>
<b>Both Sexes</b>					
18-29	1306	0.3	0.0-0.6	0.3	0.0-0.6
30-44	1520	0.2	0.0-0.5	0.2	0.0-0.5
45-59	877	0.1	0.0-0.4	0.8	0.2-1.4
60-69	213	0.5	0.0-1.5	0.0	0.0-0.0
<b>18-69</b>	<b>3916</b>	<b>0.2</b>	<b>0.1-0.4</b>	<b>0.3</b>	<b>0.1-0.5</b>

**Table (22)** shows percentage distribution of respondents according to smokeless tobacco use, by age group and sex. It was found that only 0.2% of men were daily smokeless tobacco users, while 0.3% were non-daily users. None of women were ex-daily smokeless tobacco users. The overall prevalence of daily and non-daily smokeless tobacco users was the same (0.1% each), without a specific pattern with age. The overall prevalence of past smokeless tobacco use was 0.6%, being higher among men in comparison with women (1.2% vs. 0.1%).

**Table (22): Percentage distribution of respondents according to smokeless tobacco use, by age group and sex**

Age Group (years) and sex	n	Current users				Non users			
		Daily		Non-daily		Past users		Never used	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>									
18-29	525	0.2	0.0-0.6	0.4	0.0-0.9	1.1	0.2-2.1	98.3	97.2-99.4
30-44	507	0.2	0.0-0.6	0.2	0.0-0.6	1.0	0.1-1.8	98.6	97.6-99.6
45-59	346	0.3	0.0-0.9	0.0	0.0-0.0	2.0	0.5-3.5	97.7	96.1-99.3
60-69	79	0.0	---	1.3	0.0-3.7	0.0	---	98.7	96.3-100.0
<b>18-69</b>	<b>1457</b>	<b>0.2</b>	<b>0.0-0.4</b>	<b>0.3</b>	<b>0.0-0.6</b>	<b>1.2</b>	<b>0.6-1.8</b>	<b>98.3</b>	<b>97.6-99.0</b>
<b>Women</b>									
18-29	781	0.0	---	0.0	---	0.1	0.0-0.4	99.9	99.6-100.0
30-44	1013	0.0	---	0.0	---	0.0	---	100	100.0-100.0
45-59	531	0.0	---	0.0	---	0.4	0.0-0.9	99.6	99.1-100.0
60-69	134	0.0	---	0.0	---	0.0	---	100	100.0-100.0
<b>18-69</b>	<b>2459</b>	<b>0</b>	<b>---</b>	<b>0</b>	<b>---</b>	<b>0.1</b>	<b>0.0-0.3</b>	<b>99.9</b>	<b>99.7-100.0</b>
<b>Both sexes</b>									
18-29	1306	0.1	0.0-0.3	0.2	0.0-0.5	0.6	0.2-1.1	99.1	98.5-99.6
30-44	1520	0.1	0.0-0.3	0.1	0.0-0.3	0.5	0.1-0.9	99.3	98.9-99.8
45-59	877	0.1	0.0-0.4	0.0	0.0-0.0	1.1	0.4-1.8	98.8	98.0-99.5
60-69	213	0.0	---	0.5	0.0-1.5	0.0	---	99.5	98.5-100.0
<b>18-69</b>	<b>3916</b>	<b>0.1</b>	<b>0.0-0.2</b>	<b>0.1</b>	<b>0.0-0.3</b>	<b>0.6</b>	<b>0.4-0.9</b>	<b>99.1</b>	<b>98.8-99.5</b>

### 3.1.2.1.5. Exposure to second-hand smoke

**Table (23)** shows the prevalence of exposure to second-hand smoke at home and in the workplace during the past 30 days prior to the survey, according age group and sex. The overall exposure to second-hand smoke in home, during the past 30 days prior to the survey, was 42.3%, being a little bit higher among women in comparison to men (43.7% vs. 40.8%). No pattern with age was observed.

The overall exposure to second-hand smoke in the workplace, during the past 30 days prior to the survey, was 39.6%, being significantly higher among men in comparison to women (62.5% vs. 17.9%). A decreasing pattern of the prevalence with the advance of age was noticed, particularly among men.

**Table (23): Prevalence of exposure to second-hand smoke at home and in the workplace during the past 30 days prior to the survey, according age group and sex**

Age Group (years) and sex	Exposed at home			Exposed in workplace		
	n	%	95% CI	n	%	95% CI
<b>Men</b>						
18-29	525	45.5	41.3-49.8	498	65.1	60.9-69.2
30-44	507	38.9	34.6-43.1	493	67.1	63.0-71.3
45-59	346	34.4	29.4-39.4	322	54.0	48.6-59.5
60-69	79	39.2	28.5-50.0	63	38.1	26.1-50.1
<b>18-69</b>	<b>1457</b>	<b>40.8</b>	<b>38.2-43.4</b>	<b>1376</b>	<b>62.5</b>	<b>59.9-65.0</b>
<b>Women</b>						
18-29	781	44.0	40.6-47.5	743	19.2	16.4-22.1
30-44	1013	42.8	39.8-45.9	973	18.5	16.1-20.9
45-59	531	43.9	39.7-48.1	454	16.1	12.7-19.5
60-69	134	44.8	36.4-53.2	93	10.8	4.5-17.1
<b>18-69</b>	<b>2459</b>	<b>43.7</b>	<b>41.7-45.6</b>	<b>2263</b>	<b>17.9</b>	<b>16.3-19.5</b>
<b>Both Sexes</b>						
18-29	1306	44.8	42.0-47.5	1241	42.3	39.5-45.2
30-44	1520	40.9	38.4-43.5	1466	41.9	39.2-44.6
45-59	877	39.6	36.3-42.9	776	34.0	30.6-37.4
60-69	213	42.5	35.8-49.2	156	22.9	16.2-29.6
<b>18-69</b>	<b>3916</b>	<b>42.3</b>	<b>40.7-43.9</b>	<b>3639</b>	<b>39.6</b>	<b>37.9-41.3</b>

### 3.1.2.1.6. Tobacco Policy:

**Table (24)** shows the percentage of respondents receiving any information about the dangers of smoking cigarettes or encouragement to quit smoking during the last month prior to the survey, according to age group and sex. The overall percentage of participants getting any information about the dangers of smoking cigarettes or encourages quitting, was the highest through newspaper and magazines (53.6%), followed by television (51.8%), then came the radio as a media (38.6%). In all conditions, men had higher percentages than those of women counterparts. There was a decreasing trend of percentages as the age advanced, particularly among men.

**Table (24): Percentage of respondents receiving any information about the dangers of smoking cigarettes or encouragement to quit smoking during the last month prior to the survey, according to age group and sex**

Media	Age group	Men			Women			Both Sexes		
		n	%	95% CI	n	%	95% CI	n	%	95% CI
Newspapers and magazines	18-29	504	57.1	52.8-61.5	725	51.4	47.8-55.1	1229	54.4	51.5-57.2
	30-44	492	52.8	48.4-57.3	942	55.1	51.9-58.3	1434	54.0	51.3-56.7
	45-59	343	51.9	46.6-57.2	475	54.3	49.8-58.8	818	53.2	49.7-56.6
	60-69	73	47.9	36.5-59.4	106	47.2	37.7-56.7	179	47.5	40.2-54.9
	<b>TOTAL</b>	<b>1412</b>	<b>54.2</b>	<b>51.6-56.8</b>	<b>2248</b>	<b>53.0</b>	<b>50.9-55.1</b>	<b>3660</b>	<b>53.6</b>	<b>51.9-55.3</b>
Television	18-29	503	58.6	54.3-63.0	725	51.6	47.9-55.2	1228	55.2	52.4-58.0
	30-44	493	52.5	48.1-56.9	934	49.9	46.7-53.1	1427	51.2	48.5-53.9
	45-59	341	46.6	41.3-51.9	478	50.0	45.5-54.5	819	48.4	45.0-51.8
	60-69	73	38.4	27.2-49.5	110	49.1	39.7-58.4	183	44.4	37.2-51.6
	<b>TOTAL</b>	<b>1410</b>	<b>53.2</b>	<b>50.5-55.8</b>	<b>2247</b>	<b>50.5</b>	<b>48.4-52.6</b>	<b>3657</b>	<b>51.8</b>	<b>50.1-53.5</b>
Radio	18-29	474	44.7	40.2-49.2	703	36.6	33.0-40.1	1177	40.7	37.8-43.6
	30-44	451	40.4	35.8-44.9	910	36.9	33.8-40.1	1361	38.6	35.8-41.3
	45-59	324	36.4	31.2-41.7	454	37.0	32.6-41.4	778	36.7	33.3-40.1
	60-69	69	30.4	19.6-41.3	99	31.3	22.2-40.5	168	30.9	23.9-37.9
	<b>TOTAL</b>	<b>1318</b>	<b>40.9</b>	<b>38.2-43.6</b>	<b>2166</b>	<b>36.5</b>	<b>34.4-38.5</b>	<b>3484</b>	<b>38.6</b>	<b>36.9-40.3</b>

**Table (25)** shows the percentage of participants noticing any advertisements or signs promoting cigarettes in stores where cigarettes are sold during the past 30 days prior to the survey according to age group and sex. The overall percentage of this indicator was 30.9%, being significantly higher among men when compared with women (39.1% vs. 22.7%).

**Table (25): Percentage of participants noticing any advertisements or signs promoting cigarettes in stores where cigarettes are sold during the past 30 days prior to the survey, according to age group and sex**

Age Group (years) and sex	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29	501	43.7	39.4-48.1	711	24.3	21.2-27.5	1212	34.3	31.6-37.1
30-44	489	38.2	33.9-42.6	921	23.9	21.1-26.6	1410	31.0	28.4-33.5
45-59	339	34.5	29.5-39.6	476	20.8	17.2-24.4	815	27.3	24.2-30.4
60-69	73	26.0	16.0-36.1	103	12.6	6.2-19.0	176	18.7	12.9-24.6
<b>18-69</b>	<b>1402</b>	<b>39.1</b>	<b>36.6-41.7</b>	<b>2211</b>	<b>22.7</b>	<b>20.9-24.5</b>	<b>3613</b>	<b>30.9</b>	<b>29.3-32.4</b>

**Table (26)** shows the percentage of participants noticing any type of cigarette promotion during the past 30 days prior to the survey, by age group and sex. The overall percentage of participants noticing any type of cigarette promotion during the past 30 days prior to the survey was the highest for “Free samples of cigarettes” (13.8%), followed by “Free gifts or special discount offers on other products when buying cigarettes” (12.4%), then “Clothing or other items with cigarette brand name or logo” (9.9%), “Cigarette at sale prices” (6.7%), “Coupons for cigarettes” (4.4%) and lastly “Cigarette promotions in the mail” (2.6%). In all conditions, men percentages were significantly higher than those of their women counterparts. There were a decreasing trend in relation to “Free samples of cigarettes” and “Free gifts or special discount offers on other products when buying cigarettes”, particularly among men.

**Table (26): Percentage of participants noticing any type of cigarette promotion during the past 30 days prior to the survey, by age group and sex**

Type of cigarette promotion	Age group	Men			Women			Both Sexes		
		n	%	95% CI	n	%	95% CI	n	%	95% CI
Free samples of cigarettes	18-29	476	29.0	24.9-33.1	653	4.3	2.7-5.8	1129	17.3	14.9-19.6
	30-44	465	24.1	20.2-28.0	838	3.5	2.2-4.7	1303	13.9	11.7-16.0
	45-59	325	17.8	13.7-22.0	439	1.6	0.4-2.8	764	9.4	7.3-11.6
	60-69	70	8.6	2.0-15.1	94	3.2	0.0-6.7	164	5.7	2.1-9.3
	<b>TOTAL</b>	<b>1336</b>	<b>24.1</b>	<b>21.7-26.4</b>	<b>2024</b>	<b>3.4</b>	<b>2.6-4.2</b>	<b>3360</b>	<b>13.8</b>	<b>12.5-15.1</b>
Cigarette at sale prices	18-29	471	13.2	10.1-16.2	637	2.8	1.5-4.1	1108	8.3	6.5-10.0
	30-44	456	10.7	7.9-13.6	830	2.7	1.6-3.7	1286	6.7	5.2-8.3
	45-59	321	8.1	5.1-11.1	437	0.2	0.0-0.7	758	4.0	2.5-5.5
	60-69	70	7.1	1.1-13.2	92	3.3	0.0-6.9	162	5.1	1.6-8.5
	<b>TOTAL</b>	<b>1318</b>	<b>11.0</b>	<b>9.3-12.8</b>	<b>1996</b>	<b>2.2</b>	<b>1.6-2.9</b>	<b>3314</b>	<b>6.7</b>	<b>5.7-7.6</b>
Coupons for cigarettes	18-29	473	9.1	6.5-11.7	640	0.8	0.1-1.5	1113	5.2	3.7-6.6
	30-44	459	7.8	5.4-10.3	826	1.5	0.6-2.3	1285	4.7	3.4-6.0
	45-59	322	5.3	2.8-7.7	434	0.0	---	756	2.6	1.4-3.7
	60-69	70	7.1	1.1-13.2	91	1.1	0.0-3.2	161	4.0	0.9-7.1
	<b>TOTAL</b>	<b>1324</b>	<b>7.8</b>	<b>6.3-9.3</b>	<b>1991</b>	<b>0.9</b>	<b>0.5-1.3</b>	<b>3315</b>	<b>4.4</b>	<b>3.6-5.2</b>
Free gifts or special discount offers on other products when buying cigarettes	18-29	475	25.1	21.2-29.0	641	3.1	1.8-4.5	1116	14.7	12.5-17.0
	30-44	463	23.1	19.3-27.0	825	2.5	1.5-3.6	1288	13.0	10.9-15.1
	45-59	323	17.0	12.9-21.1	432	1.4	0.3-2.5	755	9.0	6.8-11.1
	60-69	70	7.1	1.1-13.2	91	2.2	0.0-5.2	161	4.6	1.3-7.9
	<b>TOTAL</b>	<b>1331</b>	<b>21.9</b>	<b>19.6-24.1</b>	<b>1989</b>	<b>2.5</b>	<b>1.8-3.2</b>	<b>3320</b>	<b>12.4</b>	<b>11.1-13.6</b>
Clothing or other items with cigarette brand name or logo	18-29	477	16.1	12.8-19.4	644	6.8	4.9-8.8	1121	11.8	9.8-13.7
	30-44	459	15.0	11.8-18.3	832	4.9	3.5-6.4	1291	10.0	8.2-11.8
	45-59	320	10.9	7.5-14.4	437	2.7	1.2-4.3	757	6.7	4.8-8.5
	60-69	69	13.0	5.1-21.0	91	2.2	0.0-5.2	160	7.3	3.2-11.5
	<b>TOTAL</b>	<b>1325</b>	<b>14.6</b>	<b>12.7-16.5</b>	<b>2004</b>	<b>5.0</b>	<b>4.0-6.0</b>	<b>3329</b>	<b>9.9</b>	<b>8.8-11.0</b>
Cigarette promotions in the mail	18-29	468	5.1	3.1-7.1	647	0.5	0.0-1.0	1115	2.9	1.8-4.0
	30-44	456	5.3	3.2-7.3	839	0.8	0.2-1.5	1295	3.0	2.0-4.1
	45-59	318	2.8	1.0-4.7	435	0.2	0.0-0.7	753	1.5	0.6-2.4
	60-69	66	1.5	0.0-4.5	91	2.2	0.0-5.2	157	1.9	0.0-4.0
	<b>TOTAL</b>	<b>1308</b>	<b>4.5</b>	<b>3.4-5.7</b>	<b>2012</b>	<b>0.6</b>	<b>0.3-1.0</b>	<b>3320</b>	<b>2.6</b>	<b>2.0-3.2</b>

**Table (27)** shows the percentage of current smokers who have noticed any health warnings on cigarette packages or have been led by such warnings to think about quitting during the past 30 days prior to the survey, by age group and sex. During the past 30 days prior to the survey, the overall percentage of participants noticing any health warnings on cigarette packages, was 83.1%, being significantly higher among men when compared with women (84.8% vs. 62.1%).

On the contrary, during the past 30 days prior to the survey, the overall percentage of participants having warning labels on cigarette packages led them to think about quitting, was 46.1%, being higher among women when compared with men (52.6% vs. 45.7%).

**Table (27): Percentage of current smokers who have noticed any health warnings on cigarette packages or have been led by such warnings to think about quitting during the past 30 days prior to the survey, by age group and sex**

During the past 30 days prior to the survey	Age group	Men			Women			Both Sexes		
		n	%	95% CI	n	%	95% CI	n	%	95% CI
Noticing any health warnings on cigarette packages	18-29	212	83.5	78.5-88.5	19	47.4	24.4-70.4	231	81.5	76.5-86.5
	30-44	220	86.4	81.8-90.9	31	77.4	62.3-92.5	251	85.7	81.4-90.1
	45-59	102	85.3	78.4-92.2	21	57.1	35.5-78.8	123	81.3	74.5-88.2
	60-69	15	80.0	59.7-100.0	1	100.0	---	16	81.1	61.7-100.0
	<b>TOTAL</b>	<b>549</b>	<b>84.8</b>	<b>81.7-87.8</b>	<b>72</b>	<b>62.1</b>	<b>50.4-73.9</b>	<b>621</b>	<b>83.1</b>	<b>80.1-86.0</b>
Having warning labels on cigarette packages led them to think about quitting	18-29	176	43.8	36.4-51.1	9	55.6	21.8-89.3	185	44.1	36.9-51.3
	30-44	187	46.5	39.3-53.7	24	45.8	25.1-66.5	211	46.5	39.6-53.3
	45-59	86	51.2	40.6-61.8	12	66.7	39.0-94.4	98	52.7	42.8-62.7
	60-69	12	33.3	6.6-60.1	1	0.0	---	13	31.1	5.8-56.5
	<b>TOTAL</b>	<b>461</b>	<b>45.7</b>	<b>41.1-50.3</b>	<b>46</b>	<b>52.6</b>	<b>37.4-67.7</b>	<b>507</b>	<b>46.1</b>	<b>41.6-50.5</b>

**Table (28)** shows the mean of number of last time purchased manufactured cigarettes for oneself and mean amount paid (in KD), by age groups and sex. In the last time prior to the survey, the overall mean number of purchased manufactured cigarettes for oneself was 119.5 cigarettes. The mean was significantly higher among men (122.8 cigarettes), as regards women (55.5 cigarettes). There was increasing trend of the mean number of purchased manufactured cigarettes for oneself, as the age advanced.

Consequently, the overall mean amount paid was 6.9 KD, being higher among men compared to women (7.0 vs. 5.8 KD), however, without a specific pattern with age.

**Table (28): The mean number of manufactured cigarettes and mean amount paid (in KD) at the last purchase of cigarettes for oneself, by age group and sex**

In the last time prior to the survey	Age group	Men			Women			Both Sexes		
		n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Purchased manufactured cigarettes	18-29	180	114.8	66.4-163.3	9	22.6	15.5-29.6	189	111.9	64.9-158.9
	30-44	195	127.7	95.7-159.6	20	51.7	10.3-93.1	215	123.6	93.3-154.0
	45-59	90	130.1	77.8-182.4	11	97.5	11.0-183.9	101	127.2	79.0-175.5
	60-69	12	142.0	65.8-218.2	1	20.0	---	13	134.0	61.1-206.8
	<b>TOTAL</b>	<b>477</b>	<b>122.8</b>	<b>97.1-148.6</b>	<b>41</b>	<b>55.5</b>	<b>24.2-86.8</b>	<b>518</b>	<b>119.5</b>	<b>95.0-144.0</b>
Amount paid (in KD) for purchasing	18-29	174	3.6	2.8-4.3	8	1.2	1.0-1.5	182	3.5	2.8-4.2
	30-44	192	9.7	5.2-14.2	18	3.8	0.8-6.7	210	9.4	5.2-13.7
	45-59	87	9.5	2.4-16.7	11	12.9	0.0-30.1	98	9.8	3.2-16.5
	60-69	11	5.8	2.4-9.1	1	1.0	---	12	5.4	2.3-8.6
	<b>TOTAL</b>	<b>464</b>	<b>7.0</b>	<b>4.8-9.1</b>	<b>38</b>	<b>5.8</b>	<b>0.2-11.3</b>	<b>502</b>	<b>6.9</b>	<b>4.9-8.9</b>

### 3.1.2.2. Alcohol consumption

#### 3.1.2.2..1. Status of alcohol consumption:

**Table (29)** shows percentage distribution of respondents according to Alcohol consumption status, by age group and sex. It was found that the overall prevalence of the current drinking alcohol (past 30 days) was 0.8%. The prevalence among men was higher than that among women by around 15 folds (1.5 vs. 0.1%). Moreover, the overall prevalence of the non-current drinking alcohol (past 12 months) was 0.5%. The prevalence among men was higher than that among women by around 9 folds (0.9 vs. 0.1%). The overall prevalence of the recent abstainers (past 12 months) was 0.8%. The prevalence among men was higher than that among women by around 17 folds (1.7 vs. 0.1%).

**Table (29): Percentage distribution of respondents according to alcohol consumption status, by age group and sex**

Age Group (years) and sex	n	Current drinker (past 30 days)		Drank in past 12 months, not current		Past 12 months abstainer		Lifetime abstainer	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>									
18-29	524	1.3	0.4-2.3	1.1	0.2-2.1	1.5	0.5-2.6	96.0	94.3-97.7
30-44	507	1.6	0.5-2.7	0.6	0.0-1.3	1.0	0.1-1.8	96.8	95.3-98.4
45-59	346	2.0	0.5-3.5	1.2	0.0-2.3	2.6	0.9-4.3	94.2	91.8-96.7
60-69	79	1.3	0.0-3.7	0.0	0.0-0.0	3.8	0.0-8.0	94.9	90.1-99.8
<b>18-69</b>	<b>1456</b>	<b>1.5</b>	<b>0.9-2.2</b>	<b>0.9</b>	<b>0.4-1.4</b>	<b>1.7</b>	<b>1.0-2.3</b>	<b>95.9</b>	<b>94.9-96.9</b>
<b>Women</b>									
18-29	781	0.1	0.0-0.4	0.1	0.0-0.4	0.0	0.0-0.0	99.7	99.4-100.0
30-44	1013	0.1	0.0-0.3	0.1	0.0-0.3	0.1	0.0-0.3	99.7	99.4-100.0
45-59	531	0.0	0.0-0.0	0.0	0.0-0.0	0.2	0.0-0.6	99.8	99.4-100.0
60-69	134	0.0	0.0-0.0	0.0	0.0-0.0	0.0	0.0-0.0	100.0	100.0-100.0
<b>18-69</b>	<b>2459</b>	<b>0.1</b>	<b>0.0-0.2</b>	<b>0.1</b>	<b>0.0-0.2</b>	<b>0.1</b>	<b>0.0-0.2</b>	<b>99.8</b>	<b>99.6-100.0</b>
<b>Both Sexes</b>									
18-29	1305	0.7	0.2-1.2	0.6	0.2-1.1	0.8	0.2-1.3	97.9	97.0-98.7
30-44	1520	0.8	0.3-1.3	0.3	0.0-0.7	0.5	0.1-0.9	98.3	97.6-99.1
45-59	877	0.9	0.2-1.6	0.5	0.0-1.0	1.3	0.5-2.1	97.3	96.1-98.4
60-69	213	0.5	0.0-1.5	0.0	---	1.6	0.0-3.3	97.9	95.9-99.9
<b>18-69</b>	<b>3915</b>	<b>0.8</b>	<b>0.5-1.1</b>	<b>0.5</b>	<b>0.2-0.7</b>	<b>0.8</b>	<b>0.5-1.2</b>	<b>97.9</b>	<b>97.4-98.4</b>

### 3.1.2.2.2. Levels of alcohol consumption:

**Table (30)** shows the prevalence of current intermediate and lower-end levels of alcohol consumption, according to age group and sex. None of the women reported drinking alcohol at intermediate level (i.e. 20-39.9 gm of pure alcohol on average per occasion, for women). However, 0.1% of all male respondents reported an intermediate level (i.e.40-59.9 gm of pure alcohol on average per occasion, for men), all of whom were in the age group 45-59 years. No male or female respondents reported drinking alcohol at high levels. The overall prevalence of drinking alcohol at intermediate level was 0.027%.

Concerning the drinking at lower-end level, the overall prevalence was 0.7%, being 14 folds higher among men in comparison with women (1.4% vs. 0.1%). No pattern with age was observed.

**Table(30): Prevalence of intermediate and lower-end levels of alcohol consumption, according to age group and sex**

Age Group (years) and sex	Intermediate level			Lower-end level	
	n	%	95% CI	%	95% CI
<b>Men</b>					
18-29	523	0.0	---	1.1	0.2-2.1
30-44	507	0.0	---	1.6	0.5-2.7
45-59	346	0.3	0.0-0.9	1.7	0.4-3.1
60-69	79	0.0	---	1.3	0.0-3.7
<b>18-69</b>	<b>1455</b>	<b>0.1</b>	<b>0.0-0.2</b>	<b>1.4</b>	<b>0.8-2.0</b>
<b>Women</b>					
18-29	781	0.0	---	0.1	0.0-0.4
30-44	1013	0.0	---	0.1	0.0-0.3
45-59	531	0.0	---	0.0	---
60-69	134	0.0	---	0.0	---
<b>18-69</b>	<b>2459</b>	<b>0.0</b>	<b>---</b>	<b>0.1</b>	<b>0.0-0.2</b>
<b>Both Sexes</b>					
18-29	1304	0.0	---	0.6	0.2-1.1
30-44	1520	0.0	---	0.8	0.3-1.3
45-59	877	0.1	0.0-0.4	0.8	0.2-1.4
60-69	213	0.0	---	0.5	0.0-1.5
<b>18-69</b>	<b>3914</b>	<b>0.027</b>	<b>0.022-0.033</b>	<b>0.7</b>	<b>0.4-1.0</b>

\* Drinking at intermediate level =(40-59.9 gm of pure alcohol on average per occasion among men and 20-39.9 gm of pure alcohol on average per occasion among women).

\* Drinking at lower-end level =( <40 gm of pure alcohol on average per occasion among men and <20 gm of pure alcohol on average per occasion among women).

**Table (31)** shows the percentage of respondents who report drinking six or more drinks on a single occasion at least once during the past 30 days prior to the survey, by age group and sex. None of women drank alcohol at this level. However, 0.6% of all men respondents had six or more drinks on a single occasion at least once during the past 30 days.

**Table (31): Percentage of respondents who report drinking six or more drinks on a single occasion at least once during the past 30 days, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	% ≥ 6 drinks	95% CI	n	% ≥ 6 drinks	95% CI	n	% ≥ 6 drinks	95% CI
18-29	524	0.4	0.0-0.9	781	0.0	---	1305	0.2	0.0-0.5
30-44	507	0.8	0.0-1.6	1013	0.0	---	1520	0.4	0.0-0.7
45-59	346	0.9	0.0-1.8	531	0.0	---	877	0.4	0.0-0.8
60-69	79	0.0	---	134	0.0	---	213	0.0	---
<b>18-69</b>	<b>1456</b>	<b>0.6</b>	<b>0.2-1.0</b>	<b>2459</b>	<b>0.0</b>	<b>---</b>	<b>3915</b>	<b>0.3</b>	<b>0.1-0.5</b>

### 3.1.2.3. Dietary pattern

#### 3.1.2.3.1. Fruit and vegetable consumption

##### 3.1.2.3.1.1. Number of days per week of consumption of fruit and vegetables:

**Table (32)** shows mean number of days fruit and vegetables consumed in a typical week, by age group and sex. The overall mean number of days of fruits consumption was 3.6 days, with similar means for both men and women (3.8 vs. 3.5 days). On the other hand, the overall mean number of days of vegetables consumption was more than that of fruits (5.0 days), being slightly more among women than among men (5.0 vs. 4.9 days). There is increasing trends with age, particularly among men.

**Table (32): Mean number of days fruit and vegetables consumed in a typical week, by age group and sex**

Age Group (years) and sex	Fruit			Vegetables		
	n	Mean	95% CI	n	Mean	95% CI
<b>Men</b>						
18-29	516	3.6	3.4-3.8	517	4.7	4.5-4.9
30-44	503	3.6	3.4-3.8	504	4.9	4.7-5.1
45-59	342	4.3	4.1-4.6	343	5.4	5.1-5.6
60-69	79	4.6	4.0-5.1	79	5.6	5.1-6.1
<b>18-69</b>	<b>1440</b>	<b>3.8</b>	<b>3.7-3.9</b>	<b>1443</b>	<b>4.9</b>	<b>4.8-5.1</b>
<b>Women</b>						
18-29	777	2.9	2.8-3.1	774	4.8	4.6-5.0
30-44	1006	3.4	3.3-3.6	1009	5.1	4.9-5.2
45-59	529	4.3	4.1-4.5	529	5.3	5.1-5.5
60-69	134	4.2	3.8-4.6	134	5.1	4.7-5.5
<b>18-69</b>	<b>2446</b>	<b>3.5</b>	<b>3.4-3.6</b>	<b>2446</b>	<b>5.0</b>	<b>4.9-5.1</b>
<b>Both Sexes</b>						
18-29	1293	3.3	3.1-3.4	1291	4.8	4.6-4.9
30-44	1509	3.5	3.4-3.6	1513	5.0	4.9-5.1
45-59	871	4.3	4.1-4.5	872	5.3	5.2-5.5
60-69	213	4.4	4.0-4.7	213	5.3	5.0-5.6
<b>18-69</b>	<b>3886</b>	<b>3.6</b>	<b>3.6-3.7</b>	<b>3889</b>	<b>5.0</b>	<b>4.9-5.1</b>

### 3.1.2.3.1.2. Mean number of fruit and vegetables' servings per day:

**Table (33)** shows mean number of servings of fruit, vegetables, and combined fruit and vegetable on average day, by age group and sex. It is observed that the overall average number of fruit servings was 1.3 servings/day. Men consumed more fruits than women (1.4 vs. 1.2 servings/days), at all age groups. The overall average number of vegetables servings was higher than that of fruits 1.8/day, being slightly more among men than among women (1.9 vs. 1.8 servings/days).

The overall average number of combined fruits and/or vegetables was 3.2 servings/day, being higher among men than among women (3.3 vs. 3.0 servings/day). There is increasing trends with age only among men.

**Table (33): Mean number of servings of fruit, vegetables, and combined fruit and vegetable on average day, by age group and sex**

Age Group (years)	Fruit			Vegetables			Fruit and/or vegetables		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
<b>Men</b>									
18-29	512	1.3	1.1-1.4	516	1.9	1.7-2.1	517	3.2	2.8-3.5
30-44	503	1.4	1.2-1.6	504	2.0	1.7-2.2	505	3.3	2.9-3.7
45-59	342	1.7	1.4-1.9	342	2.0	1.7-2.2	343	3.6	3.2-4.0
60-69	79	1.9	1.4-2.4	79	2.1	1.7-2.5	79	4.0	3.3-4.8
<b>18-69</b>	<b>1436</b>	<b>1.4</b>	<b>1.3-1.5</b>	<b>1441</b>	<b>1.9</b>	<b>1.8-2.1</b>	<b>1444</b>	<b>3.3</b>	<b>3.1-3.5</b>
<b>Women</b>									
18-29	776	1.0	0.9-1.2	774	1.7	1.6-1.9	778	2.7	2.5-3.0
30-44	1006	1.2	1.1-1.4	1007	1.8	1.6-1.9	1009	3.0	2.7-3.3
45-59	527	1.6	1.4-1.8	528	1.8	1.6-2.0	530	3.4	3.1-3.7
60-69	134	1.3	1.0-1.5	133	1.6	1.3-1.9	134	2.8	2.4-3.3
<b>18-69</b>	<b>2443</b>	<b>1.2</b>	<b>1.1-1.3</b>	<b>2442</b>	<b>1.8</b>	<b>1.7-1.9</b>	<b>2451</b>	<b>3.0</b>	<b>2.8-3.1</b>
<b>Both Sexes</b>									
18-29	1288	1.1	1.0-1.2	1290	1.8	1.7-2.0	1295	3.0	2.7-3.2
30-44	1509	1.3	1.2-1.4	1511	1.9	1.7-2.0	1514	3.2	2.9-3.4
45-59	869	1.6	1.5-1.8	870	1.9	1.7-2.0	873	3.5	3.2-3.7
60-69	213	1.5	1.3-1.8	212	1.8	1.6-2.0	213	3.3	2.9-3.8
<b>18-69</b>	<b>3879</b>	<b>1.3</b>	<b>1.2-1.4</b>	<b>3883</b>	<b>1.8</b>	<b>1.8-1.9</b>	<b>3895</b>	<b>3.2</b>	<b>3.0-3.3</b>

### 3.1.2.3.1.3. Percentage of participants consuming different number of fruit and vegetable servings:

**Table (34)** shows the percentage distribution of participants according to the number of servings of fruit and/or vegetables on average per day, by age group and sex. It is observed that the overall prevalence of non-consumption of fruits and/or vegetables per day was 19.0%, with higher prevalence among women in comparison to men (20.2% vs. 17.7%).

