



REPUBLIC OF TURKEY  
PRIME MINISTRY  
Disaster and Emergency Management Authority



Republic of Turkey  
Ministry of Health



World Health  
Organization

# HEALTH STATUS SURVEY OF SYRIAN REFUGEES IN TURKEY

## NON-COMMUNICABLE DISEASE RISK FACTORS SURVEILLANCE AMONG SYRIAN REFUGEES LIVING IN TURKEY



2016







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# Health Status Survey of Syrian Refugees\* in Turkey

Non-communicable Disease Risk Factors Surveillance  
among Syrian Refugees Living in Turkey

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**Prepared by**

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\* In this report, the word “refugee” refers to Syrians under the “temporary protection status” and the word “camp” refers to the “temporary protection centers”.



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## ABBREVIATIONS

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<b>AFAD</b>	Disaster and Emergency Management Authority, Republic of Turkey
<b>BMI</b>	Body Mass Index
<b>DBP</b>	Diastolic Blood Pressures
<b>GPAQ</b>	Global Physical Activity Questionnaire
<b>mmHg</b>	Millimeter of Mercury
<b>NCD</b>	Non-communicable disease
<b>SBP</b>	Systolic Blood Pressure
<b>SRTP</b>	Syrian refugees in Turkey under Temporary Protection
<b>STEPS</b>	The WHO STEP-wise approach to non-communicable disease risk factor surveillance
<b>WHO</b>	World Health Organization

## FOREWORD by AFAD

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Turkey is one of the prominent actors of the world and the region, and initiates and leads efforts in extending a helping hand in disasters, emergencies, and humanitarian tragedies under the coordination of the Prime Ministry Disaster and Emergency Management Authority (AFAD).

That is the main reason why we considered standing by the people of neighboring Syria during these rough times as an obligation. Our country has historic, cultural, and neighborly ties with Syria, and we could not have acted indifferently to the calls for help of our neighbors in need, and we did not.

We are sheltering 2,75 million Syrians fleeing their countries under the best conditions. Our Syrian guests coming to our country since April 2011 are being hosted at 24 camps set up and managed by AFAD in 10 provinces.

We developed a substantially active and integrated system in order to perform services in an efficient manner at camps. By means of this system, our education activities and services at the camps are being performed in coordination with all the relevant ministries, institutions, and organizations.

Furthermore, we are not only providing shelter and food to our Syrian guests; we are also providing them all their humanitarian needs under the best conditions. In this content, we have implemented many projects to enable women and children, including disabled Syrians to integrate into the society.

Some of our efforts include the Coordination of National and International Aid, Establishing Camps above the International Standards, the Camp Management System and Standards, as well as project for those Syrians living out of camps namely, the AFAD Aid Distribution System (EYDAS), Mobile Registration Coordination Centers, Prefabricated Fully Equipped Hospitals and Schools.

While providing services to Syrians both living in the camps and living out of the camps, we only have a single purpose: lending a helping hand to those in need. We have no other intention or concern.

We are aware that the humanitarian crisis in Syria is at a climax, and we are striving to ease the distress of people struggling with the unrest and starvation in Syria with the services at our camps, and the aid distributed at point-zero on the border.

Syria had a population of around 20 million before the events broke out and now there are around 8 million internally displaced people in need of humanitarian aid. Approximately 4.8 million Syrians had to flee to neighboring countries to escape.

Four-thirds of Syrians who had to flee consist of women and children. Among them, more than 2 million children are struggling to sustain their lives under harsh conditions.

No matter how late it is, it is necessary to seek a peaceful solution in Syria in order to ensure that these people return to their country at once, and the international community has to assume a more active role in this humanitarian crisis.

I would like to take this opportunity to thank primarily our President Recep Tayyip ERDOĞAN, Prime Minister Binali YILDIRIM and Deputy Prime Minister Veysi KAYNAK and all the relevant ministries, institutions, and organizations including UN agencies based in Turkey for their support in our efforts for our Syrian brothers both staying in and out of the camps and also our project team prepared this valuable book..