The overall percentage of those who consumed 1-2 servings of fruits or vegetables/day was 45.2%. Women were more likely to consume 1-2 servings of fruits or vegetables/day than men (46.6% vs. 43.6%).

The overall percentage of those who consumed 3-4 servings of fruits or vegetables/day was 19.5%. Men were more likely to consume 3-4 servings of fruits or vegetables/day than men (20.1% vs. 19.0%).

The overall percentage of those who consumed 5 servings or more of fruits or vegetables/day was 16.2%. Men were more likely to consume 5 servings or more of fruits or vegetables/day than men (18.6% vs. 14.0%).

**Figure (3)** portrays the percentage distribution of participants according to the number of servings of fruit and/or vegetables on average per day, by sex.

**Table (34): Percentage distribution of participants according to the number of servings of fruit and/or vegetables on average per day, by age group and sex**

Age Group (years) and sex	n	No fruit and/or vegetables		1-2 servings		3-4 servings		≥5 servings	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>									
18-29	517	20.9	17.4-24.4	44.1	39.8-48.4	18.4	15.0-21.7	16.6	13.4-19.8
30-44	505	18.6	15.2-22.0	44	39.6-48.3	20	16.5-23.5	17.4	14.1-20.7
45-59	343	12.2	8.8-15.7	42.9	37.6-48.1	23	18.6-27.5	21.9	17.5-26.2
60-69	79	7.6	1.8-13.4	40.5	29.7-51.3	22.8	13.5-32.0	29.1	19.1-39.1
<b>18-69</b>	<b>1444</b>	<b>17.7</b>	<b>15.7-19.7</b>	<b>43.6</b>	<b>41.0-46.2</b>	<b>20.1</b>	<b>18.0-22.1</b>	<b>18.6</b>	<b>16.6-20.6</b>
<b>Women</b>									
18-29	778	26.6	23.5-29.7	45.8	42.3-49.3	14.7	12.2-17.1	13	10.6-15.3
30-44	1009	19.1	16.7-21.6	49.5	46.4-52.5	18.9	16.5-21.3	12.5	10.4-14.5
45-59	530	12.5	9.6-15.3	43.6	39.4-47.8	26.2	22.5-30.0	17.7	14.5-21.0
60-69	134	14.9	8.9-21.0	48.5	40.0-57.0	20.9	14.0-27.8	15.7	9.5-21.8
<b>18-69</b>	<b>2451</b>	<b>20.2</b>	<b>18.6-21.8</b>	<b>46.7</b>	<b>44.7-48.7</b>	<b>19</b>	<b>17.5-20.6</b>	<b>14</b>	<b>12.6-15.4</b>
<b>Both Sexes</b>									
18-29	1295	23.7	21.4-26.1	44.9	42.2-47.7	16.5	14.4-18.6	14.8	12.8-16.8
30-44	1514	18.9	16.8-20.9	46.8	44.2-49.5	19.4	17.4-21.5	14.8	12.9-16.8
45-59	873	12.4	10.2-14.6	43.3	39.9-46.6	24.8	21.9-27.7	19.6	16.9-22.3
60-69	213	11.9	7.6-16.2	45.2	38.5-51.9	21.7	16.1-27.2	21.2	15.6-26.7
<b>18-69</b>	<b>3895</b>	<b>19.0</b>	<b>17.7-20.3</b>	<b>45.2</b>	<b>43.6-46.9</b>	<b>19.5</b>	<b>18.2-20.8</b>	<b>16.2</b>	<b>15.0-17.4</b>

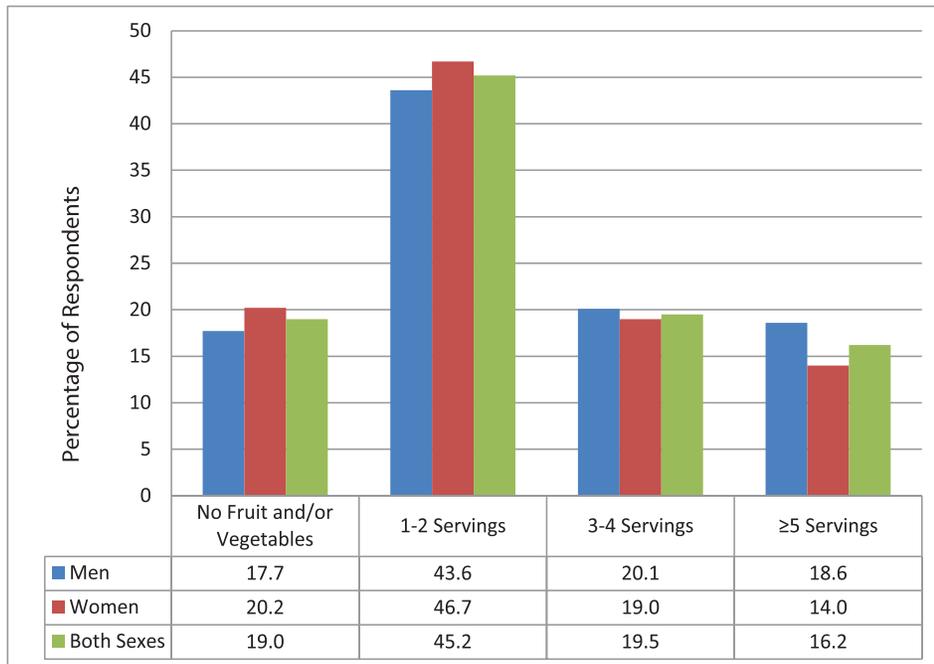


Figure (3): Percentage distribution of participants according to the number of servings of fruit and/or vegetables on average per day, by sex

#### 3.1.2.3.1.4. Prevalence of those at dietary risk:

Table (35) shows the percentage of respondents who report consuming less than five servings of fruit and/or vegetables on average per day, according to age group and sex. The overall percentage of those who consumed less than 5 servings of fruits or vegetables/day was 83.8%. Women were more likely to consume less than 5 servings of fruits or vegetables/day than men (86.0% vs. 81.4%).

Table (35): Percentage of respondents who report consuming less than five servings of fruit and/or vegetables on average per day, according to age group and sex

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29	517	83.4	80.2-86.6	778	87.0	84.7-89.4	1295	85.2	83.2-87.2
30-44	505	82.6	79.3-85.9	1009	87.5	85.5-89.6	1514	85.2	83.2-87.1
45-59	343	78.1	73.8-82.5	530	82.3	79.0-85.5	873	80.4	77.7-83.1
60-69	79	70.9	60.9-80.9	134	84.3	78.2-90.5	213	78.8	73.3-84.4
<b>18-69</b>	<b>1444</b>	<b>81.4</b>	<b>79.4-83.4</b>	<b>2451</b>	<b>86.0</b>	<b>84.6-87.4</b>	<b>3895</b>	<b>83.8</b>	<b>82.6-85.0</b>

### 3.1.2.3.2. Oil or fat consumption

**Table (36)** shows percentage distribution of participants according to the type of oil or fat most often used for meal preparation in household, by age group and sex. The vast majority (93.0%) of participants used vegetable oil for food preparation. Lard or suet was used by 1.3% of participants followed by the use of margarine (0.3%), and the least prevalence was the use of butter or ghee for meal preparation (0.1%). Only 0.3% of the study participants stated that they did not use any oil or fat for meal preparation in households.

**Table (36): Percentage distribution of participants according to the type of oil or fat most often used for meal preparation in household, by age group and sex**

Age Group (years) and sex	n	Vegetable oil		Lard or Suet		Butter or Ghee		Margarine		Other		None in particular		None used	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>															
18-29	481	89.6	86.9-92.3	1.5	0.4-2.5	0.0	---	0.4	0.0-1.0	0.0	---	8.1	5.7-10.5	0.4	0.0-1.0
30-44	492	92.1	89.7-94.5	1.4	0.4-2.5	0.0	---	0.2	0.0-0.6	0.0	---	6.3	4.2-8.4	0.0	---
45-59	340	96.2	94.1-98.2	2.1	0.5-3.6	0.0	---	0	0.0-0.0	0.0	---	1.8	0.4-3.2	0.0	---
60-69	79	92.4	86.6-98.2	2.5	0.0-6.0	0.0	---	1.3	0.0-3.7	0.0	---	3.8	0.0-8.0	0.0	---
<b>Total</b>	<b>1392</b>	<b>91.9</b>	<b>90.4-93.4</b>	<b>1.6</b>	<b>1.0-2.3</b>	<b>0.0</b>	<b>---</b>	<b>0.3</b>	<b>0.0-0.6</b>	<b>0.0</b>	<b>---</b>	<b>6.0</b>	<b>4.7-7.3</b>	<b>0.2</b>	<b>0.0-0.4</b>
<b>Women</b>															
18-29	775	94.1	92.4-95.7	1.2	0.4-1.9	0.3	0.0-0.6	0.3	0.0-0.6	0.0	---	3.6	2.3-4.9	0.6	0.1-1.2
30-44	1012	94.8	93.4-96.1	0.9	0.3-1.5	0.1	0.0-0.3	0.3	0.0-0.6	0.1	0.0-0.3	3.6	2.4-4.7	0.3	0.0-0.6
45-59	531	94.4	92.4-96.3	0.9	0.1-1.8	0.2	0.0-0.6	0.2	0.0-0.6	0.0	---	4.1	2.4-5.8	0.2	0.0-0.6
60-69	134	89.6	84.4-94.7	2.2	0.0-4.7	0.0	---	0	0.0-0.0	0.0	---	8.2	3.6-12.9	0.0	---
<b>Total</b>	<b>2452</b>	<b>94.0</b>	<b>93.1-95.0</b>	<b>1.1</b>	<b>0.7-1.5</b>	<b>0.2</b>	<b>0.0-0.3</b>	<b>0.2</b>	<b>0.0-0.4</b>	<b>0.0</b>	<b>---</b>	<b>4.0</b>	<b>3.2-4.8</b>	<b>0.4</b>	<b>0.1-0.6</b>
<b>Both Sexes</b>															
18-29	1256	91.9	90.3-93.5	1.3	0.7-2.0	0.1	0.0-0.3	0.3	0.0-0.7	0.0	---	5.8	4.4-7.2	0.5	0.1-0.9
30-44	1504	93.5	92.2-94.8	1.1	0.6-1.7	0.1	0.0-0.2	0.3	0.0-0.5	0.1	0.0-0.2	4.8	3.7-6.0	0.2	0.0-0.3
45-59	871	95.2	93.7-96.6	1.4	0.6-2.3	0.1	0.0-0.3	0.1	0.0-0.3	0.0	---	3.1	2.0-4.2	0.1	0.0-0.3
60-69	213	90.7	86.8-94.6	2.4	0.3-4.4	0.0	---	0.5	0.0-1.5	0.0	---	6.4	3.1-9.7	0.0	---
<b>Total</b>	<b>3844</b>	<b>93.0</b>	<b>92.2-93.9</b>	<b>1.3</b>	<b>1.0-1.7</b>	<b>0.1</b>	<b>0.0-0.2</b>	<b>0.3</b>	<b>0.1-0.4</b>	<b>0.0</b>	<b>0.0-0.1</b>	<b>4.9</b>	<b>4.2-5.7</b>	<b>0.3</b>	<b>0.1-0.5</b>

**Table (37)** shows mean number of meals per week eaten outside home by respondents, by age group and sex. The overall mean number of meals per week eaten outside home was 2.7 meals/week, being more in men in comparison to women (3.1 vs. 2.2 meals/week). The mean values decreased as the age advanced.

**Table (37): Mean number of meals per week eaten by respondents outside home, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18-29	521	4.1	3.8-4.4	776	3.0	2.9-3.2	1297	3.6	3.4-3.7
30-44	506	2.8	2.6-3.0	1008	2.2	2.0-2.3	1514	2.5	2.3-2.6
45-59	344	2.2	1.9-2.5	526	1.3	1.1-1.4	870	1.7	1.5-1.8
60-69	79	1.4	1.1-1.8	134	0.8	0.6-1.0	213	1.1	0.9-1.3
<b>18-69</b>	<b>1450</b>	<b>3.1</b>	<b>3.0-3.3</b>	<b>2444</b>	<b>2.2</b>	<b>2.1-2.3</b>	<b>3894</b>	<b>2.7</b>	<b>2.6-2.7</b>

**Table (38)** shows mean number of times per week of eating fried foods, crisps and sweets, by age group and sex. The overall mean number of times per week of eating fried foods was 2.3 times/week. Men consumed fried foods more frequently than women (2.6 vs. 2.1 times/week). The mean number of eating fried foods decreased as age advanced.

The overall mean number of times per week of eating crisps was 2.0 times/week. Women consumed crisps more frequently than men (2.1 vs. 1.9 times/week). The mean number of eating crisps decreased as age advanced.

The overall mean number of times per week of eating sweets was 2.7 times/week. Women consumed sweets more frequently than men (2.8 vs. 2.5 times/week), without specific pattern with age.

**Table (38): Mean number of times per week of eating fried foods, crisps and sweets eaten by respondents, by age group and sex**

Food	Age groups (year)	Men			Women			Both Sexes		
		n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Fried foods	18-29	515	2.9	2.6-3.1	774	2.5	2.3-2.6	1289	2.7	2.5-2.8
	30-44	503	2.4	2.3-2.6	1005	2.0	1.9-2.1	1508	2.2	2.1-2.3
	45-59	346	2.3	2.1-2.5	526	1.7	1.6-1.9	872	2.0	1.9-2.1
	60-69	79	1.9	1.5-2.2	133	1.3	1.1-1.5	212	1.5	1.3-1.7
	<b>18-69</b>	<b>1443</b>	<b>2.6</b>	<b>2.4-2.7</b>	<b>2438</b>	<b>2.1</b>	<b>2.0-2.1</b>	<b>3881</b>	<b>2.3</b>	<b>2.2-2.4</b>
Crisps	18-29	520	2.4	2.2-2.6	776	2.9	2.8-3.1	1296	2.7	2.6-2.8
	30-44	501	2.0	1.8-2.2	1006	2.1	1.9-2.2	1507	2.0	1.9-2.2
	45-59	344	1.1	0.9-1.2	527	1.1	1.0-1.3	871	1.1	1.0-1.2
	60-69	79	0.7	0.4-0.9	134	0.7	0.5-0.9	213	0.7	0.5-0.9
	<b>18-69</b>	<b>1444</b>	<b>1.9</b>	<b>1.8-2.0</b>	<b>2443</b>	<b>2.1</b>	<b>2.0-2.2</b>	<b>3887</b>	<b>2.0</b>	<b>1.9-2.1</b>
Sweets	18-29	493	2.5	2.4-2.7	735	2.7	2.6-2.9	1228	2.6	2.5-2.7
	30-44	491	2.5	2.3-2.6	972	2.7	2.5-2.8	1463	2.6	2.5-2.7
	45-59	341	2.5	2.3-2.8	506	3.0	2.8-3.3	847	2.8	2.6-3.0
	60-69	76	3.1	2.6-3.7	130	3.2	2.7-3.6	206	3.2	2.8-3.5
	<b>18-69</b>	<b>1401</b>	<b>2.5</b>	<b>2.4-2.6</b>	<b>2343</b>	<b>2.8</b>	<b>2.7-2.9</b>	<b>3744</b>	<b>2.7</b>	<b>2.6-2.8</b>

Crisps =potato chips, puffed crisps, etc.

Sweets=chocolates, Arabic sweets, cakes, etc.

**Table (39)** shows percentage distribution of participants according to type of dairy products most often consumed by age group and sex. The overall prevalence of drinking or eating full cream dairy products was 43.1%. Men consumed full cream dairy products more frequently than women (46.2 vs. 40.2%). The percentage of consuming full cream dairy products decreased as age advanced, particularly among women.

The overall prevalence of drinking or eating half cream dairy products was 29.3%. Women consumed half cream dairy products more frequently than men (32.5 vs. 25.9%). The percentage of consuming half cream dairy products decreased as age advanced among women.

The overall prevalence of drinking or eating skimmed dairy products was 14.0%. Men consumed skimmed dairy products more frequently than women (14.7 vs. 13.4%). The percentage of consuming skimmed dairy products decreased as age advanced, particularly among men.

The overall prevalence of non-consumption of dairy products was 4.4%. Women did not consume dairy products more frequently than men (4.7 vs. 4.0%). The percentage of non-consumption of dairy products increased at extremes of the survey age groups.

**Table (39): Percentage distribution of participants according to type of dairy products most often consumed, by age group and sex**

Age Group (years) and sex	n	Full cream		Half cream		Skimmed		Not in Particular		Not used	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>											
18-29	520	49.2	44.9-53.5	21.7	18.2-25.3	14.0	11.1-17.0	10.0	7.4-12.6	5.0	3.1-6.9
30-44	506	48.6	44.3-53.0	23.7	20.0-27.4	14.6	11.5-17.7	8.9	6.4-11.4	4.2	2.4-5.9
45-59	346	37.6	32.5-42.7	37.9	32.7-43.0	15.0	11.3-18.8	8.1	5.2-11.0	1.4	0.2-2.7
60-69	79	39.2	28.5-50.0	29.1	19.1-39.1	19.0	10.3-27.6	8.9	2.6-15.1	3.8	0.0-8.0
<b>18-69</b>	<b>1451</b>	<b>46.2</b>	<b>43.6-48.8</b>	<b>25.9</b>	<b>23.7-28.2</b>	<b>14.7</b>	<b>12.9-16.5</b>	<b>9.2</b>	<b>7.7-10.7</b>	<b>4.0</b>	<b>2.9-5.0</b>
<b>Women</b>											
18-29	777	41.6	38.1-45.0	29.1	25.9-32.3	12.9	10.5-15.2	10.7	8.5-12.9	5.8	4.1-7.4
30-44	1011	41.0	37.9-44.0	33.7	30.8-36.6	12.7	10.6-14.7	8.5	6.8-10.2	4.2	2.9-5.4
45-59	529	38.8	34.6-42.9	35.0	30.9-39.0	15.1	12.1-18.2	8.1	5.8-10.5	3.0	1.6-4.5
60-69	133	33.1	25.1-41.1	36.8	28.6-45.0	15.0	9.0-21.1	8.3	3.6-13.0	6.8	2.5-11.0
<b>18-69</b>	<b>2450</b>	<b>40.2</b>	<b>38.2-42.1</b>	<b>32.5</b>	<b>30.6-34.4</b>	<b>13.4</b>	<b>12.1-14.8</b>	<b>9.2</b>	<b>8.1-10.4</b>	<b>4.7</b>	<b>3.8-5.6</b>
<b>Both Sexes</b>											
18-29	1297	45.4	42.7-48.2	25.4	23.0-27.8	13.5	11.6-15.4	10.3	8.7-12.0	5.4	4.1-6.6
30-44	1517	44.6	42.0-47.2	28.9	26.6-31.3	13.6	11.8-15.4	8.7	7.2-10.2	4.2	3.1-5.2
45-59	875	38.2	35.0-41.5	36.3	33.1-39.5	15.1	12.7-17.5	8.1	6.3-9.9	2.3	1.3-3.3
60-69	212	35.6	29.1-42.1	33.7	27.3-40.0	16.7	11.6-21.7	8.5	4.7-12.3	5.5	2.5-8.6
<b>18-69</b>	<b>3901</b>	<b>43.1</b>	<b>41.4-44.7</b>	<b>29.3</b>	<b>27.9-30.8</b>	<b>14.0</b>	<b>12.9-15.2</b>	<b>9.2</b>	<b>8.3-10.2</b>	<b>4.4</b>	<b>3.7-5.0</b>

Dairy products = milk, yogurt, "laban" and cheeses

**Table (40)** shows percentage distribution of participants according to frequency of daily consumption of milk, “laban” or yogurt, by age group and sex. The overall prevalence of daily consumption of one cup of dairy products was 55.0%. Women consumed one cup of dairy products more frequently than men (58.3 vs. 51.4%). The percentage of consuming one cup of dairy products decreased as age advanced, particularly among women.

The overall prevalence of daily consumption of two cups of dairy products was 30.0%. Men consumed two cups of dairy products more frequently than women (31.2 vs. 28.9%). The percentage of consuming two cups of dairy products increased as age advanced, particularly among women.

The overall prevalence of daily consumption of three or more cups of dairy products was 9.2%. Men consumed three or more cups of dairy products more frequently than women (11.7 vs. 6.8%). The percentage of consuming three or more cups of dairy products increased as age advanced among men.

The overall prevalence of non-daily consumption of dairy products was 1.7%. Women did not consume dairy products on daily basis more frequently than men (2.2 vs. 1.1%). The percentage of non-daily consumption of dairy products increased as age advanced among men.

**Table (40): Percentage distribution of participants according to frequency of daily consumption of milk, “laban” or yogurt, by age group and sex**

Age Group (years) and sex	n	one cup		2 cups		3+ cups		Not in Particular		Not used	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>											
18-29	489	52.4	47.9-56.8	30.9	26.8-35.0	10.8	8.1-13.6	5.1	3.2-7.1	0.8	0.0-1.6
30-44	482	49.4	44.9-53.8	33.6	29.4-37.8	11.2	8.4-14.0	5.0	3.0-6.9	0.8	0.0-1.6
45-59	341	54.3	49.0-59.5	28.7	23.9-33.5	12.6	9.1-16.1	3.2	1.4-5.1	1.2	0.0-2.3
60-69	76	46.1	34.8-57.3	27.6	17.6-37.7	18.4	9.7-27.1	3.9	0.0-8.3	3.9	0.0-8.3
<b>18-69</b>	<b>1388</b>	<b>51.4</b>	<b>48.7-54.0</b>	<b>31.2</b>	<b>28.7-33.7</b>	<b>11.7</b>	<b>10.0-13.4</b>	<b>4.6</b>	<b>3.5-5.8</b>	<b>1.1</b>	<b>0.5-1.6</b>
<b>Women</b>											
18-29	727	63.3	59.8-66.8	25.7	22.5-28.9	5.1	3.5-6.7	3.2	1.9-4.4	2.8	1.6-3.9
30-44	962	57.9	54.8-61.0	27.7	24.8-30.5	7.8	6.1-9.5	4.7	3.3-6.0	2.0	1.1-2.9
45-59	511	53.0	48.7-57.4	33.1	29.0-37.2	8.8	6.3-11.3	3.1	1.6-4.6	2.0	0.8-3.2
60-69	124	50.0	41.2-58.8	38.7	30.1-47.3	4.8	1.1-8.6	4.8	1.1-8.6	1.6	0.0-3.8
<b>18-69</b>	<b>2324</b>	<b>58.3</b>	<b>56.2-60.3</b>	<b>28.9</b>	<b>27.0-30.8</b>	<b>6.8</b>	<b>5.8-7.8</b>	<b>3.8</b>	<b>3.0-4.6</b>	<b>2.2</b>	<b>1.6-2.8</b>
<b>Both Sexes</b>											
18-29	1216	57.8	54.9-60.6	28.3	25.7-30.9	8.0	6.4-9.6	4.1	3.0-5.3	1.8	1.1-2.5
30-44	1444	53.8	51.1-56.5	30.5	28.0-33.0	9.4	7.8-11.0	4.8	3.7-6.0	1.4	0.8-2.0
45-59	852	53.6	50.2-57.0	31.1	28.0-34.2	10.5	8.4-12.6	3.2	2.0-4.4	1.6	0.8-2.4
60-69	200	48.3	41.4-55.3	34.1	27.5-40.6	10.5	6.2-14.9	4.5	1.6-7.3	2.6	0.3-4.8
<b>18-69</b>	<b>3712</b>	<b>55.0</b>	<b>53.3-56.6</b>	<b>30.0</b>	<b>28.5-31.5</b>	<b>9.2</b>	<b>8.2-10.2</b>	<b>4.2</b>	<b>3.5-4.9</b>	<b>1.7</b>	<b>1.3-2.1</b>

### 3.1.2.3.3. Dietary salt:

**Table (41)** shows the percentage distribution of participants according to the frequency of adding salt to the meal using a salt shaker, by age group and sex. The overall prevalence of frequent use of salt shaker was 36.1%. Women used salt shaker, always or often, more frequently than men (38.3 vs. 33.5%). The percentage of the use of salt shaker decreased as age advanced.

**Table (41): Percentage distribution of participants according to the frequency of adding salt to the meal using a salt shaker, by age group and sex**

Age Group (years) and sex	n	Always		Often		Sometimes		Rarely	
		%	95% CI						
<b>Men</b>									
18-29	352	22.4	18.1-26.8	16.5	12.6-20.4	33.2	28.3-38.2	27.8	23.1-32.5
30-44	314	17.5	13.3-21.7	15.0	11.0-18.9	37.9	32.5-43.3	29.6	24.6-34.7
45-59	176	11.9	7.1-16.7	12.5	7.6-17.4	36.9	29.8-44.1	38.6	31.4-45.8
60-69	32	12.5	1.0-24.0	3.1	0.0-9.2	43.8	26.5-61.0	40.6	23.6-57.7
<b>18-69</b>	<b>874</b>	<b>18.7</b>	<b>16.1-21.3</b>	<b>14.8</b>	<b>12.4-17.2</b>	<b>35.8</b>	<b>32.6-39.0</b>	<b>30.7</b>	<b>27.6-33.7</b>
<b>Women</b>									
18-29	529	22.9	19.3-26.5	17.4	14.2-20.6	33.1	29.1-37.1	26.7	22.9-30.4
30-44	639	26.6	23.2-30.0	14.9	12.1-17.6	27.5	24.1-31.0	31.0	27.4-34.6
45-59	275	21.1	16.3-25.9	9.8	6.3-13.3	30.2	24.8-35.6	38.9	33.1-44.7
60-69	64	15.6	6.7-24.5	12.5	4.4-20.6	21.9	11.7-32.0	50.0	37.7-62.3
<b>18-69</b>	<b>1507</b>	<b>23.4</b>	<b>21.3-25.6</b>	<b>14.9</b>	<b>13.0-16.7</b>	<b>30.0</b>	<b>27.7-32.4</b>	<b>31.7</b>	<b>29.3-34.1</b>
<b>Both Sexes</b>									
18-29	881	22.7	19.8-25.5	16.9	14.4-19.5	33.2	30.0-36.3	27.3	24.2-30.3
30-44	953	22.3	19.6-25.0	14.9	12.5-17.3	32.4	29.3-35.6	30.3	27.3-33.4
45-59	451	17.0	13.6-20.4	11.0	8.1-13.9	33.2	28.8-37.6	38.8	34.3-43.3
60-69	96	14.5	7.4-21.5	9.0	3.4-14.7	30.0	20.7-39.3	46.5	36.5-56.5
<b>18-69</b>	<b>2381</b>	<b>21.2</b>	<b>19.5-22.9</b>	<b>14.9</b>	<b>13.4-16.3</b>	<b>32.8</b>	<b>30.8-34.7</b>	<b>31.2</b>	<b>29.3-33.1</b>

**Table (42)** shows percentage distribution of participants according to eating pickles, olives, and traditional “ajarr” with meals, by age group and sex. The overall prevalence of frequent eating pickles, olives, and traditional “ajarr” with meals was 40.5%. Men used to eat pickles, olives, and traditional “ajarr” with meals, always or often, more frequently than women (41.1 vs. 40.0%). The percentage of eating pickles, olives, and traditional “ajarr” with meals decreased as age advanced.

**Table (42): Percentage distribution of participants according to eating salty appetizers with their meals, by age group and sex**

Age Group (years) and sex	n	Always		Often		Sometimes		Rarely	
		%	95% CI						
<b>Men</b>									
18-29	420	15.7	12.2-19.2	23.6	19.5-27.6	41.7	37.0-46.4	19.0	15.3-22.8
30-44	436	19.5	15.8-23.2	25.0	20.9-29.1	39.0	34.4-43.6	16.5	13.0-20.0
45-59	298	17.5	13.1-21.8	21.5	16.8-26.1	39.9	34.4-45.5	21.1	16.5-25.8
60-69	58	25.9	14.6-37.1	13.8	4.9-22.7	50.0	37.1-62.9	10.3	2.5-18.2
<b>18-69</b>	<b>1212</b>	<b>17.9</b>	<b>15.7-20.0</b>	<b>23.2</b>	<b>20.8-25.6</b>	<b>40.8</b>	<b>38.0-43.6</b>	<b>18.2</b>	<b>16.0-20.4</b>
<b>Women</b>									
18-29	638	19.0	15.9-22.0	22.3	19.0-25.5	38.7	34.9-42.5	20.1	17.0-23.2
30-44	863	19.8	17.2-22.5	20.4	17.7-23.1	39.7	36.5-43.0	20.0	17.4-22.7
45-59	433	21.9	18.0-25.8	16.6	13.1-20.1	42.3	37.6-46.9	19.2	15.5-22.9
60-69	104	15.4	8.4-22.3	20.2	12.5-27.9	42.3	32.8-51.8	22.1	14.1-30.1
<b>18-69</b>	<b>2038</b>	<b>19.7</b>	<b>17.9-21.4</b>	<b>20.3</b>	<b>18.5-22.0</b>	<b>40.1</b>	<b>37.9-42.2</b>	<b>20.0</b>	<b>18.2-21.8</b>
<b>Both Sexes</b>									
18-29	1058	17.3	15.0-19.7	22.9	20.3-25.5	40.2	37.2-43.2	19.6	17.1-22.0
30-44	1299	19.7	17.4-21.9	22.6	20.2-25.0	39.4	36.6-42.2	18.4	16.2-20.5
45-59	731	19.9	17.0-22.8	18.9	16.0-21.8	41.2	37.6-44.8	20.1	17.2-23.0
60-69	162	19.5	13.4-25.7	17.7	11.8-23.5	45.4	37.7-53.1	17.4	11.6-23.2
<b>18-69</b>	<b>3250</b>	<b>18.8</b>	<b>17.4-20.2</b>	<b>21.7</b>	<b>20.2-23.1</b>	<b>40.4</b>	<b>38.7-42.2</b>	<b>19.1</b>	<b>17.7-20.5</b>

Salty appetizers= pickles, olives, and traditional “ajarr”

### 3.1.2.3.4. Meal behaviour:

**Table (43)** shows percentage distribution of participants according to frequency of adding sauces, such as ketchup, mayonnaise and barbecue, to their food, by age group and sex. The overall prevalence of frequent adding sauces to their food was 38.3%. Men used to add sauces to their food, always or often, more frequently than women (38.5 vs. 38.2%). In general, the percentage of adding sauces to their food decreased as age advanced.

**Table (43): Percentage distribution of participants according to frequency of adding sauces to food, by age group and sex**

Age Group (years) and sex	n	Always		Often		Sometimes		Rarely	
		%	95% CI						
<b>Men</b>									
18-29	440	25.9	21.8-30.0	26.6	22.5-30.7	36.1	31.6-40.6	11.4	8.4-14.3
30-44	405	16.0	12.5-19.6	14.8	11.4-18.3	44.7	39.8-49.5	24.4	20.3-28.6
45-59	188	4.8	1.7-7.8	11.2	6.7-15.7	43.1	36.0-50.2	41.0	33.9-48.0
60-69	29	6.9	0.0-16.1	6.9	0.0-16.1	55.2	37.1-73.3	31.0	14.2-47.9
<b>18-69</b>	<b>1062</b>	<b>18.9</b>	<b>16.4-21.3</b>	<b>19.6</b>	<b>17.2-22.1</b>	<b>40.7</b>	<b>37.7-43.7</b>	<b>20.8</b>	<b>18.4-23.2</b>
<b>Women</b>									
18-29	689	26.3	23.0-29.6	24.5	21.3-27.7	35.8	32.3-39.4	13.4	10.8-15.9
30-44	797	15.4	12.9-17.9	16.8	14.2-19.4	43.4	40.0-46.9	24.3	21.4-27.3
45-59	291	6.5	3.7-9.4	12.7	8.9-16.5	40.2	34.6-45.8	40.6	34.9-46.2
60-69	48	12.5	3.1-21.9	10.4	1.8-19.1	29.2	16.3-42.0	47.9	33.8-62.1
<b>18-69</b>	<b>1825</b>	<b>18.8</b>	<b>16.9-20.6</b>	<b>19.4</b>	<b>17.5-21.3</b>	<b>39.0</b>	<b>36.8-41.3</b>	<b>22.8</b>	<b>20.9-24.7</b>
<b>Both Sexes</b>									
18-29	1129	26.1	23.5-28.7	25.5	22.9-28.2	36.0	33.1-38.9	12.4	10.4-14.3
30-44	1202	15.7	13.6-17.9	15.9	13.7-18.0	44.0	41.1-47.0	24.4	21.9-26.9
45-59	479	5.7	3.7-7.8	12.0	9.1-14.9	41.5	37.1-45.9	40.7	36.3-45.2
60-69	77	10.2	3.5-16.9	9.0	2.6-15.3	40.0	29.0-51.0	40.9	29.9-51.9
<b>18-69</b>	<b>2887</b>	<b>18.8</b>	<b>17.3-20.3</b>	<b>19.5</b>	<b>18.0-21.0</b>	<b>39.8</b>	<b>38.0-41.7</b>	<b>21.8</b>	<b>20.3-23.4</b>

Sauces=ketchup – mayonnaise- barbecue

**Table (44)** shows the mean number of days per week of having carbonated beverages or fizzy drinks, exclude diet beverages, by age group and sex. The overall mean number of days per week of having carbonated beverages was 2.2 days/week. The mean was significantly higher among men when compared to women (2.7 vs. 1.8 days/week). The mean number of days per week of having carbonated beverages or fizzy drinks decreased as age advanced.

**Table (44): Mean number of days per week of having carbonated beverages or fizzy drinks, by age group and sex**

Age groups (year)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18-29	521	3.5	3.2-3.7	775	2.4	2.3-2.6	1296	3.0	2.8-3.1
30-44	507	2.6	2.4-2.8	1003	1.7	1.6-1.9	1510	2.2	2.0-2.3
45-59	345	1.7	1.5-1.9	530	1.1	0.9-1.2	875	1.4	1.2-1.5
60-69	79	1.1	0.7-1.5	134	0.5	0.4-0.7	213	0.8	0.6-1.0
<b>18-69</b>	<b>1452</b>	<b>2.7</b>	<b>2.6-2.9</b>	<b>2442</b>	<b>1.8</b>	<b>1.7-1.9</b>	<b>3894</b>	<b>2.2</b>	<b>2.1-2.3</b>

NB: carbonated beverages or fizzy drinks exclude diet beverages

**Table (45)** shows number of cups of carbonated beverages or fizzy drinks do participants consume per day, by age group and sex. The overall prevalence of daily consumption of one cup of carbonated beverages or fizzy drinks was 73.4%. Women consumed one cup of carbonated beverages or fizzy drinks more frequently than men (76.8 vs. 70.3%).

The overall prevalence of daily consumption of two cups of carbonated beverages or fizzy drinks was 17.0%. Men consumed two cups of carbonated beverages or fizzy drinks more frequently than women (19.7 vs. 14.1%). The percentage of consuming two cups of carbonated beverages or fizzy drinks decreased as age advanced, particularly among men.

The overall prevalence of daily consumption of three or more cups of carbonated beverages or fizzy drinks was 5.4%. Men consumed three or more cups of carbonated beverages or fizzy drinks more frequently than women (6.8 vs. 3.9%). The percentage of consuming three or more cups of carbonated beverages or fizzy drinks decreased as age advanced among women.

The overall prevalence of non-daily consumption of carbonated beverages or fizzy drinks was 0.8%. Men did not consume carbonated beverages or fizzy drinks on daily basis more frequently than women (0.9 vs. 0.6%).

**Table (45): Distribution of participants according to number of cups of carbonated beverages or fizzy drinks per day, by age group and sex**

Age Group (years) and sex	n	one cup		2 cups		3+ cups		Not in Particular		Not used	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>											
18-29	402	62.9	58.2-67.7	23.1	19.0-27.3	10.0	7.0-12.9	3.0	1.3-4.6	1.0	0.0-2.0
30-44	363	73.8	69.3-78.4	20.1	16.0-24.2	5.0	2.7-7.2	1.1	0.0-2.2	0.0	0.0-0.0
45-59	214	81.8	76.6-87.0	12.6	8.2-17.1	2.3	0.3-4.4	2.3	0.3-4.4	0.9	0.0-2.2
60-69	38	76.3	62.8-89.8	5.3	0.0-12.4	5.3	0.0-12.4	5.3	0.0-12.4	7.9	0.0-16.5
<b>18-69</b>	<b>1017</b>	<b>70.3</b>	<b>67.5-73.2</b>	<b>19.7</b>	<b>17.2-22.2</b>	<b>6.8</b>	<b>5.2-8.4</b>	<b>2.3</b>	<b>1.4-3.3</b>	<b>0.9</b>	<b>0.3-1.5</b>
<b>Women</b>											
18-29	539	72.0	68.2-75.8	17.4	14.2-20.6	5.6	3.6-7.5	4.6	2.9-6.4	0.4	0.0-0.9
30-44	607	81.1	77.9-84.2	11.9	9.3-14.4	3.3	1.9-4.7	3.0	1.6-4.3	0.8	0.1-1.5
45-59	240	81.7	76.8-86.6	10.0	6.2-13.8	1.7	0.0-3.3	5.8	2.9-8.8	0.8	0.0-2.0
60-69	44	72.7	59.6-85.9	13.6	3.5-23.8	0.0	0.0-0.0	13.6	3.5-23.8	0.0	0.0-0.0
<b>18-69</b>	<b>1430</b>	<b>76.8</b>	<b>74.5-79.0</b>	<b>14.1</b>	<b>12.3-16.0</b>	<b>3.9</b>	<b>2.9-4.9</b>	<b>4.6</b>	<b>3.5-5.7</b>	<b>0.6</b>	<b>0.2-1.0</b>
<b>Both Sexes</b>											
18-29	941	67.2	64.1-70.3	20.5	17.8-23.1	7.9	6.1-9.7	3.8	2.5-5.0	0.7	0.1-1.3
30-44	970	77.3	74.5-80.1	16.2	13.7-18.7	4.2	2.8-5.5	2.0	1.1-2.8	0.4	0.0-0.7
45-59	454	81.7	78.1-85.3	11.4	8.4-14.3	2.0	0.7-3.3	4.0	2.2-5.7	0.9	0.0-1.8
60-69	82	74.5	65.1-84.0	9.4	3.2-15.6	2.7	0.0-6.3	9.4	3.2-15.6	4.0	0.0-8.4
<b>18-69</b>	<b>2447</b>	<b>73.4</b>	<b>71.5-75.2</b>	<b>17.0</b>	<b>15.5-18.6</b>	<b>5.4</b>	<b>4.4-6.4</b>	<b>3.4</b>	<b>2.7-4.1</b>	<b>0.8</b>	<b>0.4-1.1</b>

**Table (46)** shows percentage distribution of participants according to frequency of daily drinking of hot and cold beverages, by age group and sex. The overall prevalence of daily consumption of one cup of hot and cold beverages, such as tea, coffee and juice, was 18.2%. Men consumed one cup of hot and cold beverages more frequently than women (20.2 vs. 16.4%). The percentage of consuming one cup of hot and cold beverages increased as age advanced.

The overall prevalence of daily consumption of two cups of hot and cold beverages was 19.3%. Men consumed two cups of hot and cold beverages more frequently than women (20.6 vs. 18.0%). The percentage of consuming two cups of hot and cold beverages increased as age advanced, particularly among women.

The overall prevalence of daily consumption of three or more cups of hot and cold beverages was 18.9%. Men consumed three or more cups of hot and cold beverages more frequently than women (20.8 vs. 17.2%).

The overall prevalence of non-daily consumption of hot and cold beverages was 34.0%. Women did not consume hot and cold beverages on daily basis more frequently than men (40.2 vs. 27.1%).

**Table (46): Percentage distribution of participants according to frequency of daily drinking of hot and cold beverages, by age group and sex**

Age Group (years) and sex	n	one cup		2 cups		3+ cups		Not in Particular		Not used	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>											
18-29	408	17.2	13.5-20.8	20.1	16.2-24.0	22.1	18.0-26.1	12.0	8.9-15.2	28.7	24.3-33.1
30-44	408	18.1	14.4-21.9	19.1	15.3-22.9	19.6	15.8-23.5	13.2	9.9-16.5	29.9	25.5-34.3
45-59	283	25.1	20.0-30.1	23.3	18.4-28.3	21.2	16.4-26.0	7.4	4.4-10.5	23.0	18.1-27.9
60-69	61	39.3	27.1-51.6	24.6	13.8-35.4	18.0	8.4-27.7	4.9	0.0-10.3	13.1	4.6-21.6
<b>18-69</b>	<b>1160</b>	<b>20.2</b>	<b>17.9-22.5</b>	<b>20.6</b>	<b>18.3-23.0</b>	<b>20.8</b>	<b>18.5-23.2</b>	<b>11.1</b>	<b>9.3-13.0</b>	<b>27.1</b>	<b>24.6-29.7</b>
<b>Women</b>											
18-29	643	11.4	8.9-13.8	15.4	12.6-18.2	17.6	14.6-20.5	7.9	5.8-10.0	47.7	43.9-51.6
30-44	823	14.2	11.8-16.6	18.0	15.4-20.6	18.0	15.4-20.6	8.4	6.5-10.3	41.4	38.1-44.8
45-59	421	24.2	20.1-28.3	21.6	17.7-25.5	13.5	10.3-16.8	8.8	6.1-11.5	31.8	27.4-36.3
60-69	102	31.4	22.4-40.4	21.6	13.6-29.6	22.5	14.4-30.7	7.8	2.6-13.1	16.7	9.4-23.9
<b>18-69</b>	<b>1989</b>	<b>16.4</b>	<b>14.7-18.0</b>	<b>18.0</b>	<b>16.3-19.7</b>	<b>17.2</b>	<b>15.5-18.9</b>	<b>8.3</b>	<b>7.0-9.5</b>	<b>40.2</b>	<b>38.0-42.3</b>
<b>Both Sexes</b>											
18-29	1051	14.2	12.0-16.4	17.7	15.3-20.1	19.8	17.3-22.3	9.9	8.0-11.8	38.4	35.4-41.4
30-44	1231	16.1	13.9-18.3	18.5	16.2-20.8	18.8	16.5-21.0	10.7	8.8-12.6	35.9	33.2-38.7
45-59	704	24.6	21.4-27.8	22.4	19.3-25.5	17.1	14.2-19.9	8.2	6.1-10.2	27.8	24.5-31.1
60-69	163	34.7	27.3-42.0	22.8	16.3-29.3	20.7	14.5-26.9	6.6	2.8-10.4	15.2	9.7-20.7
<b>18-69</b>	<b>3149</b>	<b>18.2</b>	<b>16.8-19.6</b>	<b>19.3</b>	<b>17.8-20.7</b>	<b>18.9</b>	<b>17.5-20.4</b>	<b>9.6</b>	<b>8.5-10.7</b>	<b>34.0</b>	<b>32.3-35.7</b>

Hot and cold beverages= tea- coffee – juice, etc.

**Table (47)** shows percentage distribution of participants according to adding sugar for each cup of hot and cold beverages, by age group and sex. The overall prevalence of non-adding sugar for each cup of hot and cold beverages was 26.8%. Women used not to add sugar for each cup of hot and cold beverages more frequently than men (29.9 vs. 23.5%). About two-fifths of respondents used to add 2 teaspoons of sugar for each cup of hot and cold beverages (39.8%), with men used to do so more frequently than women (45.5% vs. 34.5%). Only 5.3% of all participants used to add three or more teaspoons for each cup of hot and cold beverages. No specific age pattern was noticed in all the above findings.

**Table (47): Percentage distribution of participants according to adding sugar to each cup of hot and cold beverages, by age group and sex**

Age Group (years) and sex	n	None		1 teaspoon		2 teaspoons		3+ teaspoons	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>									
18-29	496	27.6	23.7-31.6	25.8	22.0-29.7	42.1	37.8-46.5	4.4	2.6-6.2
30-44	493	18.9	15.4-22.3	24.9	21.1-28.8	49.9	45.5-54.3	6.3	4.1-8.4
45-59	343	23.3	18.8-27.8	26.8	22.1-31.5	45.5	40.2-50.8	4.4	2.2-6.5
60-69	76	21.1	11.9-30.2	31.6	21.1-42.0	43.4	32.3-54.6	3.9	0.0-8.3
<b>18-69</b>	<b>1408</b>	<b>23.5</b>	<b>21.2-25.7</b>	<b>26.0</b>	<b>23.7-28.3</b>	<b>45.5</b>	<b>42.9-48.1</b>	<b>5.0</b>	<b>3.9-6.2</b>
<b>Women</b>									
18-29	738	31.7	28.3-35.1	30.8	27.4-34.1	32.2	28.9-35.6	5.3	3.7-6.9
30-44	976	27.4	24.6-30.2	29.9	27.0-32.8	36.9	33.9-39.9	5.8	4.4-7.3
45-59	510	30.6	26.6-34.6	27.8	24.0-31.7	36.3	32.1-40.4	5.3	3.4-7.2
60-69	131	30.5	22.6-38.4	34.4	26.2-42.5	29.8	21.9-37.6	5.3	1.5-9.2
<b>18-69</b>	<b>2355</b>	<b>29.9</b>	<b>28.0-31.8</b>	<b>30.1</b>	<b>28.2-32.0</b>	<b>34.5</b>	<b>32.6-36.5</b>	<b>5.5</b>	<b>4.5-6.4</b>
<b>Both Sexes</b>									
18-29	1234	29.6	27.1-32.2	28.3	25.7-30.8	37.2	34.5-40.0	4.9	3.6-6.1
30-44	1469	23.3	21.1-25.5	27.5	25.2-29.9	43.1	40.5-45.8	6.1	4.8-7.3
45-59	853	27.3	24.3-30.2	27.4	24.4-30.4	40.5	37.2-43.8	4.9	3.4-6.3
60-69	207	26.7	20.7-32.7	33.2	26.8-39.7	35.3	28.8-41.9	4.8	1.9-7.7
<b>18-69</b>	<b>3763</b>	<b>26.8</b>	<b>25.3-28.3</b>	<b>28.1</b>	<b>26.7-29.6</b>	<b>39.8</b>	<b>38.2-41.4</b>	<b>5.3</b>	<b>4.5-6.0</b>

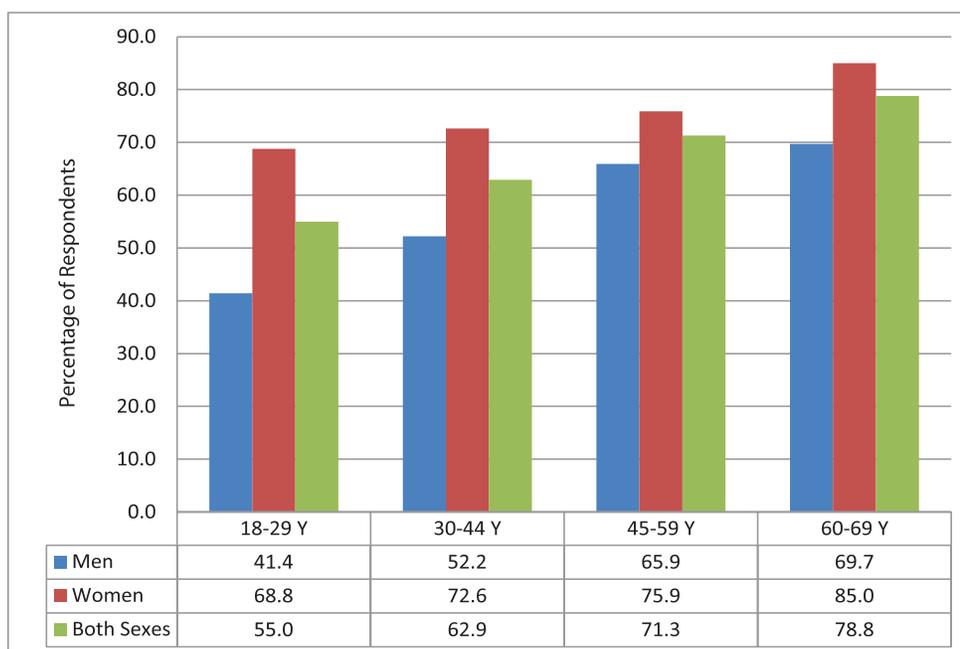
### 3.1.2.4. Physical activity:

#### 3.1.2.4.1. Not meeting WHO Recommendations of physical activity:

**Table (48)** and **figure (4)** show the percentage of participants not meeting WHO recommendations on physical activity for health, according to age group and sex. The overall percentage of participants not meeting WHO recommendations was 62.6%. Women had a higher percentage of participants' not-meeting the recommendations (72.8 vs. 51.4%). There was an increasing trend of non-meeting the WHO recommendations as the age advanced.

**Table (48): Percentage of participants not meeting WHO recommendations on physical activity for health, according to age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29	507	41.4	37.1-45.7	760	68.8	65.5-72.1	1267	55.0	52.2-57.9
30-44	500	52.2	47.8-56.6	998	72.6	69.9-75.4	1498	62.9	60.3-65.5
45-59	346	65.9	60.9-70.9	522	75.9	72.2-79.5	868	71.3	68.3-74.4
60-69	76	69.7	59.4-80.1	133	85.0	78.9-91.0	209	78.8	73.2-84.4
<b>18-69</b>	<b>1429</b>	<b>51.4</b>	<b>48.8-54.0</b>	<b>2413</b>	<b>72.8</b>	<b>71.0-74.6</b>	<b>3842</b>	<b>62.6</b>	<b>60.9-64.2</b>



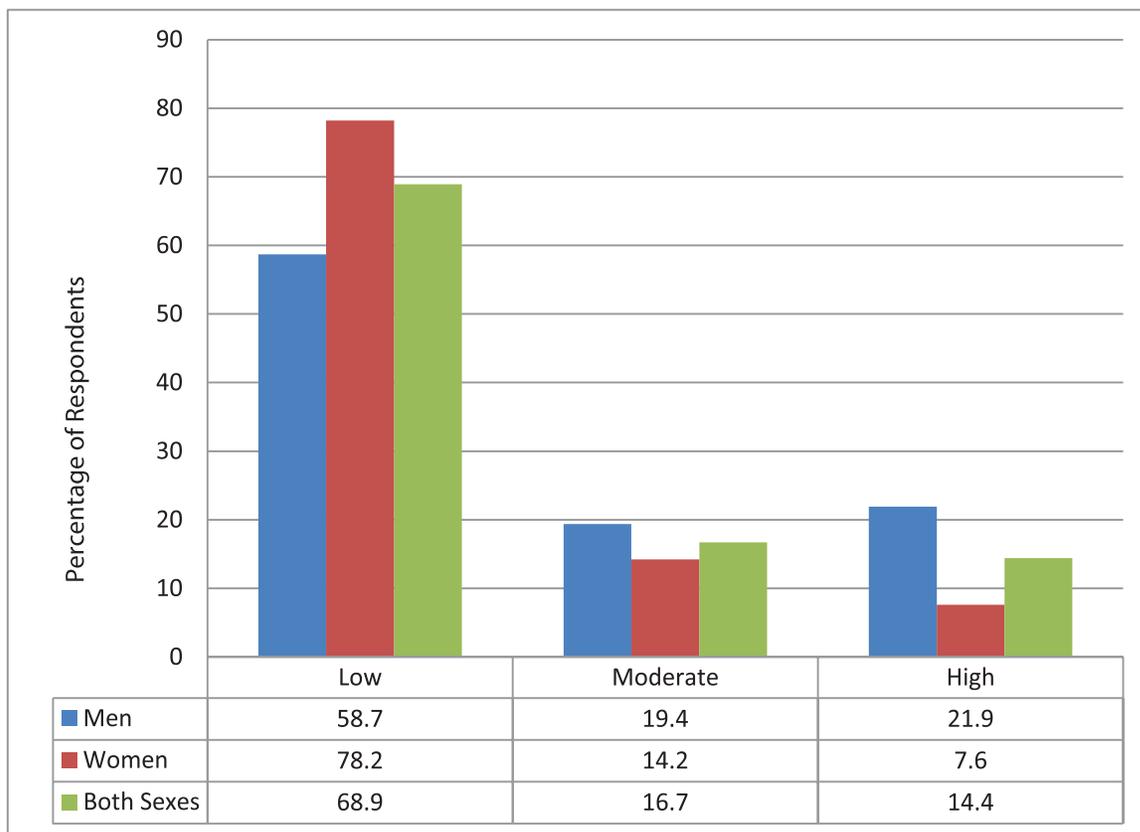
**Figure (4): Percentage of participants not meeting WHO recommendations on physical activity for health, according to age group and sex**

**Table (49)** shows the level of physical activity among participants. The overall percentage of low physical activity among participants was 68.9%. Women had a higher prevalence rate than men (78.2 vs. 58.7%). The overall percentage of moderate physical activity was 16.7%. In this respect men had a higher prevalence rate than women (19.4 vs. 14.2%). Regarding the high level of physical activity the overall prevalence was 14.4%, being significantly higher among men than women (21.9 vs. 7.6%).

**Figure (5)** portrays the percentage distribution of participants according to the WHO recommendations level of total physical activity, by sex.

**Table (49): Level of total physical activity according to WHO recommendations, by age group and sex**

Age Group (years) and sex	n	Low		Moderate		High	
		%	95% CI	%	95% CI	%	95% CI
<b>Men</b>							
18-29	507	48.1	43.8-52.5	18.7	15.3-22.1	33.1	29.0-37.2
30-44	500	61	56.7-65.3	19.2	15.7-22.7	19.8	16.3-23.3
45-59	346	72.5	67.8-77.2	21.1	16.8-25.4	6.4	3.8-8.9
60-69	76	75	65.3-84.7	19.7	10.8-28.7	5.3	0.2-10.3
<b>18-69</b>	<b>1429</b>	<b>58.7</b>	<b>56.1-61.3</b>	<b>19.4</b>	<b>17.3-21.5</b>	<b>21.9</b>	<b>19.7-24.1</b>
<b>Women</b>							
18-29	760	75	71.9-78.1	15.3	12.7-17.8	9.7	7.6-11.8
30-44	998	78	75.4-80.5	15.3	13.1-17.6	6.7	5.2-8.3
45-59	522	80.7	77.3-84.0	13.2	10.3-16.1	6.1	4.1-8.2
60-69	133	88	82.4-93.5	6.8	2.5-11.0	5.3	1.5-9.1
<b>18-69</b>	<b>2413</b>	<b>78.2</b>	<b>76.5-79.8</b>	<b>14.2</b>	<b>12.8-15.6</b>	<b>7.6</b>	<b>6.5-8.7</b>
<b>Both Sexes</b>							
18-29	1267	61.5	58.7-64.3	17	14.9-19.1	21.5	19.1-23.9
30-44	1498	69.8	67.4-72.3	17.2	15.2-19.2	13	11.1-14.9
45-59	868	77	74.1-79.8	16.8	14.3-19.3	6.2	4.6-7.9
60-69	209	82.7	77.5-87.9	12	7.5-16.5	5.3	2.2-8.3
<b>18-69</b>	<b>3842</b>	<b>68.9</b>	<b>67.3-70.4</b>	<b>16.7</b>	<b>15.5-17.9</b>	<b>14.4</b>	<b>13.2-15.7</b>



**Figure (5): Level of total physical activity according to the WHO recommendations, by sex**

### 3.1.2.4.2. Time spent in total physical activity:

**Table (50)** shows the mean time of total physical activity per day in minutes. The overall mean time spent in physical activity was 35.7 minutes/day. Men spent a significantly longer time in physical activity per day than women (48.4 vs. 24.2 minutes/day), even in each studied age group. Younger men and women (18-29 years) spent longer time participating in physical activity than older men and women (60-69 years).

The table shows also the median time of total physical activity in minutes on average per day. The overall median time spent in physical activity was 1.4 minutes/day. Men spent longer time in physical activity per day than women (17.1 vs. 0.0 minutes/day).

**Table (50): Mean and median minutes of total physical activity on average per day, by age group and sex**

Age Group (years) and sex	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
<b>Men</b>					
18-29	507	64.9	56.4-73.4	32.1	0.0-85.7
30-44	500	45.9	37.6-54.1	17.1	0.0-60.0
45-59	346	23.9	18.6-29.2	1.4	0.0-32.1
60-69	76	26.8	16.2-37.4	0.0	0.0-30.0
<b>18-69</b>	<b>1429</b>	<b>48.4</b>	<b>43.7-53.1</b>	<b>17.1</b>	<b>0.0-60.0</b>
<b>Women</b>					
18-29	760	28.6	24.0-33.3	0.0	0.0-27.1
30-44	998	22.0	18.7-25.3	0.0	0.0-21.4
45-59	522	23.8	17.8-29.8	0.0	0.0-17.1
60-69	133	12.2	6.4-18.1	0.0	0.0-2.1
<b>18-69</b>	<b>2413</b>	<b>24.2</b>	<b>21.7-26.6</b>	<b>0.0</b>	<b>0.0-21.4</b>
<b>Both Sexes</b>					
18-29	1267	46.9	41.9-51.8	12.9	0.0-55.7
30-44	1498	33.4	29.0-37.8	2.1	0.0-38.6
45-59	868	23.9	19.8-27.9	0.0	0.0-25.7
60-69	209	18.1	12.5-23.7	0.0	0.0-15.0
<b>18-69</b>	<b>3842</b>	<b>35.7</b>	<b>33.1-38.4</b>	<b>1.4</b>	<b>0.0-42.9</b>

### 3.1.2.4.3. Time spent in work-, transport-, and recreational-related physical activity:

**Table (51)** shows the mean time in minutes spent in work-, transport-, and recreation-related physical activity per day. The overall mean time spent in recreation-related physical activity was 17.1 minutes/day, followed by that spent in work-related physical activity (13.3 minutes/day) then the transport-related physical activity (5.3 minutes/day). In general, men spent a significantly longer time than women in work-related physical activity (16.8 vs. 10.1 minutes/day), in transport-related activity (7.6 vs. 3.2 minutes/day) and in recreation-related physical activity (24.0 vs. 10.9 minutes/day).

**Table (51): Mean minutes of work-, transport- and recreation-related physical activity on average per day, by age group and sex**

Physical activity	Men			Women			Both Sexes		
	n	Mean minutes	95% CI	n	Mean minutes	95% CI	n	Mean minutes	95% CI
<b>Work-related</b>									
18-29	507	20.3	15.2-25.5	760	12.2	8.8-15.7	1267	16.3	13.2-19.4
30-44	500	19.1	13.3-24.9	998	8.6	6.2-11.1	1498	13.6	10.6-16.7
45-59	346	7.1	3.0-11.1	522	11.2	6.6-15.9	868	9.3	6.2-12.5
60-69	76	10.4	1.6-19.1	133	2.0	0.0-4.0	209	5.4	1.6-9.1
<b>18-69</b>	<b>1429</b>	<b>16.8</b>	<b>13.7-19.8</b>	<b>2413</b>	<b>10.1</b>	<b>8.2-11.9</b>	<b>3842</b>	<b>13.3</b>	<b>11.5-15.0</b>
<b>Transport-related</b>									
18-29	507	9.6	7.1-12.2	760	4.5	2.6-6.4	1267	7.1	5.5-8.7
30-44	500	6.3	5.0-7.7	998	2.2	1.6-2.8	1498	4.2	3.4-4.9
45-59	346	5.6	3.4-7.8	522	2.8	1.7-3.9	868	4.1	2.9-5.3
60-69	76	7.3	2.9-11.7	133	2.4	0.8-4.1	209	4.4	2.3-6.4
<b>18-69</b>	<b>1429</b>	<b>7.6</b>	<b>6.3-8.9</b>	<b>2413</b>	<b>3.2</b>	<b>2.4-4.0</b>	<b>3842</b>	<b>5.3</b>	<b>4.6-6.1</b>
<b>Recreation-related</b>									
18-29	507	34.9	30.0-39.8	760	11.8	10.0-13.7	1267	23.4	20.7-26.1
30-44	500	20.5	17.0-24.0	998	11.1	9.5-12.7	1498	15.6	13.7-17.5
45-59	346	11.2	9.0-13.5	522	9.7	6.7-12.7	868	10.4	8.5-12.3
60-69	76	9.1	4.6-13.6	133	7.8	3.9-11.8	209	8.3	5.3-11.3
<b>18-69</b>	<b>1429</b>	<b>24.0</b>	<b>21.5-26.4</b>	<b>2413</b>	<b>10.9</b>	<b>9.7-12.0</b>	<b>3842</b>	<b>17.1</b>	<b>15.8-18.5</b>

**Table (52)** shows the median time of work-, transport- and recreation- related physical activity in minutes. As will be mentioned later, in table (53), more than half of the participants did not do any work-, transport- and recreation- related physical activity, all median times were of zero values.

**Table (52): Median minutes of work-, transport- and recreation-related physical activity on average per day, by age group and sex**

No Physical activity	Men			Women			Both Sexes		
	n	Median minutes	IQR	n	Median minutes	IQR	n	Median minutes	IQR
<b>Work-related</b>									
18-29	507	0.0	0.0-5.7	760	0.0	0.0-0.0	1267	0.0	0.0-0.0
30-44	500	0.0	0.0-0.0	998	0.0	0.0-0.0	1498	0.0	0.0-0.0
45-59	346	0.0	0.0-0.0	522	0.0	0.0-0.0	868	0.0	0.0-0.0
60-69	76	0.0	0.0-0.0	133	0.0	0.0-0.0	209	0.0	0.0-0.0
<b>18-69</b>	<b>1429</b>	<b>0.0</b>	<b>0.0-0.0</b>	<b>2413</b>	<b>0.0</b>	<b>0.0-0.0</b>	<b>3842</b>	<b>0.0</b>	<b>0.0-0.0</b>
<b>Transport-related</b>									
18-29	507	0.0	0.0-5.7	760	0.0	0.0-0.0	1267	0.0	0.0-0.0
30-44	500	0.0	0.0-0.0	998	0.0	0.0-0.0	1498	0.0	0.0-0.0
45-59	346	0.0	0.0-0.0	522	0.0	0.0-0.0	868	0.0	0.0-0.0
60-69	76	0.0	0.0-1.4	133	0.0	0.0-0.0	209	0.0	0.0-0.0
<b>18-69</b>	<b>1429</b>	<b>0.0</b>	<b>0.0-0.0</b>	<b>2413</b>	<b>0.0</b>	<b>0.0-0.0</b>	<b>3842</b>	<b>0.0</b>	<b>0.0-0.0</b>
<b>Recreation-related</b>									
18-29	507	8.6	0.0-51.4	760	0.0	0.0-0.0	1267	0.0	0.0-30.0
30-44	500	0.0	0.0-25.7	998	0.0	0.0-0.0	1498	0.0	0.0-17.1
45-59	346	0.0	0.0-17.1	522	0.0	0.0-0.0	868	0.0	0.0-8.6
60-69	76	0.0	0.0-8.6	133	0.0	0.0-0.0	209	0.0	0.0-0.0
<b>18-69</b>	<b>1429</b>	<b>0.0</b>	<b>0.0-30.0</b>	<b>2413</b>	<b>0.0</b>	<b>0.0-8.6</b>	<b>3842</b>	<b>0.0</b>	<b>0.0-19.3</b>

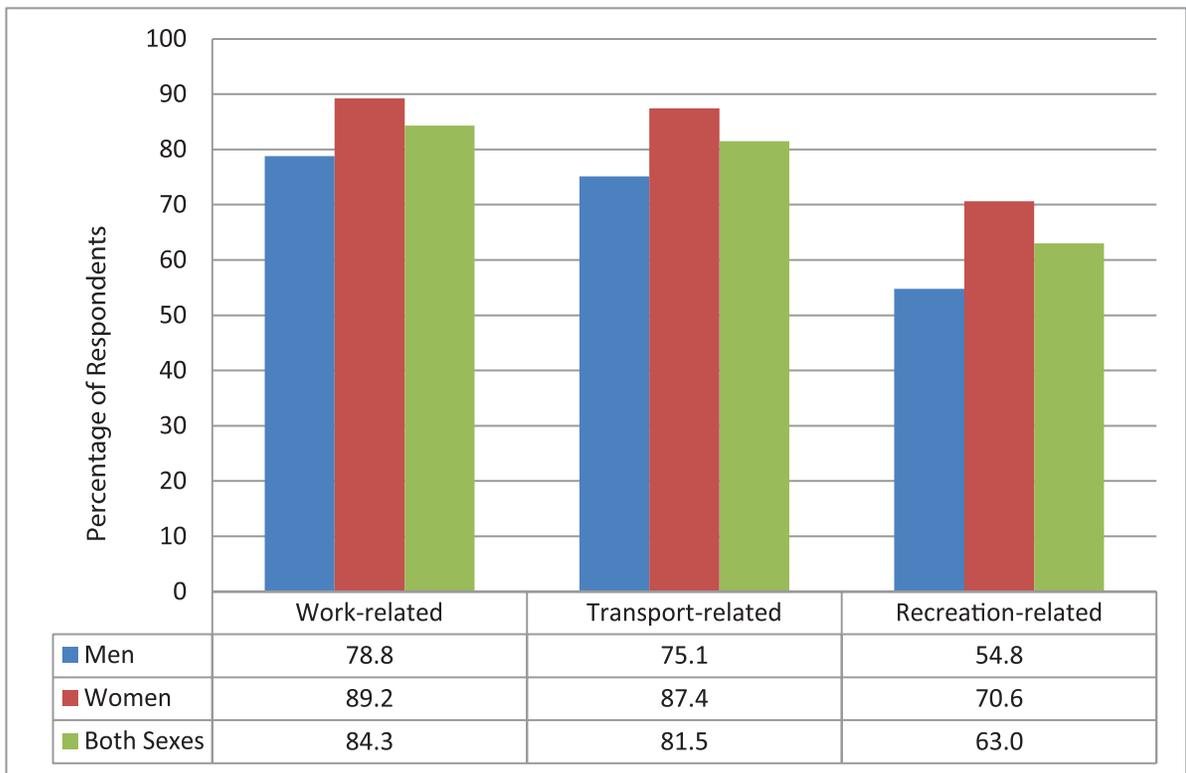
IQR Inter-quartile range (P25-P75)

**Table (53)** shows the percentage of participants reporting no work-, transport- or recreation-related physical activity, by age group and sex. The highest prevalence rate was that of doing no activity at work (84.3%), followed by not doing activity for transport (81.5%), then not doing activity at recreation (63.0%). In general, Women had significantly higher prevalence rates than men of having no work-related physical activity (89.2 vs. 78.8%), no transport-related physical activity (87.4 vs. 75.1%) and no recreation-related physical activity (70.6 vs. 54.8%). Concerning the age, there were increasing prevalence rates of having no work-, and recreation-related physical activity with advancing age.

**Figure (6)** illustrates the percentage distribution of participants according to no work-, transport- and recreation-related physical activity on average per day by sex.

**Table (53): Percentage of participants reporting no work-, transport- and recreation-related physical activity on average per day, by age group and sex**

No Physical activity	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>Work-related</b>									
18-29	507	75.0	71.2-78.7	760	86.6	84.2-89.0	1267	80.7	78.5-83.0
30-44	500	75.8	72.0-79.6	998	89.8	87.9-91.7	1498	83.1	81.0-85.2
45-59	346	89.3	86.0-92.6	522	90.6	88.1-93.1	868	90.0	88.0-92.0
60-69	76	89.5	82.6-96.4	133	96.2	93.0-99.5	209	93.5	90.1-96.9
<b>18-69</b>	<b>1429</b>	<b>78.8</b>	<b>76.7-81.0</b>	<b>2413</b>	<b>89.2</b>	<b>88.0-90.5</b>	<b>3842</b>	<b>84.3</b>	<b>83.0-85.5</b>
<b>Transport-related</b>									
18-29	507	73.2	69.3-77.0	760	86.1	83.6-88.5	1267	79.6	77.3-81.9
30-44	500	75.0	71.2-78.8	998	88.0	86.0-90.0	1498	81.8	79.6-83.9
45-59	346	79.5	75.2-83.7	522	88.3	85.6-91.1	868	84.3	81.8-86.8
60-69	76	73.7	63.8-83.6	133	89.5	84.3-94.7	209	83.1	77.9-88.3
<b>18-69</b>	<b>1429</b>	<b>75.1</b>	<b>72.8-77.3</b>	<b>2413</b>	<b>87.4</b>	<b>86.1-88.8</b>	<b>3842</b>	<b>81.5</b>	<b>80.2-82.8</b>
<b>Recreation-related</b>									
18-29	507	47.5	43.2-51.9	760	66.7	63.4-70.1	1267	57.1	54.3-59.9
30-44	500	55.6	51.2-60.0	998	68.5	65.7-71.4	1498	62.4	59.8-64.9
45-59	346	64.5	59.4-69.5	522	77.4	73.8-81.0	868	71.5	68.5-74.5
60-69	76	71.1	60.9-81.3	133	79.7	72.9-86.5	209	76.2	70.4-82.0
<b>18-69</b>	<b>1429</b>	<b>54.8</b>	<b>52.2-57.5</b>	<b>2413</b>	<b>70.6</b>	<b>68.7-72.4</b>	<b>3842</b>	<b>63.0</b>	<b>61.4-64.6</b>



**Figure (6): Percentage of participants reporting no work-, transport and recreation-related physical activity on average per day, by sex**

**Table (54)** shows the distribution of the place and time of physical activity, by age group and sex. The overall composition of total physical activity was 20.4% activity from work, 21.3% for transport and 58.3% during leisure time. Men had more activity from work than women (21.2 vs. 19.3%), more activity for transport (23.2 vs. 18.6%) but less activity during leisure time (55.6 vs. 62.0%). Concerning the age, there was a decreasing trend of percentage activity of work or activity during leisure time, as the age advanced on one side and increasing trend of transport, as the age advanced on other side.

**Table (54): Distribution of the place and time of physical activity, by age group and sex**

Age Group (years) and sex	n	Activity from work		Activity for transport		Activity during leisure time	
		%	95% CI	%	95% CI	%	95% CI
<b>Men</b>							
18-29	347	21.3	17.9-24.8	20.0	16.4-23.6	58.7	54.3-63.0
30-44	303	24.5	20.5-28.4	22.7	18.6-26.8	52.9	48.2-57.5
45-59	175	15.0	10.3-19.7	29.3	23.1-35.5	55.7	49.2-62.2
60-69	35	17.3	5.4-29.1	39.5	25.1-53.9	43.2	28.8-57.6
<b>18-69</b>	<b>860</b>	<b>21.2</b>	<b>18.9-23.5</b>	<b>23.2</b>	<b>20.7-25.7</b>	<b>55.6</b>	<b>52.8-58.4</b>
<b>Women</b>							
18-29	338	21.4	17.5-25.3	16.9	13.4-20.4	61.7	57.0-66.4
30-44	416	17.1	13.9-20.3	17.9	14.6-21.2	65.0	60.8-69.2
45-59	185	21.5	16.0-27.1	21.7	16.1-27.2	56.8	50.1-63.5
60-69	36	9.4	1.0-17.8	26.3	13.1-39.4	64.3	49.9-78.8
<b>18-69</b>	<b>975</b>	<b>19.3</b>	<b>17.1-21.6</b>	<b>18.6</b>	<b>16.4-20.8</b>	<b>62</b>	<b>59.2-64.9</b>
<b>Both Sexes</b>							
18-29	685	21.4	18.8-23.9	18.8	16.2-21.4	59.8	56.6-63.1
30-44	719	21.3	18.7-24.0	20.6	17.9-23.3	58.1	54.8-61.3
45-59	360	18.0	14.4-21.6	25.8	21.6-30.0	56.2	51.5-60.9
60-69	71	13.6	6.1-21.1	33.3	23.4-43.3	53.1	42.5-63.6
<b>18-69</b>	<b>1835</b>	<b>20.4</b>	<b>18.8-22.0</b>	<b>21.3</b>	<b>19.6-23.0</b>	<b>58.3</b>	<b>56.3-60.3</b>

### 3.1.2.4.4. No-vigorous activity:

**Table (55)** shows the percentage of participants reporting no vigorous physical activity, by age group and sex. The overall percentage of participants with no vigorous physical activity was 84.2%. The prevalence of women having no vigorous activity was significantly higher than men (91.2 vs. 76.6%). Concerning the age, there was an increasing trend of percentage of participants having no vigorous physical activity as the age advanced, particularly among men.

**Table (55): Percentage of participants reporting no vigorous physical activity, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI	n	% no vigorous activity	95% CI
18-29	507	66.1	62.0-70.2	760	89.6	87.4-91.8	1267	77.8	75.3-80.2
30-44	500	78.4	74.8-82.0	998	90.9	89.1-92.7	1498	84.9	82.9-86.9
45-59	346	90.8	87.7-93.8	522	93.7	91.6-95.8	868	92.3	90.5-94.1
60-69	76	94.7	89.7-99.8	133	93.2	89.0-97.5	209	93.8	90.6-97.1
<b>18-69</b>	<b>1429</b>	<b>76.6</b>	<b>74.4-78.9</b>	<b>2413</b>	<b>91.2</b>	<b>90.0-92.3</b>	<b>3842</b>	<b>84.2</b>	<b>83.0-85.5</b>

### 3.1.2.4.5. Sedentary activities:

**Table (56)** shows total time in minutes spent in sedentary activities per day. The overall mean time spent in sedentary activities was 222.9 minutes/day, and the median time was 180 minutes/day. Women spent more minutes in sedentary activities (225.7 minutes/day) than men (219.9 minutes/day), but the median was the same (180 minutes/day). No particular trend of time spent in sedentary activities with the age.

**Table (56): Mean and median minutes spent in sedentary activities on average per day, by age group and sex**

Age Group (years) and sex	n	Mean minutes	95% CI	Median minutes	Inter-quartile range (P25-P75)
<b>Men</b>					
18-29	524	219.0	206.5-231.4	180	120-300
30-44	507	202.6	190.4-214.7	180	120-270
45-59	346	241.2	223.8-258.6	240	120-300
60-69	79	257.9	217.4-298.5	240	90-360
<b>18-69</b>	<b>1456</b>	<b>219.9</b>	<b>212.1-227.6</b>	<b>180</b>	<b>120-300</b>
<b>Women</b>					
18-29	781	232.4	221.1-243.7	210	120-300
30-44	1013	205.8	196.1-215.5	180	90-300
45-59	531	232.6	217.2-248.0	180	90-360
60-69	134	262.9	232.5-293.3	240	120-360
<b>18-69</b>	<b>2459</b>	<b>225.7</b>	<b>219.0-232.4</b>	<b>180</b>	<b>120-300</b>
<b>Both Sexes</b>					
18-29	1305	225.6	217.2-234.1	180	120-300
30-44	1520	204.3	196.6-212.0	180	90-300
45-59	877	236.5	225.0-248.0	180	120-302
60-69	213	260.9	236.4-285.3	240	120-360
<b>18-69</b>	<b>3915</b>	<b>222.9</b>	<b>217.8-228.0</b>	<b>180</b>	<b>120-300</b>

**STEP 1**  
**C) Clinical History**

### 3.1.3. Sub-Section (3): Clinical History

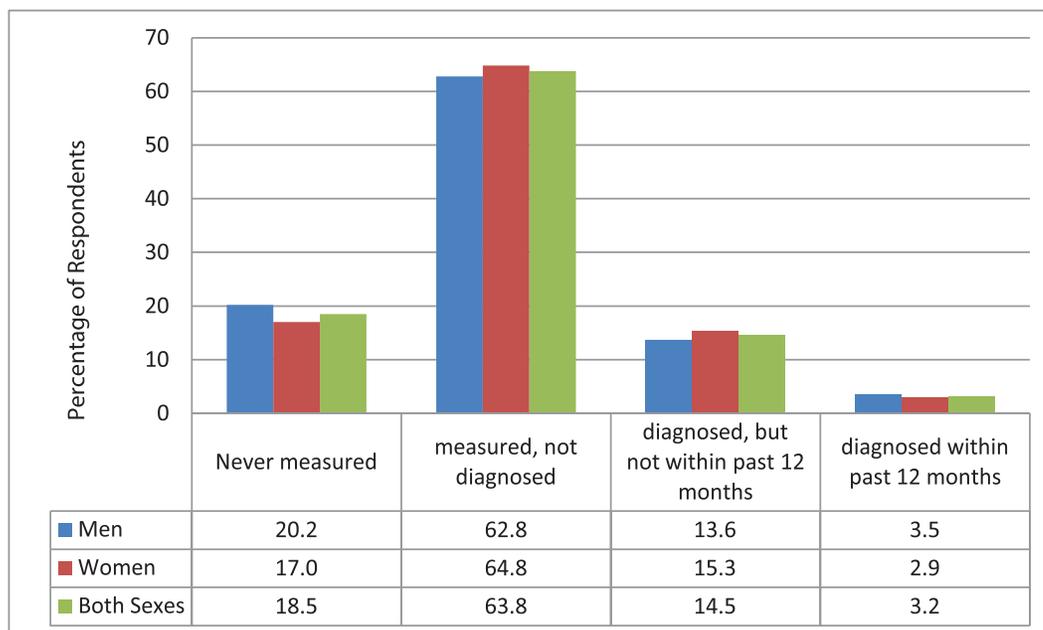
#### 3.1.3.1. Present History of hypertension:

**Table (57)** shows the percentage distribution of participants according to history of blood pressure measurement and diagnosis of hypertension, by age group and sex. The overall prevalence of never having the blood pressure measured was 18.5%. The prevalence of never having the blood pressure measured was higher in men 20.2% than women 17.0%. The overall prevalence of having blood pressure measured but not diagnosed as hypertensive was 63.8%, with higher prevalence in women 64.8% than men 62.8%. The overall prevalence of being diagnosed as hypertensive but not within the past 12 months was 14.5%, with higher prevalence in women 15.3% than men 13.6%. The overall prevalence of being diagnosed as hypertensive in the past 12 months was 3.2%, with higher prevalence in men 3.5% than women 2.9%. There was an increasing prevalence of diagnosed hypertension within the past 12 months and those not within the past 12 months as the age advanced. However, there was decreasing percentage of those who never measure their blood pressure as the age advanced.

**Figure (7)** portrays the percentage distribution of participants according to blood pressure measurement and diagnosis by sex.

**Table (57): Percentage distribution of participants according to history of blood pressure measurement and diagnosis of hypertension, by age group and sex**

Sex	Age Group (years)	n	Never measured		measured, not diagnosed		diagnosed, but not within past 12 months		diagnosed within past 12 months	
			%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>	18-29	524	28.2	24.4-32.1	64.7	60.6-68.8	5	3.1-6.8	2.1	0.9-3.3
	30-44	507	19.5	16.1-23.0	69	65.0-73.1	8.3	5.9-10.7	3.2	1.6-4.7
	45-59	346	7.8	5.0-10.6	54.9	49.7-60.2	30.9	26.1-35.8	6.4	3.8-8.9
	60-69	79	6.3	1.0-11.7	36.7	26.1-47.3	50.6	39.6-61.7	6.3	1.0-11.7
	<b>18-69</b>	<b>1456</b>	<b>20.2</b>	<b>18.1-22.3</b>	<b>62.8</b>	<b>60.3-65.3</b>	<b>13.6</b>	<b>11.8-15.3</b>	<b>3.5</b>	<b>2.6-4.4</b>
<b>Women</b>	18-29	781	23.3	20.3-26.3	73	69.9-76.1	2.3	1.3-3.4	1.4	0.6-2.2
	30-44	1013	17.3	14.9-19.6	69.9	67.1-72.7	10.5	8.6-12.3	2.4	1.4-3.3
	45-59	531	8.3	5.9-10.6	53.5	49.2-57.7	33.5	29.5-37.5	4.7	2.9-6.5
	60-69	134	8.2	3.6-12.9	32.1	24.2-40.0	51.5	43.0-60.0	8.2	3.6-12.9
	<b>18-69</b>	<b>2459</b>	<b>17</b>	<b>15.4-18.5</b>	<b>64.8</b>	<b>62.9-66.7</b>	<b>15.3</b>	<b>13.8-16.7</b>	<b>2.9</b>	<b>2.2-3.6</b>
<b>Total</b>	18-29	1305	25.8	23.4-28.2	68.8	66.2-71.4	3.6	2.6-4.7	1.8	1.0-2.5
	30-44	1520	18.4	16.3-20.4	69.5	67.1-71.9	9.4	7.9-10.9	2.7	1.9-3.6
	45-59	877	8.1	6.3-9.9	54.1	50.8-57.4	32.4	29.2-35.5	5.5	3.9-7.0
	60-69	213	7.4	3.9-11.0	34	27.6-40.4	51.1	44.4-57.9	7.4	3.9-11.0
	<b>18-69</b>	<b>3915</b>	<b>18.5</b>	<b>17.2-19.8</b>	<b>63.8</b>	<b>62.3-65.4</b>	<b>14.5</b>	<b>13.3-15.6</b>	<b>3.2</b>	<b>2.6-3.8</b>



**Figure (7): Percentage distribution of participants according to history of blood pressure measurement and diagnosis of hypertension by sex**

**Table (58)** shows the percentage of participants previously diagnosed with hypertension who report current use of antihypertensive medication prescribed by a doctor, according to age group and sex. The overall percentage of those currently taking medication for raised blood pressure prescribed by doctor among those diagnosed was 73.6%. Women had higher percentage (77.1%) than men (69.6%). There was increasing trend of this percentage, as the age advanced.

**Table (58): Percentage of participants previously diagnosed with hypertension who report current use of antihypertensive medication prescribed by a doctor, according to age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
18-29	37	29.7	14.9-44.6	29	34.5	17.1-51.8	66	31.4	20.0-42.7
30-44	58	72.4	60.8-84.0	130	60.0	51.5-68.5	188	65.6	58.6-72.6
45-59	129	75.2	67.7-82.7	203	84.7	79.8-89.7	332	80.5	76.1-84.8
60-69	45	91.1	82.7-99.5	80	93.8	88.4-99.1	125	92.7	88.1-97.3
<b>18-69</b>	<b>269</b>	<b>69.6</b>	<b>63.9-75.3</b>	<b>442</b>	<b>77.1</b>	<b>73.2-81.0</b>	<b>711</b>	<b>73.6</b>	<b>70.3-77.0</b>

**Table (59)** shows the percentage of participants previously diagnosed with hypertension who have seen a traditional healer for hypertension or who are currently taking traditional treatment for hypertension, by age group and sex. The overall percentage of those who have been seen by a traditional healer for raised blood pressure was 15.4%. Women had higher percentage (15.6%) of seeking advice from a traditional healer for raised blood pressure than men (15.1%).

The table shows also the percentage of respondents who are currently taking herbal or traditional remedy for raised blood pressure among those previously diagnosed with raised blood pressure. The overall percentage of those who are currently taking herbal or traditional remedy for raised blood pressure was 14.6%. Women had higher percentage (15.7%) of taking herbal or traditional remedy for raised blood pressure than men (13.4%).

**Table (59): Percentage of participants previously diagnosed with hypertension who have seen a traditional healer for hypertension or who are currently taking traditional treatment for hypertension, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>Seen by traditional healer</b>									
18-29	37	16.2	4.3-28.2	29	13.8	1.2-26.4	66	15.4	6.4-24.3
30-44	58	10.3	2.5-18.2	130	12.3	6.6-18.0	188	11.4	6.7-16.1
45-59	129	13.2	7.3-19.1	203	14.8	9.9-19.7	332	14.1	10.3-17.8
60-69	45	24.4	11.8-37.1	80	21.3	12.3-30.2	125	22.5	15.1-29.9
<b>18-69</b>	<b>269</b>	<b>15.1</b>	<b>10.7-19.5</b>	<b>442</b>	<b>15.6</b>	<b>12.1-19.1</b>	<b>711</b>	<b>15.4</b>	<b>12.6-18.1</b>
<b>Taking traditional medicines</b>									
18-29	37	16.2	4.3-28.2	29	13.8	1.2-26.4	66	15.4	6.4-24.3
30-44	58	12.1	3.6-20.5	130	13.8	7.9-19.8	188	13.0	8.0-18.1
45-59	129	14.0	7.9-20.0	203	12.8	8.2-17.4	332	13.3	9.6-17.0
60-69	45	11.1	1.9-20.4	80	23.8	14.4-33.1	125	18.7	11.9-25.5
<b>18-69</b>	<b>269</b>	<b>13.4</b>	<b>9.3-17.5</b>	<b>442</b>	<b>15.7</b>	<b>12.2-19.2</b>	<b>711</b>	<b>14.6</b>	<b>12.0-17.3</b>

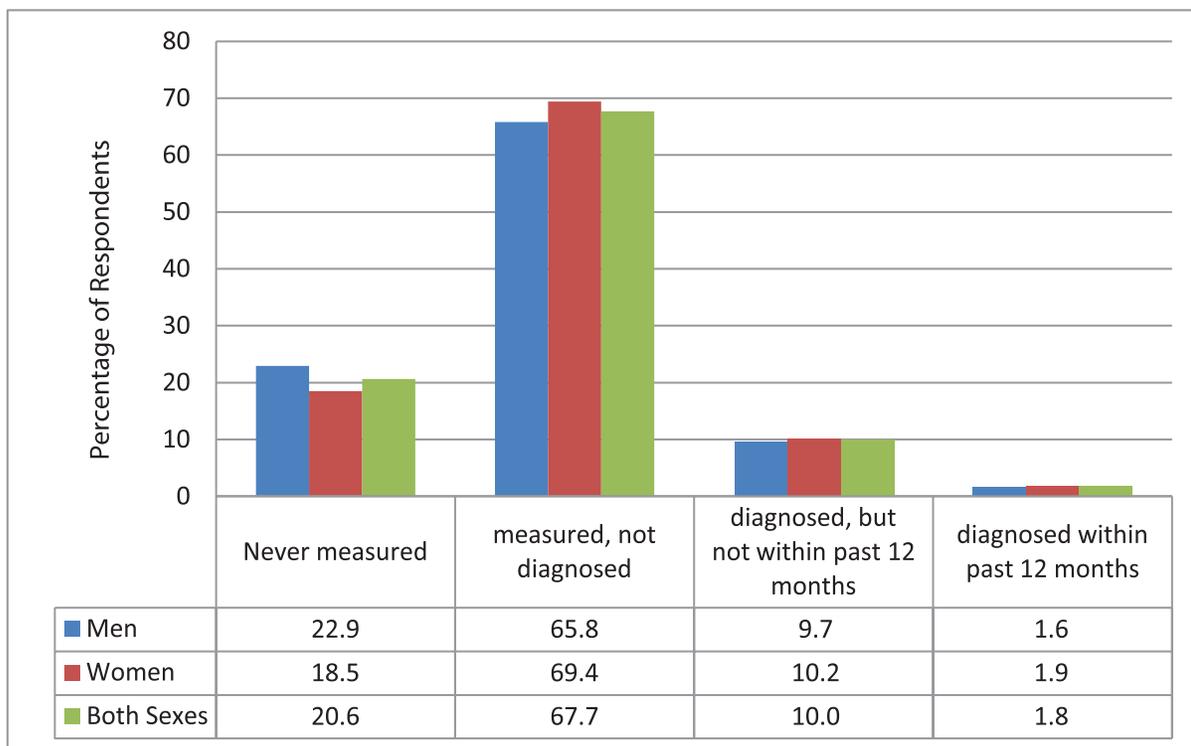
### 3.1.3.2. Present history of diabetes:

**Table (60)** shows the percentage distribution of participants according to history of blood sugar measurement and diagnosis of diabetes, by age group and sex. The overall prevalence of never having blood sugar measured was 20.6%. The prevalence of never having the blood sugar measured was higher in men 22.9% than women 18.5%. The overall prevalence of having blood sugar measured but not diagnosed as having raised blood sugar or diabetes was 67.7%, with higher prevalence in women 69.4% than men 65.8%. The overall prevalence of being diagnosed as having raised blood sugar or diabetes but not in the past 12 months was 10.0%, with higher prevalence in women 10.2% than men 9.7%. The overall prevalence of being diagnosed as having raised blood sugar or diabetes within the past 12 months was 1.8%, with higher prevalence in women 1.9% than men 1.6%. There was an increasing prevalence of diagnosed diabetes within the past 12 months and those not within the past 12 months as the age advanced. However, there was decreasing percentage of those who never measure their blood sugar as the age advanced.

**Figure (8)** illustrates the percentage distribution of participants according to history of blood sugar measurement and diagnosis of diabetes by sex.

**Table (60): Percentage distribution of participants according to history of blood sugar measurement and diagnosis of diabetes, by age group and sex**

Age Group (years) and sex	n	Never measured		measured, not diagnosed		diagnosed, but not within past 12 months		diagnosed within past 12 months	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>									
18-29	524	31.7	27.7-35.7	65.3	61.2-69.3	2.9	1.4-4.3	0.2	0.0-0.6
30-44	507	22.1	18.5-25.7	71.2	67.3-75.1	4.7	2.9-6.6	2.0	0.8-3.2
45-59	346	9.8	6.7-13.0	62.7	57.6-67.8	24.6	20.0-29.1	2.9	1.1-4.7
60-69	79	6.3	1.0-11.7	48.1	37.1-59.1	40.5	29.7-51.3	5.1	0.2-9.9
<b>18-69</b>	<b>1456</b>	<b>22.9</b>	<b>20.7-25.1</b>	<b>65.8</b>	<b>63.4-68.3</b>	<b>9.7</b>	<b>8.2-11.2</b>	<b>1.6</b>	<b>1.0-2.2</b>
<b>Women</b>									
18-29	781	23.7	20.7-26.7	73.4	70.3-76.5	2.7	1.6-3.8	0.3	0.0-0.6
30-44	1013	19.2	16.7-21.6	74.2	71.5-76.9	5.2	3.9-6.6	1.4	0.7-2.1
45-59	531	11.7	8.9-14.4	63.7	59.6-67.7	20.5	17.1-24.0	4.1	2.4-5.8
60-69	134	8.2	3.6-12.9	42.5	34.2-50.9	42.5	34.2-50.9	6.7	2.5-11.0
<b>18-69</b>	<b>2459</b>	<b>18.5</b>	<b>16.9-20.0</b>	<b>69.4</b>	<b>67.5-71.2</b>	<b>10.2</b>	<b>9.0-11.5</b>	<b>1.9</b>	<b>1.4-2.5</b>
<b>Both sexes</b>									
18-29	1305	27.7	25.2-30.2	69.3	66.7-71.9	2.8	1.9-3.7	0.2	0.0-0.5
30-44	1520	20.6	18.4-22.7	72.8	70.4-75.1	5.0	3.9-6.1	1.7	1.0-2.4
45-59	877	10.8	8.8-12.9	63.2	60.0-66.4	22.3	19.6-25.1	3.6	2.4-4.8
60-69	213	7.4	3.9-11.0	44.8	38.1-51.5	41.7	35.1-48.3	6.0	2.8-9.2
<b>18-69</b>	<b>3915</b>	<b>20.6</b>	<b>19.2-21.9</b>	<b>67.7</b>	<b>66.2-69.2</b>	<b>10.0</b>	<b>9.0-10.9</b>	<b>1.8</b>	<b>1.3-2.2</b>



**Figure (8): Percentage distribution of participants according to history of blood sugar measurement and diagnosis of diabetes, by sex**

**Table (61)** shows the percentage of participants previously diagnosed with diabetes who report currently any diabetes medication prescribed by a doctor, by age group and sex. The overall percentage of those currently taking drugs (medication) for diabetes prescribed by doctor, among those diagnosed was 85.4%. Men had higher percentage (89.8%) than women (81.6%). Concerning the age, there was an increasing percentage as the age advanced among women.

The table shows also the percentage of taking insulin prescribed for diabetes among those diagnosed with diabetes. The overall percentage of those currently taking insulin for diabetes prescribed by doctor, among those diagnosed was 39.5%. Women had higher percentage (41.6%) than men (37.0%). Concerning the age, a U-shaped curve of age was demonstrated, i.e. increased prevalence with the extremes of the studied age range.

**Table (61): Percentage of participants previously diagnosed with diabetes who report currently any diabetes medication prescribed by a doctor, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>Medications</b>									
18-29	16	93.8	81.8-100.0	23	60.9	40.8-80.9	39	77.7	65.1-90.4
30-44	34	85.3	73.3-97.3	67	64.2	52.6-75.7	101	74.3	65.8-82.9
45-59	95	87.4	80.6-94.1	131	87.0	81.2-92.8	226	87.2	82.8-91.6
60-69	36	97.2	91.8-100.0	66	90.9	83.9-97.9	102	93.4	88.6-98.2
<b>18-69</b>	<b>181</b>	<b>89.8</b>	<b>85.4-94.2</b>	<b>287</b>	<b>81.6</b>	<b>77.1-86.1</b>	<b>468</b>	<b>85.4</b>	<b>82.2-88.5</b>
<b>Insulin</b>									
18-29	16	62.5	38.6-86.4	23	43.5	23.1-63.9	39	53.2	37.2-69.3
30-44	34	35.3	19.1-51.5	67	31.3	20.2-42.5	101	33.2	23.6-42.9
45-59	95	29.5	20.2-38.7	131	35.9	27.6-44.1	226	32.8	26.7-39.0
60-69	36	41.7	25.4-57.9	66	56.1	44.0-68.1	102	50.4	40.7-60.2
<b>18-69</b>	<b>181</b>	<b>37.0</b>	<b>29.8-44.2</b>	<b>287</b>	<b>41.6</b>	<b>35.7-47.4</b>	<b>468</b>	<b>39.5</b>	<b>34.9-44.0</b>

**Table (62)** shows the percentage of participants previously diagnosed with diabetes who have seen a traditional healer for diabetes or who are currently taking traditional treatment for diabetes, by age group and sex. The overall percentage of those who have been seen by a traditional healer for raised blood sugar or diabetes was 15.2%. Men had higher percentage (18.7%) of seeking advice from a traditional healer for raised blood sugar or diabetes than women (12.3%).

The table shows also the percentage of respondents who are currently taking herbal or traditional treatment for raised blood sugar or diabetes among those previously diagnosed with raised blood sugar or diabetes. The overall percentage of those who are currently taking herbal or traditional treatment for raised blood sugar or diabetes was 12.4%. Men had higher percentage (13.0%) of taking herbal or traditional treatment for raised blood sugar or diabetes than women (11.8%).

**Table (62): Percentage of participants previously diagnosed with diabetes who have seen a traditional healer for diabetes or who are currently taking traditional treatment for diabetes, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>Seen by a traditional healer</b>									
18-29	16	31.3	8.3-54.2	23	13.0	0.0-26.9	39	22.4	8.6-36.2
30-44	34	14.7	2.7-26.7	67	10.4	3.1-17.8	101	12.5	5.6-19.4
45-59	95	15.8	8.4-23.2	131	13.0	7.2-18.8	226	14.3	9.7-19.0
60-69	36	22.2	8.5-35.9	66	12.1	4.2-20.0	102	16.1	8.8-23.3
<b>18-69</b>	<b>181</b>	<b>18.7</b>	<b>12.9-24.6</b>	<b>287</b>	<b>12.3</b>	<b>8.4-16.2</b>	<b>468</b>	<b>15.2</b>	<b>11.8-18.6</b>
<b>Taking traditional medicines</b>									
18-29	16	18.8	0.0-38.1	23	17.4	1.8-33.0	39	18.1	5.7-30.5
30-44	34	11.8	0.8-22.7	67	7.5	1.1-13.8	101	9.5	3.3-15.7
45-59	95	10.5	4.3-16.8	131	9.2	4.2-14.1	226	9.8	5.9-13.7
60-69	36	16.7	4.4-29.0	66	16.7	7.6-25.7	102	16.7	9.4-24.0
<b>18-69</b>	<b>181</b>	<b>13.0</b>	<b>8.0-18.1</b>	<b>287</b>	<b>11.8</b>	<b>7.9-15.7</b>	<b>468</b>	<b>12.4</b>	<b>9.2-15.5</b>

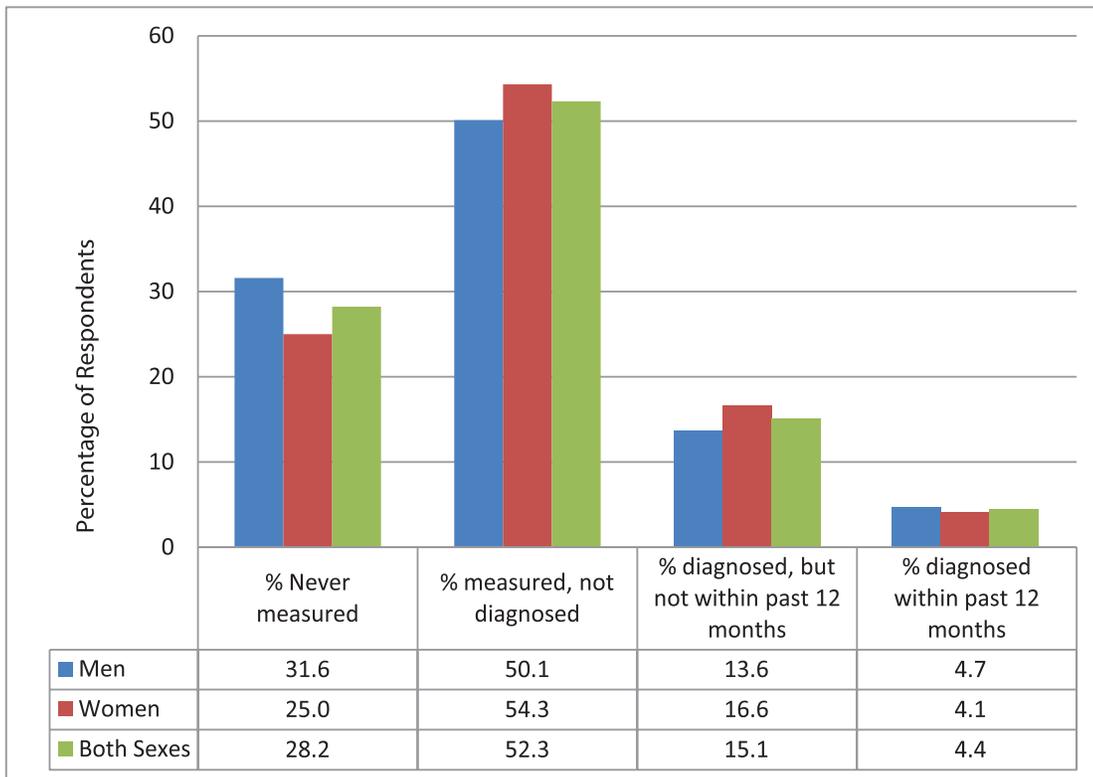
### 3.1.3.3. Present history of hypercholesterolemia:

**Table (63)** shows percentage distribution of participants according to total cholesterol measurement and diagnosis of hypercholesterolemia, by age group and sex. The overall percentage of those who never had their cholesterol measured by a doctor or other health worker was 28.2%. The prevalence of never having total cholesterol measured was higher in men than in women (31.6% vs.25.0%). The overall prevalence of having total cholesterol measured but not diagnosed as raised total cholesterol was 52.3%, with higher prevalence in women 54.3% than men 50.1%. The overall prevalence of being diagnosed with hypercholesterolemia but not in the past 12 months was 15.1%, with higher prevalence in women 16.6% than men 13.6%. The overall prevalence of being diagnosed with hypercholesterolemia within the past 12 months was 4.4%, with higher prevalence in men 4.7% than women 4.1%. There was increasing prevalence of those diagnosed whether within or not within the past 12 months. However, there was decreasing prevalence of those never-diagnosed among men, as well as those measured but not diagnosed among women.

**Figure (9)** illustrates the percentage distribution of participants according to total cholesterol measurement and diagnosis of hypercholesterolemia, by sex.

**Table (63): Percentage distribution of participants according to history of total cholesterol measurement and diagnosis of hypercholesterolemia, by age group and sex**

Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
<b>Men</b>									
18-29	524	44.5	40.2-48.7	48.9	44.6-53.1	5.7	3.7-7.7	1.0	0.1-1.8
30-44	507	29.6	25.6-33.6	51.1	46.7-55.4	12.8	9.9-15.7	6.5	4.4-8.7
45-59	346	12.7	9.2-16.2	52.9	47.6-58.2	26.0	21.4-30.6	8.4	5.5-11.3
60-69	79	12.7	5.3-20.0	44.3	33.3-55.3	34.2	23.7-44.6	8.9	2.6-15.1
<b>18-69</b>	<b>1456</b>	<b>31.6</b>	<b>29.2-34.1</b>	<b>50.1</b>	<b>47.5-52.7</b>	<b>13.6</b>	<b>11.8-15.3</b>	<b>4.7</b>	<b>3.6-5.7</b>
<b>Women</b>									
18-29	781	32.1	28.9-35.4	59.3	55.8-62.7	6.0	4.4-7.7	2.6	1.5-3.7
30-44	1013	24.6	21.9-27.2	57.3	54.2-60.3	13.8	11.7-15.9	4.3	3.1-5.6
45-59	531	15.8	12.7-18.9	47.6	43.4-51.9	31.8	27.9-35.8	4.7	2.9-6.5
60-69	134	17.2	10.8-23.6	34.3	26.3-42.4	39.6	31.3-47.8	9.0	4.1-13.8
<b>18-69</b>	<b>2459</b>	<b>25.0</b>	<b>23.3-26.8</b>	<b>54.3</b>	<b>52.3-56.3</b>	<b>16.6</b>	<b>15.1-18.1</b>	<b>4.1</b>	<b>3.3-4.9</b>
<b>Both Sexes</b>									
18-29	1305	38.4	35.6-41.1	54.0	51.3-56.8	5.9	4.6-7.2	1.8	1.1-2.4
30-44	1520	27.0	24.6-29.3	54.3	51.7-56.9	13.3	11.6-15.1	5.4	4.2-6.6
45-59	877	14.4	12.1-16.7	50.0	46.7-53.3	29.2	26.2-32.2	6.4	4.7-8.0
60-69	213	15.3	10.5-20.1	38.4	31.9-45.0	37.3	30.8-43.9	8.9	5.1-12.8
<b>18-69</b>	<b>3915</b>	<b>28.2</b>	<b>26.7-29.7</b>	<b>52.3</b>	<b>50.7-53.9</b>	<b>15.1</b>	<b>14.0-16.3</b>	<b>4.4</b>	<b>3.7-5.0</b>



**Figure (9): Percentage distribution of participants according to history of total cholesterol measurement and diagnosis of hypercholesterolemia, by sex**

**Table (64)** shows the percentage of participants previously diagnosed with hypercholesterolemia who report taking a lipid lowering medication prescribed by a doctor, by age group and sex. The overall percentage of those currently taking oral treatment prescribed for raised total cholesterol among the previously diagnosed was 50.4%. The percentage was higher in men (54.5%) than women (47.0%). There was an increasing trend of percentage of taking oral treatment prescribed for raised total cholesterol among those previously diagnosed with age, particularly among women.

**Table (64): Percentage of participants previously diagnosed with hypercholesterolemia who report taking a lipid lowering medication prescribed by a doctor, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29	35	22.9	8.9-36.9	67	10.4	3.1-17.8	102	15.9	8.4-23.4
30-44	98	45.9	36.0-55.8	184	27.2	20.7-33.6	282	36.4	30.4-42.4
45-59	119	70.6	62.4-78.8	194	67.0	60.4-73.6	313	68.6	63.4-73.8
60-69	34	70.6	55.2-86.0	65	70.8	59.7-81.9	99	70.7	61.7-79.7
<b>18-69</b>	<b>286</b>	<b>54.5</b>	<b>48.6-60.4</b>	<b>510</b>	<b>47.0</b>	<b>42.6-51.4</b>	<b>796</b>	<b>50.4</b>	<b>46.8-54.0</b>

**Table (65)** shows the percentage of participants previously diagnosed with hypercholesterolemia who have seen a traditional healer or who are currently taking traditional treatment for raised cholesterol, by age group and sex. The overall percentage of respondents who have been seen by a traditional healer for raised total cholesterol was 12.0%. The percentage was higher for men (12.9%) than women (11.3%). Eldest men (60-69 years) had higher percentage than the youngest men (18-29 years). For women the highest percentage was among the (45-59 years) group.

The overall percentage of respondents who are currently taking herbal or traditional treatment for raised total cholesterol was 16.3%. The percentage was higher for men (16.5%) than women (16.1%). Eldest participants (60-69 years) had higher percentage than the youngest participants (18-29 years), in both sexes.

**Table (65): Percentage of participants previously diagnosed with hypercholesterolemia who have seen a traditional healer or who are currently taking traditional treatment for raised cholesterol, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>Seen by a traditional healer</b>									
18-29	35	14.3	2.6-25.9	67	9.0	2.1-15.8	102	11.3	4.9-17.7
30-44	98	14.3	7.3-21.3	184	7.6	3.8-11.5	282	10.9	6.9-14.9
45-59	119	8.4	3.4-13.4	194	13.9	9.0-18.8	313	11.5	8.0-15.0
60-69	34	20.6	6.9-34.3	65	13.8	5.4-22.3	99	16.4	9.0-23.8
<b>18-69</b>	<b>286</b>	<b>12.9</b>	<b>9.0-16.9</b>	<b>510</b>	<b>11.3</b>	<b>8.4-14.1</b>	<b>796</b>	<b>12.0</b>	<b>9.7-14.4</b>
<b>Currently taking herbal or traditional treatment</b>									
18-29	35	17.1	4.6-29.7	67	14.9	6.4-23.5	102	15.9	8.6-23.2
30-44	98	19.4	11.5-27.3	184	11.4	6.8-16.0	282	15.3	10.8-19.9
45-59	119	10.9	5.3-16.6	194	18.6	13.1-24.0	313	15.2	11.3-19.2
60-69	34	23.5	9.2-37.9	65	20.0	10.2-29.8	99	21.3	13.2-29.5
<b>18-69</b>	<b>286</b>	<b>16.5</b>	<b>12.1-20.9</b>	<b>510</b>	<b>16.1</b>	<b>12.8-19.4</b>	<b>796</b>	<b>16.3</b>	<b>13.6-19.0</b>

### 3.1.3.4. Present history of cardiovascular disease (CVD):

**Table (66)** shows the percentage of participants reporting a history of heart attack, chest pain from heart disease, or stroke, by age group and sex. The overall prevalence of having ever had a heart attack or chest pain from heart disease or a stroke was 6.1%. The prevalence was higher in men (6.6%) than women (5.6%). There was an increasing trend of the prevalence of heart attack or chest pain from heart disease (angina or a stroke) as the age advanced in both sexes.

**Table (66): Percentage of participants reporting a history of heart attack, chest pain from heart disease, or stroke, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
18-29	524	3.1	1.6-4.5	781	2.7	1.6-3.8	1305	2.9	1.9-3.8
30-44	507	4.3	2.6-6.1	1012	4.7	3.4-6.1	1519	4.6	3.5-5.6
45-59	346	13.9	10.2-17.5	531	8.1	5.8-10.4	877	10.7	8.6-12.8
60-69	79	21.5	12.5-30.6	134	17.2	10.8-23.6	213	19.0	13.7-24.3
<b>18-69</b>	<b>1456</b>	<b>6.6</b>	<b>5.3-7.8</b>	<b>2458</b>	<b>5.6</b>	<b>4.7-6.5</b>	<b>3914</b>	<b>6.1</b>	<b>5.3-6.8</b>

**Table (67)** shows the percentage of participants who report currently taking aspirin or statins regularly to prevent or treat heart disease, by age group and sex. The overall percentage of respondents who are currently taking aspirin regularly to prevent or treat heart disease was 7.5%.

The overall percentage of respondents who are currently taking statins regularly to prevent or treat heart disease was 9.9%. The percentage was higher for men than women (10.1% vs. 9.8%).

Concerning age, there was an increasing trend of currently taking aspirin or statins regularly to prevent or treat heart disease, as the age advanced in both sexes.

**Table (67): Percentage of participants who report currently taking aspirin or statins regularly to prevent or treat heart disease, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>Aspirin</b>									
18-29	524	0.6	0.0-1.2	781	1.2	0.4-1.9	1305	0.9	0.4-1.4
30-44	507	4.7	2.9-6.6	1012	2.3	1.4-3.2	1519	3.5	2.4-4.5
45-59	346	23.4	18.9-27.9	531	13.9	11.0-16.9	877	18.2	15.6-20.8
60-69	79	41.8	30.9-52.7	134	31.3	23.5-39.2	213	35.6	29.2-42.1
<b>18-69</b>	<b>1456</b>	<b>8.6</b>	<b>7.2-10.0</b>	<b>2458</b>	<b>6.4</b>	<b>5.4-7.5</b>	<b>3914</b>	<b>7.5</b>	<b>6.6-8.3</b>
<b>Statins</b>									
18-29	525	1.7	0.6-2.8	781	0.9	0.2-1.6	1306	1.3	0.7-2.0
30-44	507	8.9	6.4-11.4	1014	5.0	3.7-6.4	1521	6.9	5.5-8.2
45-59	347	24.2	19.7-28.7	531	24.5	20.8-28.1	878	24.4	21.5-27.2
60-69	79	31.6	21.4-41.9	134	34.3	26.3-42.4	213	33.2	26.9-39.6
<b>18-69</b>	<b>1458</b>	<b>10.1</b>	<b>8.6-11.6</b>	<b>2460</b>	<b>9.8</b>	<b>8.6-11.0</b>	<b>3918</b>	<b>9.9</b>	<b>9.0-10.9</b>

### 3.1.3.5. Present history of healthy lifestyle advice:

**Table (68)** shows the percentage of participants who report receiving advice regarding NCD prevention from a doctor or health worker in the past three years, by age group and sex. The overall percentage of respondents who have been advised by a doctor or health worker during the past three years to quit using or not to start tobacco was 21.6%. The percentage was higher for men (35.5%) than women (8.9%). Older women (60-69 years) had higher percentage than younger women (18-29 years), while for men the highest percentage was among the (45-59 years) group.

The overall percentage of respondents who have been advised by a doctor or health worker during the past three years to reduce salt in the diet was 34.2%. The percentage was higher for men (38.7%) than women (30.0%). There was an increasing trend of this percentage as the age advanced.

The overall percentage of respondents who have been advised by a doctor or health worker during the past three years to eat at least five servings of fruit and/or vegetables each day was 47.4%. The percentage was higher for men than women (48.2% vs. 46.6%). There was a decreasing trend of this percentage as the age advanced among women.

The overall percentage of respondents who have been advised by a doctor or health worker during the past three years to reduce fat in the diet was 51.3%. The percentage was higher for men (53.2%) than women (49.5%). There was an increasing trend of this percentage as the age advanced.

**Table (68): Percentage of participants who report receiving advice regarding CVD prevention from a doctor or health worker in the past three years, by age group and sex**

Age Group (years) and type of advice	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>Advised by doctor or health worker to quit using tobacco or don't start</b>									
18-29	524	34.2	30.1-38.2	781	9.6	7.5-11.7	1305	22.0	19.6-24.4
30-44	507	36.3	32.1-40.5	1012	7.8	6.2-9.5	1519	21.4	19.1-23.7
45-59	346	39.0	33.9-44.2	531	8.3	5.9-10.6	877	22.1	19.3-25.0
60-69	79	29.1	19.1-39.1	134	11.9	6.4-17.4	213	19.0	13.6-24.3
<b>18-69</b>	<b>1456</b>	<b>35.5</b>	<b>33.1-38.0</b>	<b>2458</b>	<b>8.9</b>	<b>7.7-10.0</b>	<b>3914</b>	<b>21.6</b>	<b>20.2-23.0</b>
<b>Advised by doctor or health worker to reduce salt in the diet</b>									
18-29	524	32.4	28.4-36.5	781	22.5	19.6-25.5	1305	27.5	25.0-30.0
30-44	507	38.3	34.0-42.5	1012	27.9	25.1-30.6	1519	32.8	30.3-35.3
45-59	346	48.8	43.6-54.1	531	39.7	35.6-43.9	877	43.8	40.5-47.2
60-69	79	53.2	42.2-64.2	134	50.7	42.3-59.2	213	51.7	45.0-58.5
<b>18-69</b>	<b>1456</b>	<b>38.7</b>	<b>36.2-41.2</b>	<b>2458</b>	<b>30.0</b>	<b>28.2-31.9</b>	<b>3914</b>	<b>34.2</b>	<b>32.6-35.7</b>
<b>Advised by doctor or health worker to eat at least five servings of fruit and/or vegetables each day</b>									
18-29	524	45.4	41.2-49.7	781	44.7	41.2-48.2	1305	45.1	42.3-47.8
30-44	507	47.7	43.4-52.1	1012	45.5	42.4-48.5	1519	46.5	43.9-49.2
45-59	346	54.3	49.1-59.6	531	49.7	45.5-54.0	877	51.8	48.5-55.1
60-69	79	50.6	39.6-61.7	134	53.0	44.5-61.4	213	52.0	45.3-58.8
<b>18-69</b>	<b>1456</b>	<b>48.2</b>	<b>45.6-50.8</b>	<b>2458</b>	<b>46.6</b>	<b>44.6-48.6</b>	<b>3914</b>	<b>47.4</b>	<b>45.8-49.0</b>
<b>Advised by doctor or health worker to reduce fat in the diet</b>									
18-29	524	45.8	41.5-50.1	781	42.6	39.2-46.1	1305	44.2	41.5-47.0
30-44	507	54.0	49.7-58.4	1012	48.1	45.0-51.2	1519	51.0	48.3-53.6
45-59	346	63.9	58.8-68.9	531	59.1	55.0-63.3	877	61.3	58.0-64.5
60-69	79	67.1	56.7-77.5	134	62.7	54.5-70.9	213	64.5	58.1-70.9
<b>18-69</b>	<b>1456</b>	<b>53.2</b>	<b>50.6-55.8</b>	<b>2458</b>	<b>49.5</b>	<b>47.5-51.5</b>	<b>3914</b>	<b>51.3</b>	<b>49.6-52.9</b>
<b>Advised by doctor or health worker to start or do more physical activity</b>									
18-29	524	50.0	45.7-54.3	781	48.1	44.6-51.6	1305	49.1	46.3-51.9
30-44	507	56.2	51.9-60.5	1012	51.5	48.4-54.6	1519	53.7	51.1-56.4
45-59	346	66.8	61.8-71.7	531	60.6	56.5-64.8	877	63.4	60.2-66.6
60-69	79	67.1	56.7-77.5	134	62.7	54.5-70.9	213	64.5	58.1-70.9
<b>18-69</b>	<b>1456</b>	<b>56.2</b>	<b>53.7-58.8</b>	<b>2458</b>	<b>53.0</b>	<b>51.0-55.0</b>	<b>3914</b>	<b>54.6</b>	<b>52.9-56.2</b>
<b>Advised by doctor or health worker to maintain a healthy body weight or to lose weight</b>									
18-29	524	47.5	43.2-51.8	781	44.0	40.6-47.5	1305	45.8	43.0-48.6
30-44	507	54.4	50.1-58.8	1012	49.9	46.8-53.0	1519	52.1	49.4-54.7
45-59	346	64.5	59.4-69.5	531	60.8	56.7-65.0	877	62.5	59.2-65.7
60-69	79	62.0	51.3-72.7	134	62.7	54.5-70.9	213	62.4	55.9-68.9
<b>18-69</b>	<b>1456</b>	<b>53.9</b>	<b>51.3-56.5</b>	<b>2458</b>	<b>51.0</b>	<b>49.0-53.0</b>	<b>3914</b>	<b>52.4</b>	<b>50.7-54.0</b>

### 3.1.3.6. Present history of cervical cancer screening:

**Table (69)** shows percentage of female respondents who have ever had a screening test for cervical cancer, by age group. The overall percentage was 15.2%, with increasing percentage as the age advanced.

**Table (69): Percentage of female respondents who have ever had a screening test for cervical cancer, by age group**

Age Group (years)	n	% ever tested	95% CI
18-29	736	6.1	4.4-7.8
30-44	958	14.4	12.2-16.6
45-59	491	27.5	23.5-31.4
60-69	107	32.7	23.8-41.6
<b>18-69</b>	<b>2292</b>	<b>15.2</b>	<b>13.7-16.6</b>

Among the highest-priority group recommended by WHO for cervical cancer screening (women aged 30-49 years), 17.6% (95% CI =15.4-19.8) reported previously completing a screening test for cervical cancer.

# **STEP 2**

## **PHYSICAL MEASUREMENTS**

## 3.2. Section (2): (Step 2) Physical measurements

### 3.2.1. Blood Pressure:

**Table (70)** shows mean blood pressure, including those currently on medications for raised blood pressure. The overall mean systolic blood pressure was 120.7 mmHg and that of diastolic blood pressure was 77.5 mmHg. Both systolic (124.6 vs. 117.0 mmHg, respectively) and diastolic blood pressure (79.4 vs. 75.7 mmHg, respectively) were higher among men than among women at different age groups. There was an increasing trend of the mean systolic and diastolic blood pressure from one side and age groups on the other side.

**Table (70): Mean systolic and diastolic blood pressure\* (mmHg), by age group and sex**

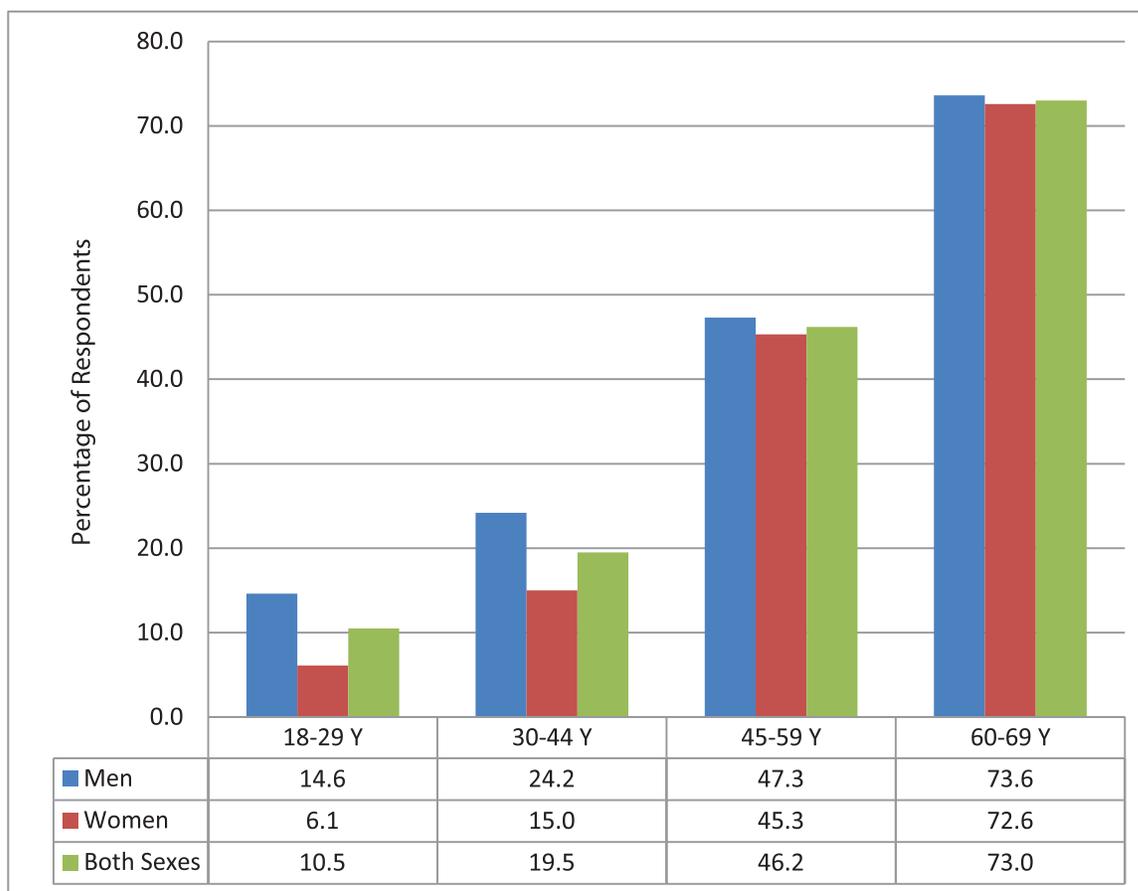
Age Group (years)	n	SBP		DBP	
		Mean	95% CI	Mean	95% CI
<b>Men</b>					
18-29	434	121.1	120.0-122.2	76.7	75.9-77.4
30-44	427	124.3	123.0-125.6	79.7	78.9-80.6
45-59	289	129.2	127.4-131.0	83.4	82.2-84.6
60-69	72	135.2	131.1-139.3	84.3	81.9-86.7
<b>18-69</b>	<b>1222</b>	<b>124.6</b>	<b>123.8-125.4</b>	<b>79.4</b>	<b>78.9-80.0</b>
<b>Women</b>					
18-29	626	110.8	109.9-111.7	72.4	71.7-73.1
30-44	809	115.7	114.8-116.6	75.3	74.7-75.9
45-59	424	125.0	123.4-126.5	80.0	79.1-81.0
60-69	110	131.0	128.4-133.6	81.3	79.8-82.9
<b>18-69</b>	<b>1969</b>	<b>117.0</b>	<b>116.3-117.6</b>	<b>75.7</b>	<b>75.2-76.1</b>
<b>Both Sexes</b>					
18-29	1060	116.1	115.3-116.9	74.6	74.1-75.1
30-44	1236	119.9	119.1-120.7	77.5	76.9-78.0
45-59	713	126.9	125.7-128.1	81.6	80.8-82.3
60-69	182	132.8	130.5-135.2	82.6	81.2-84.0
<b>18-69</b>	<b>3191</b>	<b>120.7</b>	<b>120.2-121.2</b>	<b>77.5</b>	<b>77.2-77.9</b>

\*= Including those currently on medications for raised blood pressure.

**Table (71)** and **figure (10)** show prevalence of raised blood pressure (SBP  $\geq 140$  and/or DBP  $\geq 90$  mmHg by measurement), excluding and including those on antihypertensive medication, by age group and sex. The prevalence of hypertension including those who currently use antihypertensive medication (i.e. combined survey and questionnaire diagnosed) was 25.1%. Men had a higher prevalence rate than that of women (27.7% vs. 22.6%). An overall prevalence of hypertension, excluding those who currently use antihypertensive medications (i.e. survey diagnosed) was 13.1%, with higher rate among men than women (17.4% compared with 8.8%). In both groups, the prevalence of hypertension seems to increase with advancement of age for both sexes.

**Table (71): Prevalence of raised blood pressure (SBP  $\geq 140$  and/or DBP  $\geq 90$  mmHg by measurement), excluding and including those on antihypertensive medication, by age group and sex**

Age Group (years)	Excluding those on medication for raised blood pressure			Including those on medication for raised blood pressure		
	n	%	95% CI	n	%	95% CI
<b>Men</b>						
18-29	427	12.6	9.5-15.8	437	14.6	11.3-18.0
30-44	394	17.5	13.8-21.3	429	24.2	20.2-28.3
45-59	216	26.9	20.9-32.8	300	47.3	41.7-53.0
60-69	31	38.7	21.6-55.9	72	73.6	63.4-83.8
<b>18-69</b>	<b>1068</b>	<b>17.4</b>	<b>15.1-19.7</b>	<b>1238</b>	<b>27.7</b>	<b>25.3-30.2</b>
<b>Women</b>						
18-29	620	5.0	3.3-6.7	627	6.1	4.2-7.9
30-44	754	7.8	5.9-9.7	818	15.0	12.6-17.5
45-59	291	16.5	12.2-20.8	444	45.3	40.6-49.9
60-69	44	29.5	16.1-43.0	113	72.6	64.3-80.8
<b>18-69</b>	<b>1709</b>	<b>8.8</b>	<b>7.5-10.2</b>	<b>2002</b>	<b>22.6</b>	<b>20.8-24.5</b>
<b>Both Sexes</b>						
18-29	1047	8.9	7.1-10.7	1064	10.5	8.5-12.4
30-44	1148	12.6	10.5-14.7	1247	19.5	17.2-21.9
45-59	507	21.5	17.9-25.1	744	46.2	42.6-49.8
60-69	75	33.7	22.9-44.5	185	73.0	66.6-79.4
<b>18-69</b>	<b>2777</b>	<b>13.1</b>	<b>11.8-14.4</b>	<b>3240</b>	<b>25.1</b>	<b>23.6-26.7</b>



**Figure (10): Prevalence of raised blood pressure (SBP  $\geq$ 140 and/or DBP  $\geq$ 90 mmHg by measurement), by age group and sex**

**Table (72)** shows the prevalence of severely raised blood pressure (SBP  $\geq 160$  and/or DBP  $\geq 100$  mmHg by measurement), excluding and including those on antihypertensive medication, by age group and sex. The prevalence of the survey-diagnosed hypertension was 2.9%. Men had a higher prevalence rate than had women (3.6% vs. 2.3%). Combining survey-diagnosed with questionnaire-diagnosed hypertension, an overall prevalence rate of 16.4% was demonstrated. This prevalence was higher among women when compared with men (17.1% vs. 15.6%). Also, there was an increasing trend of the prevalence of hypertension (either survey-, questionnaire-diagnosed or both) as age advanced in both sexes.

**Table (72): Prevalence of severely raised blood pressure (SBP  $\geq 160$  and/or DBP  $\geq 100$  mmHg by measurement), excluding and including those on antihypertensive medication, by age group and sex**

Age Group (years)	Excluding those on medication for raised blood pressure			Including those on medication for raised blood pressure		
	n	%	95% CI	n	%	95% CI
<b>Men</b>						
18-29	427	1.9	0.6-3.2	437	4.1	2.3-6.0
30-44	394	3.0	1.3-4.7	429	11.0	8.0-13.9
45-59	216	7.9	4.3-11.5	300	33.7	28.3-39.0
60-69	31	12.9	1.1-24.7	72	62.5	51.3-73.7
<b>18-69</b>	<b>1068</b>	<b>3.6</b>	<b>2.5-4.7</b>	<b>1238</b>	<b>15.6</b>	<b>13.7-17.6</b>
<b>Women</b>						
18-29	620	1.9	0.9-3.0	627	3.0	1.7-4.4
30-44	754	1.7	0.8-2.7	818	9.4	7.4-11.4
45-59	291	3.8	1.6-6.0	444	36.9	32.4-41.4
60-69	44	4.5	0.0-10.7	113	62.8	53.9-71.7
<b>18-69</b>	<b>1709</b>	<b>2.3</b>	<b>1.5-3.0</b>	<b>2002</b>	<b>17.1</b>	<b>15.4-18.8</b>
<b>Both Sexes</b>						
18-29	1047	1.9	1.1-2.7	1064	3.6	2.4-4.7
30-44	1148	2.4	1.4-3.3	1247	10.2	8.4-11.9
45-59	507	5.8	3.7-7.8	744	35.4	32.0-38.9
60-69	75	8.3	1.9-14.7	185	62.7	55.7-69.7
<b>18-69</b>	<b>2777</b>	<b>2.9</b>	<b>2.3-3.6</b>	<b>3240</b>	<b>16.4</b>	<b>15.1-17.7</b>

**Table (73)** shows antihypertensive medication use among participants who had either elevated measured blood pressure or who had controlled blood pressure on medication, by age group and sex. The overall prevalence of controlled hypertension (i.e. on medication and SBP<140 and DBP<90 mmHg) was 27.9%, being higher among women than among men (36.6% vs. 20.6%). There was an increasing trend as age advanced.

The overall prevalence of treated but uncontrolled hypertension (i.e. on medication and SBP≥140 and/or DBP≥90 mmHg) was 24.7%, being higher among women than among men (27.9% vs. 22.0%). Again, there was an increasing trend as age advanced.

The overall prevalence of untreated and uncontrolled hypertension among respondents (i.e. not on medication and SBP≥140 and/or DBP≥90 mmHg) was 47.4%, being higher among men than among women (57.3% vs. 35.5%). There was a decreasing trend as age advanced.

**Table (73): Antihypertensive medication use among participants who had either elevated measured blood pressure or who had controlled blood pressure on medication, by age group and sex**

Age Group (years)	n	On medication and SBP<140 and DBP<90		On medication and SBP≥140 and/or DBP≥90		Not on medication and SBP≥140 and/or DBP≥90	
		%	95% CI	%	95% CI	%	95% CI
<b>Men</b>							
18-29	61	6.6	0.3-12.8	4.9	0.0-10.4	88.5	80.5-96.6
30-44	102	14.7	7.8-21.6	17.6	10.2-25.1	67.6	58.5-76.8
45-59	131	29.8	21.9-37.6	26.0	18.4-33.5	44.3	35.7-52.8
60-69	53	32.1	19.4-44.7	45.3	31.8-58.8	22.6	11.3-34.0
<b>18-69</b>	<b>347</b>	<b>20.6</b>	<b>16.4-24.9</b>	<b>22</b>	<b>17.7-26.4</b>	<b>57.3</b>	<b>52.1-62.6</b>
<b>Women</b>							
18-29	37	13.5	2.5-24.6	2.7	0.0-8.0	83.8	71.9-95.7
30-44	113	31.9	23.2-40.5	16.8	9.9-23.7	51.3	42.1-60.6
45-59	181	38.1	31.0-45.2	35.4	28.4-42.4	26.5	20.1-33.0
60-69	79	48.1	37.0-59.2	35.4	24.9-46.0	16.5	8.2-24.7
<b>18-69</b>	<b>410</b>	<b>36.6</b>	<b>31.9-41.4</b>	<b>27.9</b>	<b>23.5-32.3</b>	<b>35.5</b>	<b>30.8-40.2</b>
<b>Both Sexes</b>							
18-29	98	8.5	3.1-14.0	4.3	0.1-8.5	87.2	80.5-93.8
30-44	215	21.2	15.7-26.7	17.3	12.0-22.6	61.5	54.8-68.2
45-59	312	34.1	28.8-39.4	30.9	25.7-36.0	35.0	29.6-40.4
60-69	132	41.0	32.6-49.4	39.8	31.4-48.2	19.2	12.4-26.0
<b>18-69</b>	<b>757</b>	<b>27.9</b>	<b>24.6-31.1</b>	<b>24.7</b>	<b>21.6-27.8</b>	<b>47.4</b>	<b>43.8-51.1</b>

### 3.2.2. Heart Rate:

**Table (74)** shows mean heart rate, by age group and sex. The overall mean pulse rate was 79.7 beat/minute. Women had a higher mean pulse rate than had men (80.0 vs. 79.4 beat/minute). There was no specific pattern with age.

**Table (74): Mean heart rate (beats per minute), by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	mean	95% CI	n	mean	95% CI	n	mean	95% CI
18-29	502	79.0	78.2-79.8	703	80.1	79.5-80.7	1205	79.5	79.0-80.0
30-44	478	79.5	78.7-80.3	948	80.1	79.6-80.6	1426	79.8	79.4-80.3
45-59	323	79.8	78.7-81.0	496	79.5	78.7-80.2	819	79.6	79.0-80.3
60-69	77	79.9	77.5-82.4	120	80.3	78.5-82.0	197	80.1	78.7-81.6
<b>18-69</b>	<b>1380</b>	<b>79.4</b>	<b>78.9-79.9</b>	<b>2267</b>	<b>80.0</b>	<b>79.6-80.3</b>	<b>3647</b>	<b>79.7</b>	<b>79.4-80.0</b>

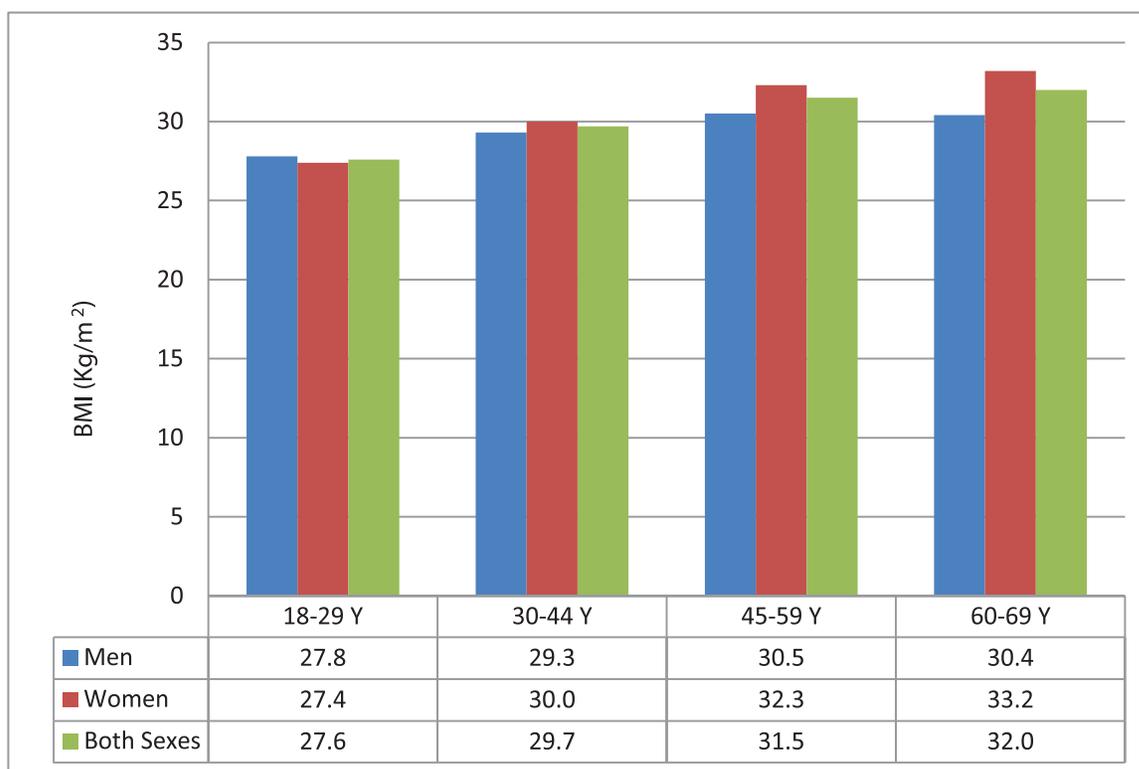
### 3.2.3. Height, weight and body mass index (BMI):

**Table (75)** and **figure (11)** show mean height, weight and body mass index (excluding pregnant women). Men were taller than women (172.0 vs. 158.6 cm) even when the different age groups were considered. Also, the younger the subjects, the taller they were. Men were heavier than women (85.9 vs. 75.0 kg), even when the different age groups were considered.

The overall mean BMI was 29.4 kg/m<sup>2</sup>. Women had higher mean BMI than that of men (29.7 vs. 29.0 kg/m<sup>2</sup>) even for all age groups except for the youngest group (18-29 years), where men had a slightly higher BMI (27.8 compared with 27.4 kg/m<sup>2</sup>).

**Table (75): Mean Height (cm), Weight (kg) and BMI (kg/m<sup>2</sup>) of participants, by age group and sex**

Variable and Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
<b>Height (cm)</b>									
18-29	506	172.9	172.3-173.5	692	159.4	158.9-159.9			
30-44	480	172.0	171.3-172.7	927	158.9	158.5-159.4			
45-59	323	170.8	170.0-171.5	493	157.9	157.1-158.7			
60-69	76	168.3	166.8-169.8	120	154.6	153.3-156.0			
<b>18-69</b>	<b>1385</b>	<b>172.0</b>	<b>171.6-172.4</b>	<b>2232</b>	<b>158.6</b>	<b>158.2-158.9</b>			
<b>Weight (kg)</b>									
18-29	506	83.4	81.9-85.0	685	69.6	68.5-70.8			
30-44	479	87.5	85.9-89.2	927	76.4	75.3-77.5			
45-59	322	88.8	87.2-90.3	491	80.3	78.9-81.7			
60-69	75	85.9	82.6-89.2	119	79.9	77.2-82.6			
<b>18-69</b>	<b>1382</b>	<b>85.9</b>	<b>85.0-86.9</b>	<b>2222</b>	<b>75.0</b>	<b>74.3-75.7</b>			
<b>BMI (kg/m<sup>2</sup>)</b>									
18-29	505	27.8	27.3-28.3	684	27.4	26.9-27.8	1189	27.6	27.3-27.9
30-44	476	29.3	28.9-29.8	916	30.0	29.6-30.3	1392	29.7	29.4-30.0
45-59	322	30.5	29.9-31.0	487	32.3	31.8-32.8	809	31.5	31.1-31.8
60-69	75	30.4	29.2-31.6	118	33.2	32.1-34.4	193	32.0	31.2-32.9
<b>18-69</b>	<b>1378</b>	<b>29.0</b>	<b>28.7-29.2</b>	<b>2205</b>	<b>29.7</b>	<b>29.5-30.0</b>	<b>3583</b>	<b>29.4</b>	<b>29.2-29.5</b>



**Figure (11): Mean BMI (kg/m<sup>2</sup>) of participants, by age group and sex**

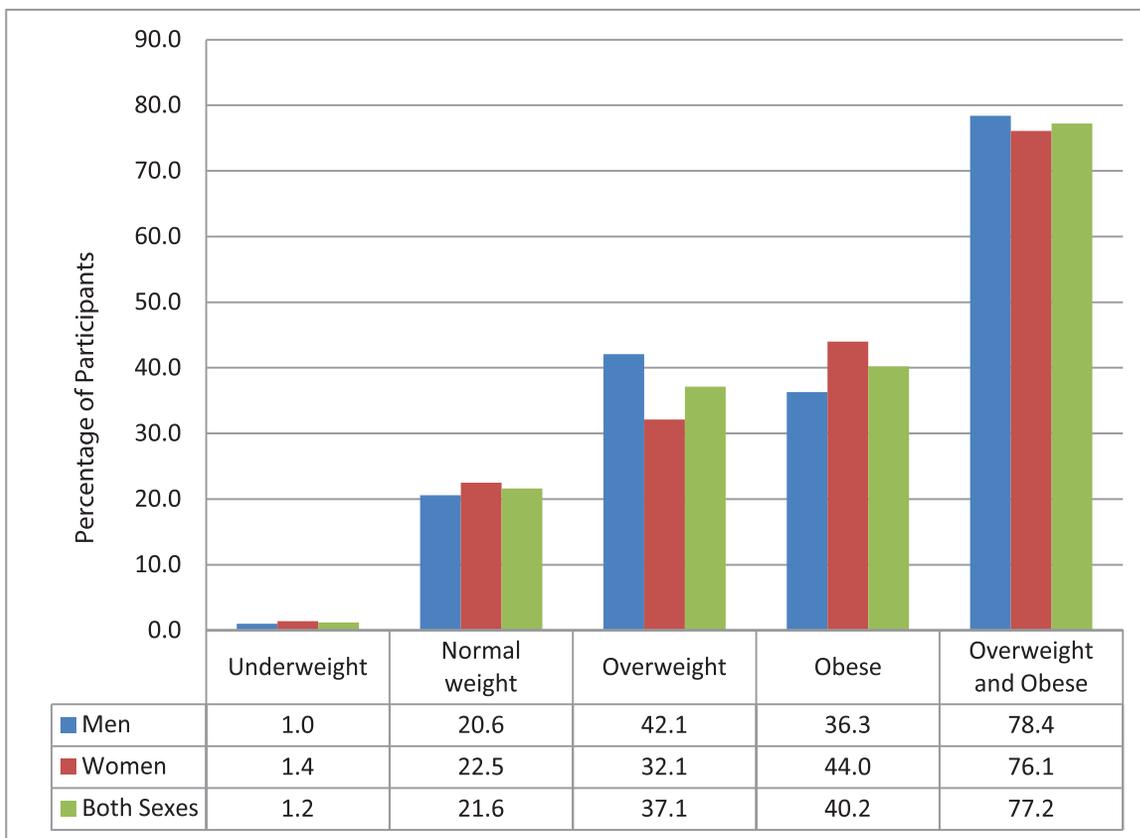
### 3.2.4. Prevalence of overweight and obesity:

**Table (76)** shows percentage distribution of respondents according to BMI categories by age group and sex (excluding pregnant women). Almost three quarters (77.2%) of the participants were overweight / obese. Men were more likely to suffer from overweight / obesity than women (78.4% compared with 76.1%). A minority (1.2%) were suffering from underweight with higher prevalence among women (1.4% compared with 1.0%). A general trend of increasing rates of obesity with progress of age can be observed for both men and women.

**Figure (12)** illustrates the percentage distribution of respondents according to BMI categories, by sex.

**Table (76): Percentage distribution of respondents according to BMI categories, by age group and sex**

Age Group (years) and sex	n	Under-weight <18.5		Normal weight 18.5-24.9		Overweight 25.0-29.9		Obese ≥30.0		Overweight and Obese ≥25.0	
		%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
<b>Men</b>											
18-29	505	2	0.8-3.2	28.3	24.4-32.2	41.2	36.9-45.5	28.5	24.6-32.5	69.7	65.7-73.7
30-44	476	0.4	0.0-1.0	16.8	13.4-20.2	46.0	41.5-50.5	36.8	32.4-41.1	82.8	79.4-86.2
45-59	322	0.0	0.0-0.0	11.8	8.3-15.3	39.4	34.1-44.8	48.8	43.3-54.2	88.2	84.7-91.7
60-69	75	0.0	0.0-0.0	14.7	6.7-22.7	34.7	23.9-45.4	50.7	39.3-62.0	85.3	77.3-93.3
<b>18-69</b>	<b>1378</b>	<b>1.0</b>	<b>0.4-1.5</b>	<b>20.6</b>	<b>18.4-22.8</b>	<b>42.1</b>	<b>39.5-44.7</b>	<b>36.3</b>	<b>33.7-38.8</b>	<b>78.4</b>	<b>76.2-80.6</b>
<b>Women</b>											
18-29	684	3.1	1.8-4.4	35.8	32.2-39.4	33.2	29.7-36.7	27.9	24.6-31.3	61.1	57.5-64.8
30-44	916	0.7	0.1-1.2	19.8	17.2-22.3	36.5	33.3-39.6	43.1	39.9-46.3	79.6	77.0-82.2
45-59	487	0.2	0.0-0.6	8.6	6.1-11.1	27.7	23.7-31.7	63.5	59.2-67.7	91.2	88.7-93.7
60-69	118	0.0	0.0-0.0	9.3	4.1-14.6	19.5	12.3-26.6	71.2	63.0-79.4	90.7	85.4-95.9
<b>18-69</b>	<b>2205</b>	<b>1.4</b>	<b>0.9-1.9</b>	<b>22.5</b>	<b>20.7-24.3</b>	<b>32.1</b>	<b>30.2-34.1</b>	<b>44.0</b>	<b>41.9-46.1</b>	<b>76.1</b>	<b>74.3-77.9</b>
<b>Both Sexes</b>											
18-29	1189	2.5	1.6-3.4	31.9	29.2-34.5	37.4	34.6-40.2	28.2	25.6-30.9	65.6	62.9-68.4
30-44	1392	0.5	0.2-0.9	18.3	16.2-20.4	41.1	38.4-43.8	40.0	37.3-42.7	81.1	79.0-83.3
45-59	809	0.1	0.0-0.3	10.1	8.0-12.2	33.1	29.8-36.3	56.8	53.3-60.2	89.8	87.7-91.9
60-69	193	0.0	0.0-0.0	11.6	7.0-16.2	26.0	19.7-32.3	62.4	55.5-69.3	88.4	83.8-93.0
<b>18-69</b>	<b>3583</b>	<b>1.2</b>	<b>0.8-1.6</b>	<b>21.6</b>	<b>20.2-23.0</b>	<b>37.1</b>	<b>35.4-38.7</b>	<b>40.2</b>	<b>38.5-41.8</b>	<b>77.2</b>	<b>75.8-78.7</b>



**Figure (12): Percentage distribution of respondents according to BMI categories, by sex**

### 3.2.5. Waist and hip circumferences:

**Table (77)** shows mean waist circumference (excluding pregnant women). Men had a larger waist circumference than women (93.6 vs. 88.4cm); even when the different age groups were considered. In general, waist circumference seems to increase with advancement of age for both sexes.

Regarding mean hip circumference results, excluding pregnant women, women had a larger hip circumference than men (107.0 vs. 105.6cm); even when the different age groups were considered. In general, hip circumference seems to increase with advancement of age for women.

The mean waist/hip ratio (excluding pregnant women). Men had a larger waist/hip ratio than women (0.9 vs. 0.8). There was no specific pattern with age.

**Table (77): Mean of waist circumference (cm), hip circumference (cm), and waist/hip ratio by age group and sex**

Age Group (years)	Waist circumference (cm)			Hip circumference (cm)		Waist / hip ratio	
	n	Mean	95% CI	Mean	95% CI	Mean	95% CI
<b>Men</b>							
18-29	454	88.7	87.5-90.0	103.5	102.1-104.9	0.9	0.9-0.9
30-44	446	94.5	93.2-95.9	106.0	104.8-107.2	0.9	0.9-0.9
45-59	297	100.3	98.7-101.9	108.5	106.8-110.3	0.9	0.9-0.9
60-69	71	101.3	96.8-105.8	108.3	105.3-111.3	0.9	0.9-1.0
<b>18-69</b>	<b>1268</b>	<b>93.6</b>	<b>92.8-94.5</b>	<b>105.6</b>	<b>104.8-106.4</b>	<b>0.9</b>	<b>0.9-0.9</b>
<b>Women</b>							
18-29	647	82.2	81.2-83.3	103.5	102.4-104.6	0.8	0.8-0.8
30-44	858	88.0	87.1-88.9	107.2	106.2-108.3	0.8	0.8-0.8
45-59	471	95.2	94.0-96.4	110.6	109.4-111.8	0.9	0.9-0.9
60-69	118	100.7	97.5-104.0	112.2	109.7-114.7	0.9	0.9-0.9
<b>18-69</b>	<b>2094</b>	<b>88.4</b>	<b>87.8-89.1</b>	<b>107.0</b>	<b>106.4-107.6</b>	<b>0.8</b>	<b>0.8-0.8</b>



# **STEP 3**

## **BIOCHEMICAL MEASUREMENTS**

## 3.2. Section (3): (Step 3) Biochemical measurements:

### 3.3.1. Fasting blood glucose:

**Table (78)** shows the mean fasting blood glucose results excluding those currently on medication for diabetes or non-fasting. The overall mean fasting blood sugar level of the study sample was 5.7 mmol/L, being higher among men than among women (5.8 vs. 5.7 mmol/L). There was an increasing trend of the mean fasting blood sugar level as the age advances for all participants.

**Table (78): Mean fasting blood glucose (mmol/L; excluding those currently on diabetes medication or non-fasting), by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
18-29	324	5.2	5.0-5.5	471	4.9	4.8-5.1	795	5.1	5.0-5.2
30-44	357	5.7	5.5-5.9	665	5.4	5.2-5.5	1022	5.5	5.4-5.6
45-59	231	6.9	6.5-7.3	378	6.5	6.2-6.9	609	6.7	6.5-7.0
60-69	47	7.2	6.4-8.1	96	7.4	6.8-8.1	143	7.4	6.8-7.9
<b>18-69</b>	<b>959</b>	<b>5.8</b>	<b>5.7-6.0</b>	<b>1610</b>	<b>5.6</b>	<b>5.5-5.7</b>	<b>2569</b>	<b>5.7</b>	<b>5.6-5.8</b>

### 3.3.2. Prevalence of diabetes (including survey-diagnosed):

**Table (79)** shows the prevalence of impaired fasting glycemia\*, diabetes\*\* (including survey-diagnosed participants), and current treatment for diabetes, by age group and sex. The prevalence of impaired fasting blood sugar level diagnosed by this survey was 6.1%. This rate was higher among men when compared with women (7.6 vs. 4.7%). It was observed that there was an increasing trend of the prevalence of survey-diagnosed' impaired blood sugar level as the age advances for both sexes.

The prevalence of raised fasting blood sugar level diagnosed by history of receiving antidiabetic medications (i.e. questionnaire diagnosed) was 10.6%. This level was higher among men when compared with women (10.7% vs. 10.5%). Again, it was observed that there was an increasing trend of the prevalence of questionnaire diagnosed diabetes as the age advanced for both sexes.

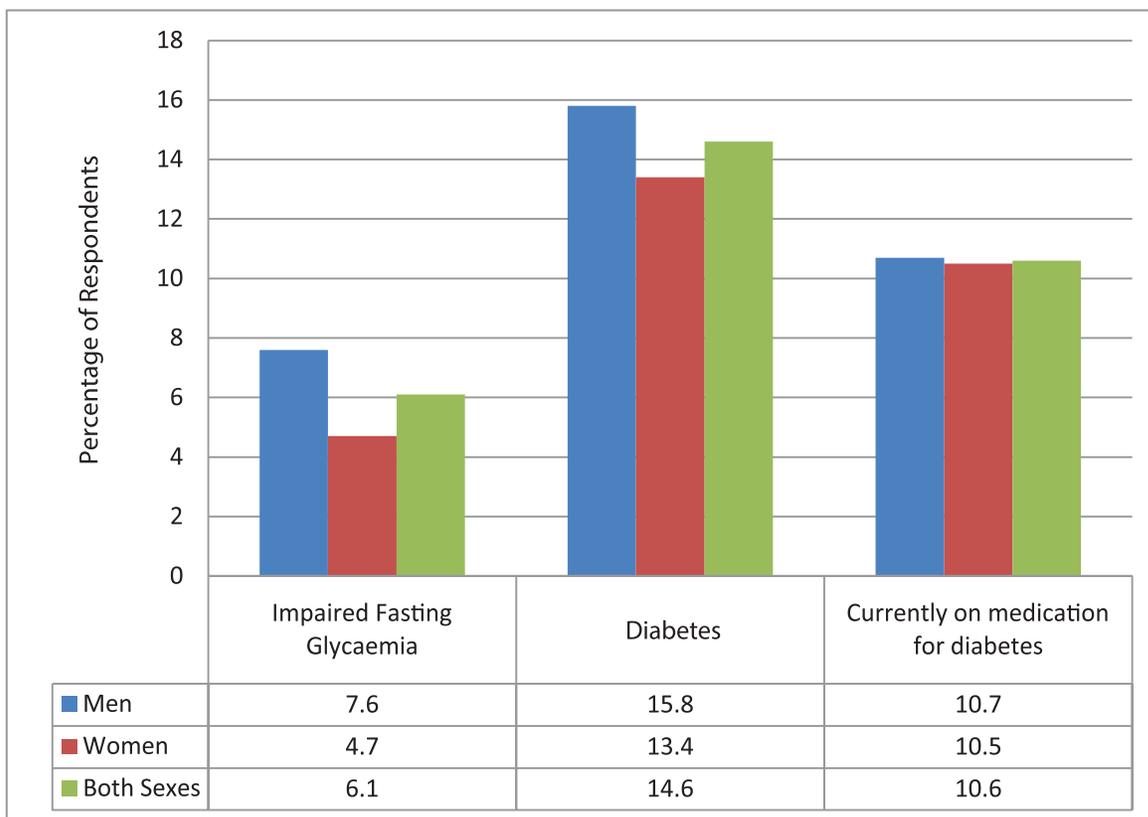
**Figure (13)** Illustrates the prevalence of impaired fasting glycemia\*, diabetes\*\* (including survey-diagnosed participants), and current treatment for diabetes, by sex

**Table (79): Prevalence of impaired fasting glycemia\*, diabetes\*\* (including survey-diagnosed participants), and current treatment for diabetes, by age group and sex**

Age Group (years)	Impaired Fasting Glycemia*			Diabetes		Currently on medication for diabetes		
	n	%	95% CI	%	95% CI	n	%	95% CI
<b>Men</b>								
18-29	326	4.0	1.9-6.2	7.1	4.3-9.9	525	3.5	1.6-5.5
30-44	359	9.0	6.0-11.9	12.3	8.9-15.7	507	5.5	3.2-7.8
45-59	238	10.3	6.4-14.3	32.3	26.3-38.4	347	24.9	19.4-30.4
60-69	52	17.0	6.3-27.8	44.7	30.4-58.9	79	46.9	33.0-60.9
<b>18-69</b>	<b>975</b>	<b>7.6</b>	<b>6.0-9.3</b>	<b>15.8</b>	<b>13.5-18.1</b>	<b>1458</b>	<b>10.7</b>	<b>8.8-12.5</b>
<b>Women</b>								
18-29	475	2.3	1.0-3.7	4.0	2.3-5.8	781	1.9	0.7-3.1
30-44	672	5.0	3.3-6.6	8.6	6.4-10.7	1014	4.8	3.2-6.4
45-59	394	6.8	4.3-9.4	25.8	21.4-30.2	531	22.3	18.1-26.4
60-69	106	9.3	3.5-15.1	48.5	38.5-58.4	134	47.5	37.6-57.3
<b>18-69</b>	<b>1647</b>	<b>4.7</b>	<b>3.7-5.7</b>	<b>13.4</b>	<b>11.8-15.1</b>	<b>2460</b>	<b>10.5</b>	<b>9.0-12.0</b>
<b>Both Sexes</b>								
18-29	801	3.2	1.9-4.4	5.6	3.9-7.2	1306	2.7	1.5-3.8
30-44	1031	6.9	5.2-8.6	10.4	8.4-12.4	1521	5.1	3.7-6.5
45-59	632	8.4	6.2-10.7	28.7	25.1-32.3	878	23.5	20.1-26.8
60-69	158	12.4	6.8-18.0	46.9	38.7-55.2	213	47.3	39.1-55.4
<b>18-69</b>	<b>2622</b>	<b>6.1</b>	<b>5.1-7.0</b>	<b>14.6</b>	<b>13.2-15.9</b>	<b>3918</b>	<b>10.6</b>	<b>9.4-11.8</b>

\* Impaired fasting glycemia is defined as plasma venous value  $\geq 6.1$  mmol/L and  $< 7.0$  mmol/L.

\*\* Raised fasting blood glucose is defined as plasma venous value:  $\geq 7.0$  mmol/L.



**Figure (13): Prevalence of impaired fasting glycaemia, diabetes (including survey-diagnosed participants), and current treatment for diabetes, by sex**

### 3.3.3. Glycosylated hemoglobin (HbA1c):

**Table (80)** shows the mean HbA1c (mmol/L) and percentage of HbA1c  $\geq 6.5$  mmol/L or current use of diabetes medications, by age group and sex. The participants had a mean HbA1c of 5.8 mmol/L. No sex difference was observed. However, there was an increasing trend as age advanced, particularly among women.

Those with raised glycosylated hemoglobin ( $\geq 6.5$  mmol/L) constituted 14.3% of the total participants. In contrast with sex differences of the mean, men were more likely to suffer raised rate of glycosylated hemoglobin (14.8 mmol/L compared with 13.8 mmol/L for women). There was an increasing trend as age advanced, particularly among both sexes.

**Table (80): Mean HbA1c (mmol/L) and percentage of HbA1c  $\geq 6.5$  mmol/L or current use of diabetes medications, by age group and sex**

Age Group (years) and sex	n	HbA1c (mmol/L)		HbA1c ( $\geq 6.5$ mmol/L or currently take medicines)	
		Mean	95% CI	%	95% CI
<b>Men</b>					
18-29	326	5.4	5.3-5.5	5.8	3.3-8.4
30-44	358	5.7	5.6-5.8	12.0	8.6-15.4
45-59	230	6.5	6.2-6.7	30.9	24.9-36.9
60-69	47	6.5	6.2-6.9	44.7	30.4-58.9
<b>18-69</b>	<b>961</b>	<b>5.8</b>	<b>5.7-5.9</b>	<b>14.8</b>	<b>12.6-17.0</b>
<b>Women</b>					
18-29	471	5.4	5.3-5.4	4.2	2.4-6.1
30-44	666	5.6	5.5-5.7	8.6	6.4-10.7
45-59	379	6.4	6.2-6.6	26.9	22.4-31.4
60-69	97	7.1	6.7-7.6	49.5	39.5-59.4
<b>18-69</b>	<b>1613</b>	<b>5.8</b>	<b>5.7-5.9</b>	<b>13.8</b>	<b>12.1-15.5</b>
<b>Both Sexes</b>					
18-29	797	5.4	5.3-5.4	5.0	3.5-6.6
30-44	1024	5.6	5.6-5.7	10.2	8.3-12.2
45-59	609	6.5	6.3-6.6	28.7	25.0-32.3
60-69	144	6.9	6.6-7.2	47.5	39.3-55.8
<b>18-69</b>	<b>2574</b>	<b>5.8</b>	<b>5.7-5.8</b>	<b>14.3</b>	<b>12.9-15.7</b>

### 3.3.4. Total blood cholesterol:

**Table (81)** shows the mean fasting total cholesterol (mmol/L) and percentage of participants with elevated total cholesterol ( $\geq 5.0$  mmol/L and  $\geq 6.2$  mmol/L) or who are currently on medication for raised cholesterol, by age group and sex. The overall mean total cholesterol level of the study sample was 5.0 mmol/L, being higher among men than among women (5.1 vs. 5.0 mmol/L). Generally, it was observed that there was an increasing trend of the mean total cholesterol level as the age advances for women.

Considering the cut off value of 5.0 mmol/L, it was found that the prevalence of raised total cholesterol level diagnosed by this survey was 55.9%. This prevalence was higher among men when compared with women (58.6% vs. 53.5%). It was observed that there was an increasing trend of the prevalence of survey-diagnosed' raised total cholesterol level as the age advances, particularly among women.

On the other hand, by considering a more conservative cut off value of 6.2 mmol/L, it was found that the prevalence of raised total cholesterol level diagnosed by this survey was 21.2%. This level was higher among men when compared with women (23.0% vs. 19.5% respectively). It was observed that there was an increasing trend of the prevalence of survey-diagnosed' raised total cholesterol level as the age advances, particularly among women.

**Table (81): Mean fasting total cholesterol (mmol/L) and percentage of participants with elevated total cholesterol ( $\geq 5.0$  mmol/L and  $\geq 6.2$  mmol/L) or who are currently on medication for raised cholesterol, by age group and sex**

Age Group (years)	n	Mean total cholesterol (mmol/L)		Total cholesterol $\geq 5.0$ mmol/L or currently on medication for raised cholesterol		Total cholesterol $\geq 6.2$ mmol/L or currently on medication for raised cholesterol	
		Mean	95% CI	%	95% CI	%	95% CI
<b>Men</b>							
18-29	341	5.0	4.9-5.1	48.2	42.9-53.6	14.7	10.9-18.5
30-44	364	5.2	5.1-5.3	61.8	56.8-66.8	22.0	17.7-26.2
45-59	241	5.2	5.1-5.4	71.8	66.1-77.5	38.6	32.4-44.7
60-69	49	4.8	4.5-5.1	71.4	58.8-84.1	36.7	23.2-50.3
<b>18-69</b>	<b>995</b>	<b>5.1</b>	<b>5.0-5.1</b>	<b>58.6</b>	<b>55.5-61.7</b>	<b>23.0</b>	<b>20.4-25.6</b>
<b>Women</b>							
18-29	482	4.8	4.7-4.9	39.4	35.1-43.8	7.1	4.8-9.3
30-44	685	5.0	5.0-5.1	52.3	48.5-56.0	16.9	14.1-19.7
45-59	385	5.2	5.2-5.3	71.9	67.5-76.4	36.6	31.8-41.4
60-69	99	5.2	4.9-5.4	77.8	69.6-86.0	45.5	35.6-55.3
<b>18-69</b>	<b>1651</b>	<b>5.0</b>	<b>5.0-5.0</b>	<b>53.5</b>	<b>51.0-55.9</b>	<b>19.5</b>	<b>17.6-21.4</b>
<b>Both Sexes</b>							
18-29	823	4.9	4.8-5.0	43.9	40.4-47.3	10.9	8.7-13.1
30-44	1049	5.1	5.0-5.2	56.8	53.7-59.9	19.3	16.8-21.9
45-59	626	5.2	5.2-5.3	71.9	68.3-75.4	37.5	33.7-41.3
60-69	148	5.0	4.8-5.2	75.2	68.1-82.3	41.9	33.8-49.9
<b>18-69</b>	<b>2646</b>	<b>5.0</b>	<b>5.0-5.1</b>	<b>55.9</b>	<b>54.0-57.9</b>	<b>21.2</b>	<b>19.6-22.7</b>

### 3.3.5. High density lipoprotein-cholesterol (HDL-C):

**Table (82)** shows the mean fasting HDL-C (mmol/L) and percentage of participants with low HDL level by age group and sex. The overall mean HDL level of the study sample was 1.3 mmol/L, being higher among women than among men (1.4 vs. 1.1 mmol/L). No age pattern was observed.

At a cut off value of HDL <1.03mmol/L for men and <1.29mmol/L for women, it was found that the prevalence of low (i.e. risky) HDL was 39.3% for women and 35.1% for men. An increasing trend with age was only demonstrated for men.

**Table (82): Mean fasting HDL-C (mmol/L) and percentage of participants with low HDL-C level\*, by age group and sex**

Age Group (years) and sex	n	HDL (mmol/L)		Percentage of low HDL level	
		Mean	95% CI	%	95% CI
<b>Men</b>					
18-29	341	1.15	1.12-1.17	30.6	25.7-35.5
30-44	364	1.13	1.10-1.16	35.7	30.8-40.6
45-59	241	1.13	1.09-1.16	38.6	32.4-44.7
60-69	49	1.09	1.02-1.16	53.1	39.1-67.1
<b>18-69</b>	<b>995</b>	<b>1.13</b>	<b>1.12-1.15</b>	<b>35.1</b>	<b>32.1-38.1</b>
<b>Women</b>					
18-29	481	1.43	1.40-1.45	34.1	29.9-38.3
30-44	684	1.39	1.36-1.41	39.6	36.0-43.3
45-59	386	1.33	1.30-1.36	46.4	41.4-51.3
60-69	99	1.34	1.29-1.39	44.4	34.7-54.2
<b>18-69</b>	<b>1650</b>	<b>1.39</b>	<b>1.37-1.40</b>	<b>39.3</b>	<b>36.9-41.7</b>
<b>Both Sexes</b>					
18-29	822	1.29	1.26-1.31		
30-44	1048	1.26	1.24-1.28		
45-59	627	1.24	1.22-1.26		
60-69	148	1.24	1.19-1.28		
<b>18-69</b>	<b>2645</b>	<b>1.27</b>	<b>1.25-1.28</b>		

Percentage of respondents with HDL <1.03mmol/L for men and <1.29mmol/L for women

### 3.3.6. Low density lipoprotein-cholesterol (LDL-C):

**Table (83)** shows the mean fasting LDL-C (mmol/L) and percentage of participants with elevated LDL-C level, by age group and sex. The overall mean LDL level of the study sample was 3.1 mmol/L, being higher among men than among women (3.1 vs. 3.0 mmol/L, respectively). No specific age pattern was observed.

Considering the cut off value of 3.4 mmol/L, it was found that the prevalence of high LDL diagnosed by this survey was 33.0%. This prevalence was higher among men than women (37.9% vs. 28.6%). Again, no specific age pattern for the prevalence of risky LDL level was observed.

**Table (83): Mean fasting LDL-C (mmol/L) and percentage of participants with elevated LDL-C level, by age group and sex**

Age Group (years) and sex	n	LDL (mmol/L)		Percentage of elevated LDL level ( $\geq 3.4$ mmol/L)	
		Mean	95% CI	%	95% CI
<b>Men</b>					
18-29	324	3.1	3.0-3.1	35.3	30.1-40.5
30-44	344	3.2	3.1-3.3	43.3	38.1-48.6
45-59	222	3.2	3.1-3.3	38.7	32.3-45.2
60-69	47	2.8	2.6-3.0	21.3	9.6-33.0
<b>18-69</b>	<b>937</b>	<b>3.1</b>	<b>3.1-3.2</b>	<b>37.9</b>	<b>34.7-41.0</b>
<b>Women</b>					
18-29	475	2.9	2.8-2.9	22.3	18.6-26.1
30-44	672	3.0	2.9-3.1	27.2	23.9-30.6
45-59	377	3.2	3.1-3.3	38.2	33.3-43.1
60-69	98	3.1	3.0-3.3	39.8	30.1-49.5
<b>18-69</b>	<b>1622</b>	<b>3.0</b>	<b>3.0-3.0</b>	<b>28.6</b>	<b>26.4-30.9</b>
<b>Both Sexes</b>					
18-29	799	3.0	2.9-3.0	28.7	25.5-32.0
30-44	1016	3.1	3.1-3.1	34.8	31.7-37.8
45-59	599	3.2	3.1-3.2	38.4	34.5-42.4
60-69	145	3.0	2.8-3.1	32.3	24.7-40.0
<b>18-69</b>	<b>2559</b>	<b>3.1</b>	<b>3.0-3.1</b>	<b>33.0</b>	<b>31.1-34.9</b>

### 3.3.7. Triglycerides (TG):

**Table (84)** shows the mean fasting triglycerides (mmol/L) and percentage of participants with elevated fasting triglyceride levels ( $\geq 1.7$  mmol/L and  $\geq 2.0$  mmol/L), by age group and sex. A mean of 1.4 mmol/L was found for the study participants. Men tended to have a higher mean triglyceride than women (1.6 vs. 1.3 mmol/L). An increasing trend of the mean triglycerides level as the age advanced, particularly among men.

At a cut off value of 1.7 mmol/L, it was found that the prevalence of high triglycerides level was 26.3%. This prevalence was higher among men when compared with women (33.4% vs. 19.9%).

At a more conservative cut off value of 2.0 mmol/L, it was found that the prevalence of high triglycerides level was 18.2%. This prevalence was higher among men when compared with women (24.0% vs. 12.9%).

**Table (84): Mean fasting triglycerides (mmol/L) and percentage of participants with elevated fasting triglyceride levels ( $\geq 1.7$  mmol/L and  $\geq 2.0$  mmol/L), by age group and sex**

Age Group (years) and sex	Mean fasting triglycerides (mmol/L)			Percentage of respondents with fasting triglycerides $\geq 1.7$ mmol/L		Percentage of respondents with fasting triglycerides $\geq 2.0$ mmol/L	
	n	Mean	95% CI	%	95% CI	%	95% CI
<b>Men</b>							
18-29	338	1.4	1.3-1.5	26.0	21.3-30.7	17.2	13.1-21.2
30-44	362	1.7	1.6-1.8	36.7	31.8-41.7	25.7	21.2-30.2
45-59	236	1.8	1.7-2.0	41.9	35.6-48.3	34.7	28.7-40.8
60-69	49	1.8	1.5-2.0	38.8	25.1-52.4	28.6	15.9-41.2
<b>18-69</b>	<b>985</b>	<b>1.6</b>	<b>1.6-1.7</b>	<b>33.4</b>	<b>30.4-36.4</b>	<b>24.0</b>	<b>21.4-26.7</b>
<b>Women</b>							
18-29	482	1.1	1.0-1.1	9.1	6.6-11.7	6.4	4.2-8.6
30-44	685	1.3	1.3-1.4	22.2	19.1-25.3	15.9	13.2-18.7
45-59	386	1.6	1.5-1.6	31.9	27.2-36.5	18.9	15.0-22.8
60-69	99	1.5	1.4-1.6	29.3	20.3-38.3	14.1	7.3-21.0
<b>18-69</b>	<b>1652</b>	<b>1.3</b>	<b>1.3-1.3</b>	<b>19.9</b>	<b>18.0-21.8</b>	<b>12.9</b>	<b>11.3-14.5</b>
<b>Both Sexes</b>							
18-29	820	1.2	1.2-1.3	17.6	14.9-20.4	11.8	9.5-14.1
30-44	1047	1.5	1.5-1.6	29.1	26.2-32.0	20.6	18.0-23.2
45-59	622	1.7	1.6-1.8	36.4	32.5-40.2	26.0	22.5-29.5
60-69	148	1.6	1.5-1.7	33.2	25.4-40.9	20.1	13.4-26.8
<b>18-69</b>	<b>2637</b>	<b>1.4</b>	<b>1.4-1.5</b>	<b>26.3</b>	<b>24.6-28.1</b>	<b>18.2</b>	<b>16.6-19.7</b>

### 3.4. Section (4): Risk factors

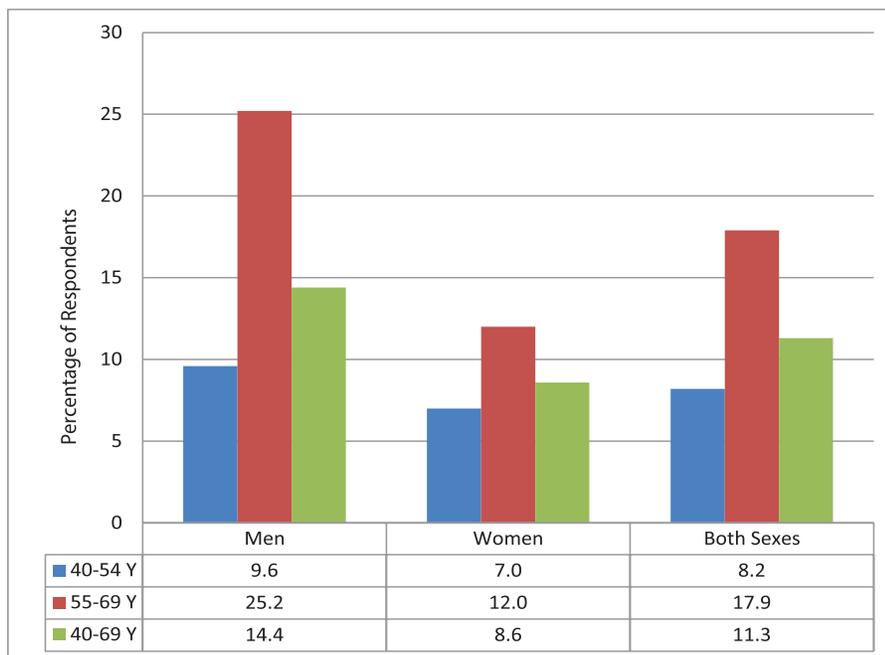
#### 3.4.1. Cardiovascular disease (CVD) risk:

**Table (85)** and **figure (14)** show percentage of respondents with a 10-year CVD risk  $\geq 30\%$  or with existing CVD for those 40-69 years. The overall prevalence was 11.3%. Men had higher prevalence when compared with women (14.4 vs. 8.6%). By categorizing the age of participants into two groups, it was found that those aged 55-69 years had a substantial higher proportion of high risk than that of those aged 40-54 years (17.9 vs. 8.2%), even when each sex was considered.

[http://ish-world.com/downloads/activities/colour\\_charts\\_24\\_Aug\\_07.pdf](http://ish-world.com/downloads/activities/colour_charts_24_Aug_07.pdf)

**Table (85): Percentage of respondents with a 10-year CVD risk  $\geq 30\%$  or with existing CVD, by age group (40-69 years) and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
40-54	23	9.6	5.8-13.3	27	7.0	4.4-9.5	50	8.2	6.0-10.4
55-69	23	25.2	16.2-34.2	18	12.0	6.8-17.3	41	17.9	12.9-22.9
<b>40-69</b>	<b>46</b>	<b>14.4</b>	<b>10.5-18.3</b>	<b>45</b>	<b>8.6</b>	<b>6.2-11.1</b>	<b>91</b>	<b>11.3</b>	<b>9.1-13.5</b>



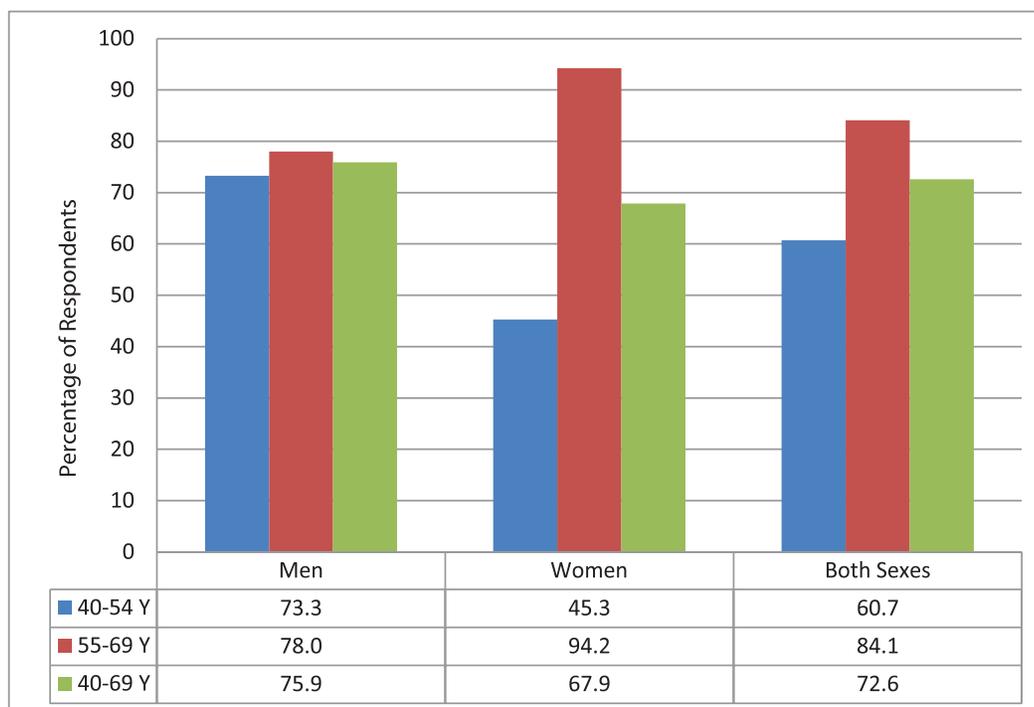
**Figure (14): Percentage of respondents with a 10-year CVD risk  $\geq 30\%$  or with existing CVD, by age group (40-69 years) and sex**

**Table (86)** and **figure (15)** show the percentage of eligible participants who currently receive drug therapy and counseling to prevent heart attacks and strokes, by age group and sex. Eligible participants are defined as those aged 40-60 years with a 10-year CVD risk  $\geq 30\%$ . The overall prevalence was 72.6%. Men had higher prevalence when compared with women (75.9 vs. 67.9%). By categorizing the age of participants into two groups, it was found that those aged 55-69 years had a substantial higher proportion of high risk than that of those aged 40-54 years (84.1 vs. 60.7%), even when each sex was considered.

**Table (86): Percentage of eligible\* participants who currently receive drug therapy and counseling to prevent heart attacks and strokes, by age group and sex**

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
40-54	17	73.3	54.4-92.3	12	45.3	25.7-64.9	29	60.7	46.6-74.6
55-69	18	78.0	60.2-95.9	17	94.2	82.6-100.0	35	84.1	72.1-96.1
40-69	35	75.9	62.8-88.9	29	67.9	53.9-81.8	64	72.6	63.2-82.0

\*Eligible participants are defined as those aged 40-60 years with a 10-year CVD risk  $\geq 30\%$



**Figure (15): Percentage of eligible persons receiving drug therapy and counseling to prevent heart attacks and strokes, by age group (40-69 years) and sex**

### 3.4.2. Combined NCD Risk Factors:

**Table (87)** shows summary of combined risk factors. The overall prevalence of no-risk factors was 1.2%, women had higher prevalence when compared with men (1.5 vs. 1.0%). On the other hand, the overall prevalence of high risk (i.e. three or more risk factors) was 57.9%. The prevalence rate was higher among men than among women (58.7% vs. 57.1%). The prevalence of high risk respondents' shows an increasing trend as the age advances. By categorizing the age of participants into two groups, it was found that those aged 45-69 years had a substantial higher proportion of high risk than that of those aged 18-44 years (74.7 vs. 51.6%, respectively).

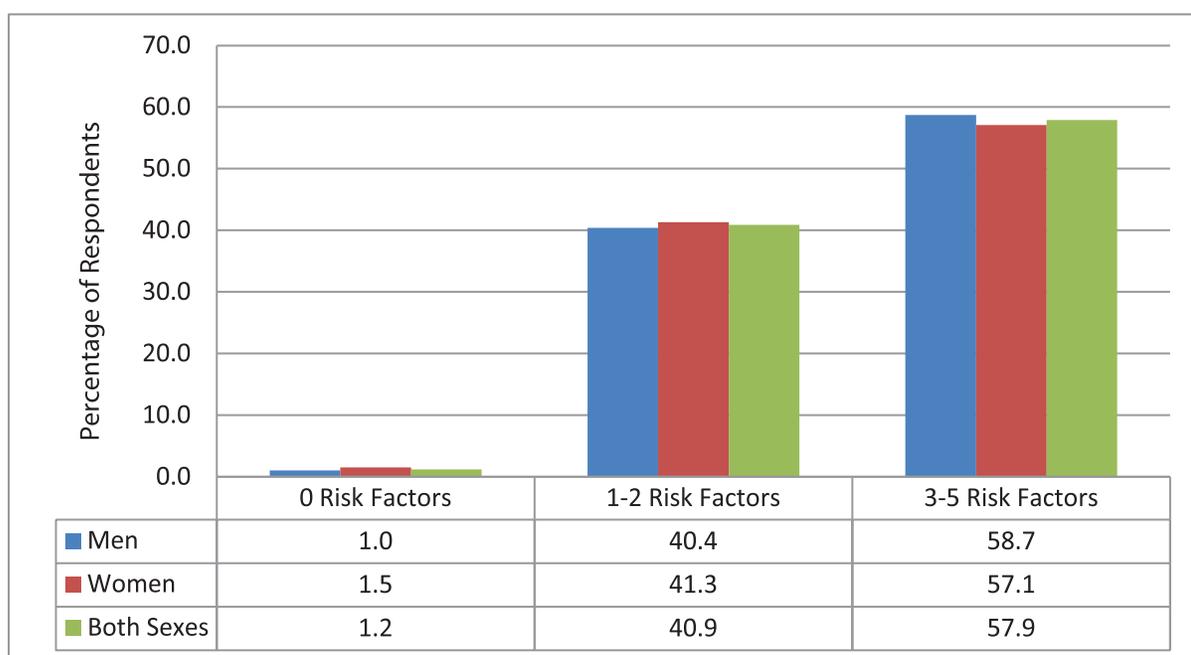
**Figure (16)** illustrates the percentage distribution of participants according to combined risk factors by sex.

The 5 risk factors are:

- Current daily smoking
- Less than five servings of fruit and/or vegetables per day
- Not meeting WHO recommendations on physical activity for health (<150 minutes of moderate activity per week, or equivalent)
- Overweight or obese (BMI  $\geq$  25 kg/m<sup>2</sup>)
- Raised BP (SBP  $\geq$  140 and/or DBP  $\geq$  90 mmHg or currently on medication for raised BP).

**Table (87): Summary of combined NCD risk factors, by age group and sex**

Age Group (years) and sex	n	0 risk factors		1-2 risk factors		3-5 risk factors	
		%	95% CI	%	95% CI	%	95% CI
<b>Men</b>							
18-44	829	1.0	0.3-1.7	45.1	41.7-48.5	53.9	50.5-57.3
45-69	353	0.8	0.0-1.7	26.5	21.9-31.1	72.7	68.0-77.3
<b>18-69</b>	<b>1182</b>	<b>1.0</b>	<b>0.4-1.5</b>	<b>40.4</b>	<b>37.5-43.2</b>	<b>58.7</b>	<b>55.8-61.5</b>
<b>Women</b>							
18-44	1328	1.9	1.2-2.7	49.0	46.2-51.7	49.1	46.4-51.8
45-69	512	0.6	0.0-1.2	23.1	19.5-26.8	76.3	72.7-80.0
<b>18-69</b>	<b>1840</b>	<b>1.5</b>	<b>0.9-2.1</b>	<b>41.3</b>	<b>39.0-43.6</b>	<b>57.1</b>	<b>54.8-59.4</b>
<b>Both sexes</b>							
18-44	2157	1.5	0.9-2.0	47.0	44.8-49.2	51.6	49.4-53.8
45-69	865	0.7	0.1-1.2	24.7	21.8-27.6	74.7	71.7-77.6
<b>18-69</b>	<b>3022</b>	<b>1.2</b>	<b>0.8-1.7</b>	<b>40.9</b>	<b>39.0-42.7</b>	<b>57.9</b>	<b>56.1-59.7</b>



**Figure (16): Percentage distribution of participants according to combined NCD risk factors by sex**



# **CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS**

## 4.1. CONCLUSION

The current survey on the prevalence of NCD risk factors was conducted using internationally validated survey methodology, with full financing from MOH and technical support based on local capacities and effective collaboration between different stakeholders as well as cooperation from WHO. A general summary of the STEPS survey results is detailed here.

1. One fifth (20.5) of the Kuwaiti adult population aged 18–69 years were found to be current smokers (males 39.2% and females 3.3%); and 0.8% were current alcohol drinkers (males 1.5% and females 0.1%).
2. More than four fifths (83.8%) of Kuwaiti adults consumed fewer than five servings of fruit and vegetables per day; and more than one third (36.1%) used salt shaker to add salt to their meals.
3. Regarding physical activity and overweight or obesity, 62.6% were physically inactive; 77.2% were overweight or obese.
4. More than one quarter (25.1%) of Kuwaiti adults had raised blood pressure. One in ten adults (11.3%) aged 40–69 years had a 10-year CVD risk of over 30%.
5. The high prevalence of diabetes in the adult population is underlined by the fact that 6.1% had impaired fasting glycemia and 14.6% had raised blood glucose levels or currently on medication for diabetes; 55.9% had raised total cholesterol; and 39.3% of women and 35.1% of men had low levels of HDL cholesterol.
6. The summary of combined NCD risk factors demonstrates that 57.9% of Kuwaiti adults aged 18–69 years and 74.7% of adults over 45 years of age had three or more NCD risk factors.
7. Less than one fifth (15.2%) of women had undergone cervical cancer screening.

## 4.2. IMPLICATIONS AND RECOMMENDATIONS

### Tobacco Smoking

- The prevalence of smoking among men is very high, and the majority of male smokers initiate smoking during adolescence. The prevalence of smoking among women is low.
- All aspects of the WHO Framework Convention on Tobacco Control to which Kuwait is a signatory should be fully implemented in Kuwait, with particular focus of tobacco prevention programs on the adolescent male population.
- Cultural barriers to women smoking should be identified and strengthened.
- Quantitative and qualitative research assessing perceived incentives and barriers to smoking initiation among adolescents should be conducted as a basis for program and policy development.

### Alcohol Consumption

- Given the low consumption of alcohol in Kuwait, current policies should remain in place.

### Fruit and Vegetable Consumption

- Fruit and vegetable consumption is low, and is lowest among the younger adult age groups.
- Since eating patterns are established early in life, programs to improve diet should target children and their mothers.
- Quantitative and qualitative research assessing perceived incentives and barriers to a healthy diet should be conducted, particularly among children and their mothers, as a basis for program and policy development.

### Physical Activity

- A majority of adults in Kuwait have inadequate physical activity, and this is even greater among women than men.
- Community-based programs to encourage physical activity in all age groups should be developed. However, since physical activity patterns are established early in life, some programs – including school-based policies and programs – should specifically target children and adolescents.
- Quantitative and qualitative research assessing perceived incentives and barriers to physical activity should be conducted in all groups, but particularly among women and children, as a basis for program and policy development.

### **Overweight and Obesity**

- The prevalence of overweight and obesity in Kuwait is among the highest world-wide.
- Urgent actions should be taken through public policy initiatives and community-based health promotion programs to address this public health issue.
- Quantitative and qualitative research assessing cultural perceptions regarding obesity and barriers to a healthful lifestyle should be conducted as a basis for intervention, program, and policy development.

### **Raised Blood Pressure**

- The overall prevalence of raised blood pressure and under-treatment of those with raised blood pressure is high, particularly among those younger than 45 years of age.
- MOH policies to improve mass screening for hypertension should be developed, in addition to initiatives at the primary healthcare level to control blood pressure among those already diagnosed with hypertension.

### **Diabetes**

- The prevalence of diabetes among adults >18 years in Kuwait is substantially higher than the average diabetes prevalence globally, reflecting the extremely high prevalence of obesity in the country.
- MOH policies for mass screening of high-risk populations for diabetes should be considered at the primary healthcare level, with a cost-effectiveness analysis to assess the efficiency of such a program in Kuwait.

### **Hyperlipidemia**

- The prevalence of hyperlipidemia is very high in Kuwait, consistent with the dietary and physical activity patterns and high prevalence of obesity and diabetes observed in this study.
- Programs, policy initiatives, and research studies mentioned in the “Fruits and Vegetable Consumption” and “Physical Activity” sections above will address this issue.

### **Cervical Cancer Screening**

- The implementation of cervical cancer screening among eligible women is very low compared to the global average.
- Quantitative and qualitative research assessing perceived incentives and barriers to cervical cancer screening should be conducted, with particular attention to cultural attitudes and assessment of the efficacy of interventions aimed at increasing participation of women in cervical cancer screening programs.

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# ANNEXES



## ANNEX 1

WHO Instrument for Chronic Disease Risk Factor Surveillance

# WHO STEPS Instrument

(Core and Expanded)



The WHO STEPwise approach to chronic disease risk factor surveillance (STEPS)



World Health  
Organization

World Health Organization

20 Avenue Appia, 1211 Geneva 27, Switzerland

For further information: [www.who.int/chp/steps](http://www.who.int/chp/steps)

# STEPS Instrument

## Overview

**Introduction** This is the generic STEPS Instrument which sites/countries will use to develop their tailored instrument. It contains the:

- CORE items (unshaded boxes)
- EXPANDED items (shaded boxes).

**Core Items** The Core items for each section ask questions required to calculate basic variables. For example:

- current daily smokers
- mean BMI.

Note: All the core questions should be asked, removing core questions will impact the analysis.

**Expanded items** The Expanded items for each section ask more detailed information. Examples include:

- use of smokeless tobacco
- sedentary behaviour.

**Guide to the columns** The table below is a brief guide to each of the columns in the Instrument.

Column	Description	Site Tailoring
Question	Each question is to be read to the participants	<ul style="list-style-type: none"> <li>● Select sections to use.</li> <li>● Add expanded and optional questions as desired.</li> </ul>
Response	This column lists the available response options which the interviewer will be circling or filling in the text boxes. The skip instructions are shown on the right hand side of the responses and should be carefully followed during interviews.	<ul style="list-style-type: none"> <li>● Add site specific responses for demographic responses (e.g. C6).</li> <li>● Change skip question identifiers where necessary.</li> </ul>
Code	The column is designed to match data from the instrument into the data entry tool, data analysis syntax, data book, and fact sheet.	This should never be changed or removed. The code is used as a general identifier for the data entry and analysis.



# WHO STEPS Instrument

## for Chronic Disease Risk Factor Surveillance

<insert country/site name>

### Survey Information

Location and Date	Response	Code
Governorate/Health Region	_____	I1
Health center name/Area		I2
Interviewer ID	_____	I3
Date of completion of the instrument	_____ dd      mm      year	I4

Consent, Interview Language and Name	Response		Code
Consent has been read and obtained	Yes	1	I5
	No	2 <b>If NO, END</b>	
Interview Language	Arabic		I6
Time of interview (24 hour clock)	_____	: _____	I7
	hrs	mins	
Family Surname			I8
First Name			I9
<b>Additional Information that may be helpful</b>			
Contact phone number where possible			I10

## Step 1 Demographic Information

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

EXPANDED: Demographic Information		
What is the <b>highest level of education</b> you have completed according to Kuwaiti education system?  <i>[INSERT COUNTRY-SPECIFIC CATEGORIES]</i>	<div style="display: flex; justify-content: space-between;"> <div style="width: 80%;">               No formal schooling 1                Less than primary school 2                Primary school completed 3                Intermediate school completed 4                High school completed 5                Diploma 6                College/University completed 7                Post graduate degree 8                Refused 88             </div> <div style="width: 15%; text-align: center;">C5</div> </div> <hr style="border: 0.5px solid black;"/> <div style="display: flex; justify-content: space-between;"> <div style="width: 80%;">               Refused 88             </div> <div style="width: 15%;"></div> </div>	
What is your <b>marital status</b> ?	<div style="display: flex; justify-content: space-between;"> <div style="width: 80%;">               Single 1                Married 2                Separated 3                Divorced 4                Widowed 5                Refused 88             </div> <div style="width: 15%; text-align: center;">C7</div> </div>	
Which of the following best describes your <b>main work</b> status over the past 12 months?  <i>[INSERT COUNTRY-SPECIFIC CATEGORIES]</i>  <i>(USE SHOWCARD)</i>	<div style="display: flex; justify-content: space-between;"> <div style="width: 80%;">               Government employee 1                Non-government employee 2                Self-employed 3                Non-paid 4                Student 5                Homemaker 6                Retired 7                (Unemployed (able to work) 8                (Unemployed (unable to work) 9                Refused 88             </div> <div style="width: 15%; text-align: center;">C8</div> </div>	
How many people ≥18 years, including yourself, live in your household?	Number of people <span style="float: right;">▬▬▬</span>	C9



## Step 1 Behavioural Measurements

### CORE: Tobacco Use

Now I am going to ask you some questions about tobacco use.

Question	Response	Code
Do you <b>currently</b> smoke any <b>tobacco</b> products, such as cigarettes, cigars or pipes? <i>(USE SHOWCARD)</i>	Yes <span style="float: right;">1</span>	T1
	No <span style="float: right;">2</span> <i>If No, go to T8</i>	
Do you currently smoke tobacco products <b>daily</b> ?	Yes <span style="float: right;">1</span>	T2
	No <span style="float: right;">2</span>	
How old were you when you <b>first started</b> smoking?	Age (years) <span style="float: right;">_____</span> <i>If Known, go to T5a/T5aw</i> Don't know 77	T3
Do you remember how long ago it was? <i>(RECORD ONLY 1, NOT ALL 3)</i> <i>Don't know 77</i>	In Years <span style="float: right;">_____</span> <i>If Known, go to T5a/T5aw</i>	T4a
	OR in Months <span style="float: right;">_____</span> <i>If Known, go to T5a/T5aw</i>	T4b
	OR in Weeks <span style="float: right;">_____</span>	T4c
On average, <b>how many</b> of the following products do you smoke <b>each day/week</b> ? <i>(IF LESS THAN DAILY, RECORD WEEKLY)</i> <i>(RECORD FOR EACH TYPE, USE SHOWCARD)</i> <i>Don't Know 7777</i>	DAILY↓ WEEKLY↓	
	Manufactured cigarettes <span style="float: right;">_____</span>	T5a/T5aw
	Hand-rolled cigarettes <span style="float: right;">_____</span>	T5b/T5bw
	Pipes full of tobacco <span style="float: right;">_____</span>	T5c/T5cw
	Cigars, cheroots, cigarillos <span style="float: right;">_____</span>	T5d/T5dw
	Number of Shisha sessions <span style="float: right;">_____</span>	T5e/T5ew
	Other <span style="float: right;">_____</span> <i>If Other, go to T5other, else go to T6</i>	T5f/T5fw
:(Other (please specify) <span style="float: right;">_____</span>	T5other/ T5otherw	
During the past 12 months, have you tried to <b>stop smoking</b> ?	Yes <span style="float: right;">1</span> No <span style="float: right;">2</span>	T6
During any visit to a doctor or other health worker in the past 12 months, were you advised to quit smoking tobacco?	Yes 1 <i>If T2=Yes, go to T12; if T2=No, go to T9</i> No 2 <i>If T2=Yes, go to T12; if T2=No, go to T9</i> No visit during the past 12 months 3 <i>If T2=Yes, go to T12; if T2=No, go to T9</i>	T7
In the past, did you <b>ever smoke</b> any tobacco products? <i>(USE SHOWCARD)</i>	Yes <span style="float: right;">1</span> No <span style="float: right;">2</span> <i>If No, go to T12</i>	T8
In the past, did you <b>ever smoke daily</b> ?	Yes <i>If T1=Yes, go to T12, else go to T10</i> 1 No <i>If T1=Yes, go to T12, else go to T10</i> 2	T9

EXPANDED: Tobacco Use		
Question	Response	Code
How old were you when you <b>stopped</b> smoking?	Age (years) <input type="text"/> <input type="text"/> <i>If Known, go to T12</i> Don't Know 77	T10
How <b>long ago</b> did you stop smoking?  (RECORD ONLY 1, NOT ALL 3)  <i>Don't Know 77</i>	Years ago <input type="text"/> <input type="text"/> <i>If Known, go to T12</i>	T11a
	OR    Months ago <input type="text"/> <input type="text"/> <i>If Known, go to T12</i>	T11b
	OR    Weeks ago <input type="text"/> <input type="text"/>	T11c
Do you <b>currently use</b> any <b>smokeless tobacco</b> products such as [ <i>snuff, chewing tobacco, betel</i> ]? (USE SHOWCARD)	Yes 1 No 2 <i>If No, go to T15</i>	T12
Do you <b>currently use</b> <b>smokeless tobacco</b> products <b>daily</b> ?	Yes 1 No 2 <i>If No, go to T14aw</i>	T13
On average, how many <b>times a day/week</b> do you use ....  (IF LESS THAN DAILY, RECORD WEEKLY)  (RECORD FOR EACH TYPE, USE SHOWCARD)  <i>Don't Know 7777</i>	DAILY↓                      WEEKLY↓	
	Snuff, by mouth <input type="text"/>	T14a/ T14aw
	Snuff, by nose <input type="text"/>	T14b/ T14bw
	Chewing tobacco <input type="text"/>	T14c/ T14cw
	Betel, quid <input type="text"/>	T14d/ T14dw
	Other <input type="text"/> <input type="text"/> <i>If Other, go to T14other, if T13=No, go to T16, else go to T17</i>	T14e/ T14ew
	Other (please specify): <input type="text"/> <input type="text"/> <i>If T13=No, go to T16, else go to T17</i>	T14other/ T14otherw
In the <b>past</b> , did you <b>ever use</b> smokeless tobacco products such as [ <i>snuff, chewing tobacco, or betel</i> ]?	Yes 1 No 2 <i>If No, go to T17</i>	T15
In the <b>past</b> , did you <b>ever use</b> smokeless tobacco products such as [ <i>snuff, chewing tobacco, or betel</i> ] <b>daily</b> ?	Yes 1 No 2	T16
During the past 30 days, did someone smoke <b>in your home</b> ?	Yes 1 No 2	T17
During the past 30 days, did someone smoke in closed areas <b>in your workplace</b> (in the building, in a work area or a specific office)?	Yes 1 No 2 Don't work in a closed area 3	T18

### Tobacco Policy

You have been asked questions on tobacco consumption before. The next questions ask about tobacco control policies. They include questions on your exposure to the media and advertisement, on cigarette promotions, health warnings and cigarette purchase.

Question	Response	Code
During the past 30 days, have you noticed information About the dangers of smoking cigarettes or that Encourages quitting through the following media? (RECORD FOR EACH)		
Newspaper or Magazines	Yes 1 No 2 Don't Know 77	TP1a
Television	Yes 1 No 2 Don't Know 77	TP1b
Radio	Yes 1 No 2 Don't Know 77	TP1c
During the past 30 days, have you noticed any <b>advertisements</b> or <b>signs</b> promoting cigarettes in stores where cigarettes are sold?	Yes 1 No 2 Don't Know 77	TP2
During the past 30 days, have you noticed any of the Following types of cigarette promotions? (RECORD FOR EACH)		
Free samples of cigarette	Yes 1 No 2 Don't Know 77	TP3a
Cigarette at sale prices	Yes 1 No 2 Don't Know 77	TP3b
Coupons for cigarettes	Yes 1 No 2 Don't Know 77	TP3c
Free gifts or special discount offers on other products when buying cigarettes	Yes 1 No 2 Don't Know 77	TP3d
Clothing or other items with cigarette brand name or logo	Yes 1 No 2 Don't Know 77	TP3e
Cigarette promotions in the mail	Yes 1 No 2 Don't Know 77	TP3f
<b>The next question TP4 – TP7 are administered to current smokers only.</b>		
During the past 30 days, have you notice any <b>health warnings on cigarette packages</b> ?	Yes 1 No 2 If no, go to TP6 Did not see any cigarette packages 3 If " did not see any cigarette Packages", go to TP6 Don't Know 77 If Don't know, go to TP6	TP4
During the past 30 days, have warning labels on cigarette packages led you to <b>think about quitting</b> ?	Yes 1 No 2 Don't Know 77	TP5
The last time you bought manufactured cigarettes for yourself, <b>how many cigarettes</b> did you buy in total?	Number of cigarettes <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Don't know or Don't smoke or If " Don't know or Don't smoke or purchase manuf.Cigarettes 7777 purchase manuf. Cig", end section	TP6
In total, how much money did you pay for this purchase? (DIGITS TO BE ADAPTED TO COUNTRY NEEDS)	Amount <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Don't Know 7777 Refused 8888	TP7

**CORE: Alcohol Consumption**

The next questions ask about the consumption of alcohol.

Question	Response	Code
Have you <b>ever</b> consumed any alcohol such as beer, wine, spirits or <i>[add other local examples]</i> ? (USE SHOWCARD OR SHOW EXAMPLES)	Yes 1 No 2 <i>If No, go to A16</i>	A1
Have you consumed any alcohol within the <b>past 12 months</b> ?	Yes 1 <i>If Yes, go to A4</i> No 2	A2
Have you stopped drinking due to health reasons, such as a negative impact on your health or on the advice of your doctor or other health worker?	Yes 1 <i>If Yes, go to A16</i> No 2 <i>If No, go to A16</i>	A3
During the past 12 months, <b>how frequently</b> have you had at least one standard alcoholic drink?  (READ RESPONSES, USE SHOWCARD)	Daily 1 5-6 days per week 2 3-4 days per week 3 1-2 days per week 4 1-3 days per month 5 Less than once a month 6	A4
Have you consumed any alcohol within the <b>past 30 days</b> ?	Yes 1 No 2 <i>If No, go to A13</i>	A5
During the past 30 days, on how many <b>occasions</b> did you have at least one standard alcoholic drink?	Number <input type="text"/> Don't know 77	A6
During the past 30 days, when you drank alcohol, how many <b>standard drinks on average</b> did you have during one drinking occasion? (USE SHOWCARD)	Number <input type="text"/> Don't know 77	A7
During the past 30 days, what was the <b>largest number</b> of standard drinks you had on a single occasion, counting all types of alcoholic drinks together?	Largest number <input type="text"/> Don't Know 77	A8
During the past 30 days, how many times did you have <b>six or more</b> standard drinks in a single drinking occasion?	Number of times <input type="text"/> Don't Know 77	A9
During each of the <b>past 7 days</b> , how many standard drinks did you have each day?  (USE SHOWCARD)  <i>Don't Know 77</i>	Monday <input type="text"/>	A10a
	Tuesday <input type="text"/>	A10b
	Wednesday <input type="text"/>	A10c
	Thursday <input type="text"/>	A10d
	Friday <input type="text"/>	A10e
	Saturday <input type="text"/>	A10f
	Sunday <input type="text"/>	A10g

**CORE: Alcohol Consumption, continued**

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

Question	Response	Code
<p>During the <b>past 7 days</b>, did you consume any <b>homebrewed</b> alcohol, any alcohol <b>brought over the border/from another country</b>, any alcohol <b>not intended for drinking</b> or other <b>untaxed</b> alcohol?</p> <p><i>[AMEND ACCORDING TO LOCAL CONTEXT]</i></p> <p><i>(USE SHOWCARD)</i></p>	<p>Yes 1</p> <p>No 2 <i>If No, go to A13</i></p>	A11
<p>On average, <b>how many standard drinks</b> of the following did you consume <b>during the past 7 days</b>?</p> <p><i>[INSERT COUNTRY-SPECIFIC EXAMPLES]</i></p> <p><i>(USE SHOWCARD)</i></p> <p><i>Don't Know 77</i></p>	<p>Homebrewed spirits, e.g. moonshine <input type="text"/></p>	A12a
	<p>Homebrewed beer or wine, e.g. beer, palm or fruit wine <input type="text"/></p>	A12b
	<p>Alcohol brought over the border/from another country <input type="text"/></p>	A12c
	<p>Alcohol not intended for drinking, e.g. alcohol-based medicines, perfumes, after shaves <input type="text"/></p>	A12d
	<p>Other untaxed alcohol in the country <input type="text"/></p>	A12e

<b>CORE: Diet</b>		
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.		
<b>Question</b>	<b>Response</b>	<b>Code</b>
In a typical week, on how many days do you eat fruit? (USE SHOWCARD)	Number of days <input type="text"/> <input type="text"/> <input type="text"/> <i>If Zero days, go to D3</i> Don't Know 77	D1
How many servings of fruit do you eat on one of those days? (USE SHOWCARD)	Number of servings <input type="text"/> <input type="text"/> <input type="text"/> Don't Know 77	D2
In a typical week, on how many days do you eat vegetables? (USE SHOWCARD)	Number of days <input type="text"/> <input type="text"/> <input type="text"/> <i>If Zero days, go to D5</i> Don't Know 77	D3
How many servings of vegetables do you eat on one of those days? (USE SHOWCARD)	Number of servings <input type="text"/> <input type="text"/> <input type="text"/> Don't know 77	D4
<b>EXPANDED: Diet</b>		
What type of oil or fat is most often used for meal preparation in your household?  (USE SHOWCARD)  (SELECT ONLY ONE)	Vegetable oil 1 Lard or suet 2 Butter or ghee 3 Margarine 4 Other 5 <i>If Other, go to D5 other</i> None in particular 6 None used 7 Don't know 77	D5
	Other <input type="text"/>	D5other
On average, how many meals per week do you eat that were not prepared at a home? By meal, I mean breakfast, lunch and dinner.	Number <input type="text"/> <input type="text"/> <input type="text"/> Don't know 77	D6
<b>EXPANDED Diet : Kuwait</b>		
In typical week, on how many days do you eat fruit ? (show card)	Number of days <input type="checkbox"/> Don't Know <input type="checkbox"/>	D7
How many servings of fruit do you eat on one of those days ? (show card)	Number of servings <input type="checkbox"/> Don't Know <input type="checkbox"/>	D8
In typical week, on how many days do you eat vegetables ? (show card)	Number of days <input type="checkbox"/> Don't Know <input type="checkbox"/>	D9
How many servings of vegetables do you eat on one of those days ? (show card)	Number of servings <input type="checkbox"/> Don't Know <input type="checkbox"/>	D10
What type of oil or fat is most often used for meal preparation in your household ?	vegetable oil <input type="checkbox"/> lard or suet <input type="checkbox"/> butter or ghee <input type="checkbox"/> margarine <input type="checkbox"/> others <input type="checkbox"/> none in particular <input type="checkbox"/> none used <input type="checkbox"/> Don't know <input type="checkbox"/>	D11
How many fast food meals do you eat per week (at home or outside home)?	Number of meals per week <input type="checkbox"/> Don't Know <input type="checkbox"/>	D12
On average, How many times per week do you eat fried foods? (show card)	Number of times per week <input type="checkbox"/> Don't Know <input type="checkbox"/>	D13

On average, How many times per week do you eat crisps (potato chips, puffed crisps etc ...)	Number of times per week <input type="checkbox"/> Don't Know <input type="checkbox"/>	D14
What type of dairy products (milk, yogurt, laban and cheeses) you drink or eat?	Full cream 1 Half cream 2 Skimmed 3 Non in particular 4 Non used 7 Don't know 77	D15
How many cups of milk , laban or yogurt do you consume per day ?	one cup <input type="checkbox"/> 2 cups <input type="checkbox"/> 3 cups or more <input type="checkbox"/> Non in particular <input type="checkbox"/> Non used <input type="checkbox"/> Don't know <input type="checkbox"/>	D16
Do you often use salt shaker to add salt to your meals?	Always <input type="checkbox"/> Often <input type="checkbox"/> Sometimes <input type="checkbox"/> Rarely <input type="checkbox"/> Never <input type="checkbox"/> Don't know <input type="checkbox"/>	D17
Do you often eat pickles, olives, traditional aajar with your meals?	always <input type="checkbox"/> often <input type="checkbox"/> sometimes <input type="checkbox"/> rarely <input type="checkbox"/> never <input type="checkbox"/> Don't know <input type="checkbox"/>	D18
Do you often add sauces ( ketchup – mayonnaise- barbecue) to your food?	Always <input type="checkbox"/> Often <input type="checkbox"/> Sometimes <input type="checkbox"/> Rarely <input type="checkbox"/> Never <input type="checkbox"/> Don't know <input type="checkbox"/>	D19
On average, How many days per week do you have carbonated beverages or fizzy drinks?( exclude Diet beverages)	Number of Days <input type="checkbox"/> Don't Know <input type="checkbox"/>	D20
How many cups of carbonated beverages or fizzy drinks do you have on one of those days? ( <b>show card</b> )	one cup <input type="checkbox"/> 2 cups <input type="checkbox"/> 3 cups or more <input type="checkbox"/> Non in particular <input type="checkbox"/> Non used <input type="checkbox"/> Don't know <input type="checkbox"/>	D21
On average, how many cups of hot and cold beverages do you drink per day( tea- coffee – juice - ....) ?	one cup <input type="checkbox"/> 2 cups <input type="checkbox"/> 3 cups or more <input type="checkbox"/> Non in particular <input type="checkbox"/> Non used <input type="checkbox"/> Don't know <input type="checkbox"/>	D22
How much sugar do you add for each cup of these beverages ? ( <b>show card</b> )	None <input type="checkbox"/> 1 tsp <input type="checkbox"/> 2 tsp <input type="checkbox"/> More than 3 tsp <input type="checkbox"/> I don't know <input type="checkbox"/>	D23
On average, How many times per week do you have sweets (chocolates, Arabic sweets, cakes, etc...)?	Number times per week <input type="checkbox"/> Don't Know <input type="checkbox"/>	D24

### CORE: Physical Activity

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

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

Question	Response	Code
<b>Work</b>		
Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like <i>[carrying or lifting heavy loads, digging or construction work]</i> for at least 10 minutes continuously?  <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes 1  No 2 <i>If No, go to P 4</i>	P1
In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days <input type="text"/>	P2
How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P3 (a-b)
Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking <i>[or carrying light loads]</i> for at least 10 minutes continuously?  <i>[INSERT EXAMPLES] (USE SHOWCARD)</i>	Yes 1  No 2 <i>If No, go to P 7</i>	P4
In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days <input type="text"/>	P5
How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P6 (a-b)
<b>Travel to and from places</b>		
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship, to dewaniya. [Insert other examples if needed]		
Do you walk or use a bicycle ( <i>pedal cycle</i> ) for at least 10 minutes continuously to get to and from places?	Yes 1  No 2 <i>If No, go to P 10</i>	P7
In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days <input type="text"/>	P8
How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes <input type="text"/> : <input type="text"/> hrs mins	P9 (a-b)

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

<b>CORE: History of Raised Blood Pressure</b>		
<b>Question</b>	<b>Response</b>	<b>Code</b>
Have you ever had your blood pressure measured by a doctor or other health worker?	Yes 1 No 2 <i>If No, go to H6</i>	H1
Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?	Yes 1 No 2 <i>If No, go to H6</i>	H2a
Have you been told in the past 12 months?	Yes 1 No 2	H2b
In the past two weeks, have you taken any drugs (medication) for raised blood pressure prescribed by a doctor or other health worker?	Yes 1 No 2	H3
Have you ever seen a traditional healer for raised blood pressure or hypertension?	Yes 1 No 2	H4
Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes 1 No 2	H5

<b>CORE: History of Diabetes</b>		
Have you ever had your blood sugar measured by a doctor or other health worker?	Yes 1 No 2 <i>If No, go to H12</i>	H6
Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	Yes 1 No 2 <i>If No, go to H12</i>	H7a
Have you been told in the past 12 months?	Yes 1 No 2	H7b
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	H8
Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?	Yes 1 No 2	H9
Have you ever seen a traditional healer for diabetes or raised blood sugar?	Yes 1 No 2	H10
Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	H11

<b>CORE: History of Raised Total Cholesterol</b>		
<b>Question</b>	<b>Response</b>	<b>Code</b>
Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?	Yes 1	H12
	No 2 <i>If No, go to H17</i>	
Have you ever been told by a doctor or other health worker that you have raised cholesterol?	Yes 1	H13a
	No 2 <i>If No, go to H17</i>	
Have you been told in the past 12 months?	Yes 1	H13b
	No 2	
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	H14
	No 2	
Have you ever seen a traditional healer for raised cholesterol?	Yes 1	H15
	No 2	
Are you currently taking any herbal or traditional remedy for your raised cholesterol?	Yes 1	H16
	No 2	

<b>CORE: History of Cardiovascular Diseases</b>		
Have you ever had a heart attack or chest pain from heart disease (angina) or a stroke (cerebrovascular accident or incident)?	Yes 1	H17
	No 2	
Are you currently taking aspirin regularly to prevent or treat heart disease?	Yes 1	H18
	No 2	
Are you currently taking statins (Lovastatin/Simvastatin/Atorvastatin or any other statin) regularly to prevent or treat heart disease?	Yes 1	H19
	No 2	

<b>CORE: Lifestyle Advice</b>		
During the past three years, has a doctor or other health worker advised you to do any of the following? (RECORD FOR EACH)		
Quit using tobacco or don't start	Yes 1	H20a
	No 2	
Reduce salt in your diet	Yes 1	H20b
	No 2	
Eat at least five servings of fruit and/or vegetables each day	Yes 1	H20c
	No 2	
Reduce fat in your diet	Yes 1	H20d
	No 2	
Start or do more physical activity	Yes 1	H20e
	No 2	
Maintain a healthy body weight or lose weight	Yes 1 <i>If C1=1 go to M1</i>	H20f
	No 2 <i>If C1=1 go to M1</i>	

**CORE (for women only): Cervical Cancer Screening**

The next question asks about cervical cancer prevention. Screening tests for cervical cancer prevention can be done in different ways, including Visual Inspection with Acetic Acid/vinegar (VIA), pap smear and Human Papillomavirus (HPV) test. VIA is an inspection of the surface of the uterine cervix after acetic acid (or vinegar) has been applied to it. 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
Have you ever had a screening test for cervical cancer, using any of these methods described above?	Yes 1	CX1
	No 2	
	Don't know 77	

## Step 2 Physical Measurements

<b>CORE: Blood Pressure</b>			
Question		Response	Code
Interviewer ID		□ □ □ □	M1
Device ID for blood pressure		□ □ □	M2
Cuff size used	Small Medium Large	1 2 3	M3
Reading 1	Systolic ( mmHg)	□ □ □ □	M4a
	Diastolic (mmHg)	□ □ □ □	M4b
Reading 2	Systolic ( mmHg)	□ □ □ □	M5a
	Diastolic (mmHg)	□ □ □ □	M5b
Reading 3	Systolic ( mmHg)	□ □ □ □	M6a
	Diastolic (mmHg)	□ □ □ □	M6b
During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?	Yes No	1 2	M7
<b>CORE: Height and Weight</b>			
<b>For women:</b> Are you pregnant?	Yes No	1 <i>If Yes, go to M 16</i> 2	M8
Interviewer ID		□ □ □ □	M9
Device IDs for height and weight	Height	□ □ □	M10a
	Weight	□ □ □	M10b
Height	in Centimetres (cm)	□ □ □ □ . □	M11
Weight <i>If too large for scale 666.6</i>	in Kilograms (kg)	□ □ □ □ . □	M12
<b>CORE: Waist</b>			
Device ID for waist		□ □ □	M13
Waist circumference	in Centimetres (cm)	□ □ □ □ . □	M14
<b>EXPANDED: Hip Circumference and Heart Rate</b>			
Hip circumference	in Centimeters (cm)	□ □ □ □ . □	M15
<b>Heart Rate</b>			
Reading 1	Beats per minute	□ □ □ □	M16a
Reading 2	Beats per minute	□ □ □ □	M16b
Reading 3	Beats per minute	□ □ □ □	M16c

## Step 2 Physical Measurements

<b>CORE: Blood Pressure</b>		
Question	Response	Code
Interviewer ID	□ □ □ □	M1
Device ID for blood pressure	□ □ □	M2
Cuff size used	Small 1 Medium 2 Large 3	M3
Reading 1	Systolic ( mmHg) □ □ □ □	M4a
	Diastolic (mmHg) □ □ □ □	M4b
Reading 2	Systolic ( mmHg) □ □ □ □	M5a
	Diastolic (mmHg) □ □ □ □	M5b
Reading 3	Systolic ( mmHg) □ □ □ □	M6a
	Diastolic (mmHg) □ □ □ □	M6b
During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?	Yes 1 No 2	M7
<b>CORE: Height and Weight</b>		
<b>For women:</b> Are you pregnant?	Yes 1 <i>If Yes, go to M 16</i> No 2	M8
Interviewer ID	□ □ □ □	M9
Device IDs for height and weight	Height □ □ □	M10a
	Weight □ □ □	M10b
Height	in Centimetres (cm) □ □ □ □ . □	M11
Weight <i>If too large for scale 666.6</i>	in Kilograms (kg) □ □ □ □ . □	M12
<b>CORE: Waist</b>		
Device ID for waist	□ □ □	M13
Waist circumference	in Centimetres (cm) □ □ □ □ . □	M14
<b>EXPANDED: Hip Circumference and Heart Rate</b>		
Hip circumference	in Centimeters (cm) □ □ □ □ . □	M15
<b>Heart Rate</b>		
Reading 1	Beats per minute □ □ □ □	M16a
Reading 2	Beats per minute □ □ □ □	M16b
Reading 3	Beats per minute □ □ □ □	M16c

## Step 3 Biochemical Measurements

<b>CORE: Blood Glucose</b>		
Question	Response	Code
During the past 12 hours have you had anything to eat or drink, other than water?	Yes 1 No 2	B1
Technician ID	_ _ _	B2
Device ID	_ _	B3
Time of day blood specimen taken (24 hour clock)	Hours : minutes  _ _  :  _ _  hrs mins	B4
Fasting blood glucose <i>[CHOOSE ACCORDINGLY: MMOL/L OR MG/DL]</i>	mmol/l  _ _  .  _ _  mg/dl  _ _ _  .  _	B5
Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker for raised blood glucose?	Yes 1 No 2	B6
<b>CORE: Blood Lipids</b>		
Device ID	_ _	B7
Total cholesterol <i>[CHOOSE ACCORDINGLY: MMOL/L OR MG/DL]</i>	mmol/l  _ _  .  _ _  mg/dl  _ _ _  .  _	B8
During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker?	Yes 1 No 2	B9
<b>EXPANDED: Triglycerides and HDL Cholesterol</b>		
Triglycerides <i>[CHOOSE ACCORDINGLY: MMOL/L]</i>	mmol/l  _ _  .  _ _  mg/dl  _ _ _  .  _	B10
HDL Cholesterol <i>[CHOOSE ACCORDINGLY: MMOL/L]</i>	mmol/l  _  .  _ _  mg/dl  _ _ _  .  _	B11
LDL Cholesterol		B12
<b>Hb A1C</b>		
Device ID	_ _ _	B13
Technician ID	_ _ _	B14
A1C		B15

## ANNEX 2

### Sampling Calculator

#### Sample Size Calculator

**Instructions:** Complete the fields in green with the necessary information. Then read through the steps below to attain your final sample size.

<b>Level of Confidence Measure</b>	1.96	<i>Describes the level of uncertainty in the sample mean or prevalence as an estimate of the population mean or prevalence. <b>Recommended value:</b> 1.96 (for 95% confidence level)</i>
<b>Margin of Error (MOE)</b>	0.05	<i>The expected half-width of the confidence interval. The smaller the margin of error, the larger the sample size needed. <b>Recommended value:</b> 0.05 (for small baseline levels, e.g. &lt;.10, a smaller MOE of 0.02 or 0.01 is appropriate)</i>
<b>Baseline levels of the indicators</b>	0.5	<i>The estimated prevalence of the risk factors within the target population. Values closest to 50% are the most conservative. <b>Recommended value:</b> 0.5 if no previous data on population, else value closest to 0.5 from previous data</i>
<b>Design effect (Deff)</b>	1	<i>Describes the loss of sampling efficiency due to using a complex sample design. A value of 1.0 is appropriate for simple random samples. <b>Recommended value:</b> 1.5 (for most STEPS surveys)</i>
<b>Expected Response Rate</b>	0.875	<i>The anticipated response rate. <b>Recommended value:</b> enter response rate from previous national/subnational household surveys, else use 0.8 as an estimate</i>
<b>Number of age/sex Estimates</b>	10	<i>The number of age-sex groups for which estimates will be calculated. If age-sex estimates are desired, for specific states/regions/island, multiply the number of age-sex groups by the number of states/regions/islands to attain the total number of estimates desired.</i>

Population Size	FPC Check:	
Males	initial n 10% ?	
15-24	80941	no
25-34	87760	no
35-44	64611	no
45-54	43960	no
55-64	29545	no
Females		
15-24	78577	no
25-34	91148	no
35-44	72853	no
45-54	52432	no
55-64	41144	no

#### Step 1: Initial calculation:

$$n = \frac{3.8416 * (0.5 * (1 - 0.5))}{0.05 * 0.05} = 384.16$$

**Step 2:** Complete the population table to the left to check if the Finite Population Correction (FPC) can be applied. If the initial n calculated above is 10% or more of the size of the majority of the age groups, then the FPC can be applied. If the FPC can be applied, continue calculating your sample size on the FPC worksheet. If the FPC cannot be applied continue to Step 3 below.

#### Step 3: Multiply by the design effect and number of age-sex estimates:

$$n = 384.16 * 1 * 10 = 3841.6$$

#### Step 4: Adjust for expected non-response to get your final sample size:

$$n = 3841.6 / 0.875 = \boxed{4390.4}$$

**FINAL SAMPLE SIZE**



## ANNEX 3

### Instructions for Participants and Phlebotomists and Laboratory Form

#### Ministry Of Health

P.O. Box : 22575 SAFAT  
Code No. : 13086 KUWAIT  
Fax : 24762385 – 24769544



الأمانة العامة

ص.ب: 22575 الصفاة  
الرمز البريدي: 13086 الكويت  
فاكس: 24769544 - 24762385

المنظمة العالمية للصحة  
(WHO) الأمانة العامة

: التعليمات للمريض

- 1- الصيام عن الاكل و الشراب (لابأس بشرب كمية قليلة من الماء) لمدة ١٢ ساعة قبل الفحص
- 2- الامتناع عن تناول ادوية السكر و الدهون يوم إجراء الفحص
- 3- الاستمرار على نفس الروتين اليومي من عادات غذائية و رياضية قبل إجراء الفحص
- 4- يجب إعلام فاصدي الدم بجميع انواع الادوية و المكملات الغذائية بالاضافة الى الاعشاب الطبية التي يتناولها المريض.

#### Instruction for the patient:

- 1- Must NOT EAT OR DRINK anything (except small amount of water) for at least 12 hours priorn to tetsting
- 2- Stop taking your lipid lowering medications and oral hypoglycemic drugs before the test
- 3- Maintain normal activity and eating habits prior to testing
- 4- Informed about all prescription and nonprescription medicines you are taking

#### References:

Tietz textbook of Clinical chemistry and molecular diagnostics- 2012.  
2009-2010 interpretive handbook. Mayo medical laboratories.

## Ministry Of Health

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الجمهورية العربية السورية

ص.ب: 22575 الصفاة  
الرمز البريدي: 13086 الكويت  
فاكس: 24769544 - 24762385

## الجمهورية العربية السورية وزارة الصحة (WHO) الأمانة العامة

### Instruction for Phlebotomist

Blood should be collected by standard venipuncture technique

NAME OF TEST	SAMPLE REQUIRED	AMOUNT OF SAMPLE	SPECIMEN CONTAINER/ CAP COLOR	COMMENT
Lipid profile (T. Cholesterol, Triglyceride, HDL-C, LDL-C & non-HDL-C)	SERUM	5ML BLOOD	 YELLOW TUBE (Separate gel tube)	Allow serum tube to clot completely at room temperature. Separate serum cells within 2 hours of collection. Transfer serum to KCCC lab on a standard transport tube.
HbA1c	WHOLE BLOOD	5ML BLOOD	 EDTA TUBE	Sample are not to be centrifuged. Transfer whole blood to KCCC lab on a standard transport tube.
FAST GLUCOSE- PLASMA	PLASMA	3ML BLOOD	 NA FLOURIDE TUBE	Separate plasma from cells ASAP or within 2 hours of collection. Transfer plasma to KCCC lab on a standard transport tube.

## Ministry Of Health

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الجمهورية العربية السورية

ص.ب: 22575 الصفاة  
الرمز البريدي: 13086 الكويت  
فاكس: 24762385 - 24769544

19/12/2013

إلى  
الأستاذة الدكتورة / أ. د. نورة العبدالله  
...الأستاذة...

من  
مديرية الصحة العامة  
(WHO) الأستاذة الدكتورة

بالإشارة الى الموضوع اعلاه نود افادتكم بأنه لا مانع لدينا بإجراء هذه الفحوصات في مختبر الكيمياء الحيوية التابع  
لمركز الكويت لمكافحة السرطان ونكون المختبر المرجعي لهذه الدراسة.

ولضمان معيارية إجراء الفحوصات نرشح كلا من:

± أ. د. م. م. - رئيس وحدة الكيمياء الحيوية

- أ. د. م. م. - رئيسة فني مختبر الكيمياء الحيوية

± أ. د. م. م. - فني مختبر

± أ. د. م. م. - فني مختبر

ليكون الفريق المعني بإجراء التحاليل في المختبر المرجعي.

وبالنسبة الى استفساراتكم نود ان ننوه بأنه سوف يكون هناك نموذج (مرفق) بأهم الارشادات والتعليمات للمراجعين

الذين سوف يتم اختيارهم لإجراء الفحوصات و فاصدي الدم. أضافة الى نموذج بالمعلومات (مرفق) الذي يحتاجها

المختبر المرجعي لضمان نجاح الدراسة.

..... أ. د. م. م. أ. د. م. م.

± أ. د. م. م.

رئيس وحدة الكيمياء الحيوية في مركز الكويت لمكافحة السرطان

## Ministry Of Health

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Code No. : 13086 KUWAIT  
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الوزارة

ص.ب: 22575 الصفاة  
الرمز البريدي: 13086 الكويت  
فاكس: 24769544 - 24762385

Duration of Fasting  hr

Participant ID:

Name:  Age:  Gender:

Civil ID:

Date of Birth:  Date of Time:

### Past Medical History:


### Medication:

Prescription	Non-prescription

## Ministry Of Health

P.O. Box : 22575 SAFAT  
Code No. : 13086 KUWAIT  
Fax : 24762385 – 24769544



الوزارة

ص.ب: 22575 الصفاة  
الرمز البريدي: 13086 الكويت  
فاكس: 24769544 - 24762385

Participant ID:  Technician:  Consultant:

Patient ID:  Date and Time:

### Result:

Fasting Glucose		mmol/L
Total Cholesterol		mmol/L
Triglyceride		mmol/L
HDL-C		mmol/L
LDL-C		mmol/L
Non-HDL		mmol/L
HbA1c		%

Technician:  Consultant:



## ANNEX 4

### Informed Consent Form

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	رقم مسلسل الإستمارة	<input type="checkbox"/>	الرقم المدني
<b>الموافقة على إجراء المقابلة والإشتراك في البحث</b>			
إذا لا إقرأ الموافقة	<input type="checkbox"/>	① نعم ② لا	I6 الموافقة قرأت شفهيًا للمشارك
إذا لا إنهاء الموافقة	<input type="checkbox"/>	① نعم ② لا	I7 تمت الموافقة والتوقيع على الإقرار
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	دقيقة ..... ساعة .....	I9a وقت بدء المقابلة (24 ساعة)	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	دقيقة ..... ساعة .....	I9b وقت إنتهاء المقابلة (24 ساعة)	
<b>البيانات الشخصية للمشارك بالبحث</b>			
.....	إسم العائلة	I10	
.....	الإسم الأول	I11	
<input type="checkbox"/>	الرقم المدني	I12	
<input type="checkbox"/>	تليفون المنزل	I13	
<input type="checkbox"/>	تليفون العمل	I14	
<input type="checkbox"/>	بيجر	I15	
<input type="checkbox"/>	محمول (إختياري)	I16	
<b>ملحوظة :</b>			
البيانات الشخصية للمشارك بالبحث سيتم التعامل معها بسرية وحسب أخلاقيات البحوث الطبية وسيتم فصل هذا الجزء عن باقي الإستمارة			