**Mehmet Halis BİLDEN**  
Acting President of AFAD

## FOREWORD by MINISTRY of HEALTH

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The most important public health problem that affects the quality of life negatively, which causes death and disability most in our country as it is in the world today, is non-communicable chronic diseases. About half of deaths from chronic diseases are due to cardiovascular diseases, obesity and diabetes. When chronic diseases and risk factors are examined; Heart diseases, strokes and 80% of type 2 diabetes and more than 40% of cancers can be prevented.

Chronic diseases are increasing rapidly in the world both in developed and developing countries, encompassing existing health services and covering a large part of the health budget. Combating risk factors that cause chronic diseases can only be achieved through national policies and long-term strategies. Healthy nutrition, promoting physical activity, approaches to reducing tobacco use are important areas of preventive action that require the participation of all sectors, and it is important that all policies include health protection and development efforts.

Many programs are being implemented by the Ministry for the prevention and control of chronic diseases and risk factors. In this area national policies and long-term strategies have been developed and it has been implemented. We are working on monitoring and evaluating activities to reach our targets.

In disasters and armed conflicts, some people lose their lives, some are injured, and others have to leave their living quarters. With experienced migration, it is seen that immigrants become worse in access to health services and living conditions. The experience of managing non-communicable diseases in humanitarian emergencies around the world is not yet at the desired level. Since the beginning of migration from Syria, individuals with non-communicable diseases have been provided access to emergency medical services in disasters and emergencies. Regular health services (outpatient clinic, hospitalization, etc.) are provided and necessary precautions are taken to provide access to essential drugs and to maintain specific therapies (hemodialysis, chemotherapy, etc.).

The main objective of the national health policy is to achieve a healthy society comprised of healthy individuals. I believe that the programs prepared within the framework of health policies and strategies to be carried out with the principle of equality, fairness, quality, mod-

ern and sustainable health care for all will contribute to the health and well-being of our people.

I hope this study will be a positive reflection on the fight against non-communicable diseases. In the context of this research conducted among the Syrians living in Turkey, we would like to thank the Prime Ministry Disaster and Emergency Management Authority, the World Health Organization and all the national and international colleagues providing technical support for the conduct of the research.

**Professor İrfan ŞENCAN**  
President, Turkish Public Health Institution



## FOREWORD by WHO

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Noncommunicable diseases (NCDs) are the leading cause of death at global, regional and national levels: at global level they cause six out of 10 deaths. Their burden is undermining the social and economic development of countries, with significant and growing health and financial costs to individuals, families, health systems and economies. To respond to this growing burden, heads of state and government endorsed a Political Declaration at the High-level Meeting of the United Nations General Assembly on the Prevention and Control of Non-communicable Diseases in May 2011. Following on from this, the Sixty-sixth World Health Assembly in 2013 endorsed the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020.

Disasters and armed conflicts often have serious impacts on human health, including the loss of many lives. Emergency-related injuries and traumas, forced displacement, the deterioration of living conditions and the interruption of regular medical treatment, often linked to the destruction of health facilities, can all affect the health of people living with NCDs. While the impact of NCDs on population health, health systems and socioeconomic development is increasingly evident and recognized worldwide, the importance of these diseases in humanitarian emergencies has not yet been given the full attention it deserves. The specific needs of patients with NCDs during emergencies are just beginning to receive attention from organizations coordinating international humanitarian assistance. While strategies and operational plans for the management of conditions such as HIV/AIDS and mental health in emergencies have recently been developed, there is a lack of similar strategies and plans for NCDs. Similarly, ethical principles and technical guidance on how to assess and respond to the needs of people with NCDs during emergencies are still lacking.

The current crisis in Syria and the burden shouldered by displaced people within Syria or scattered in refugee camps and urban settings in neighbouring countries exemplify the challenges posed by NCDs. Increasingly they are accounting for a large proportion of populations' needs and demands for services during humanitarian emergencies. Although important experiences in addressing NCD-related needs have been accumulating in Syria and in countries engaged with humanitarian assistance in Syria, those experiences have yet to be documented and lessons from them synthesized to inform a coherent and sustainable regional response to NCDs in other emergencies and crises.

The response from WHO and other United Nations organizations in this field needs to be scaled up on the basis of a clear situation analysis of the current prevalence of NCDs and the related risk factors, practices, challenges and gaps regarding the provision of care for such diseases during emergencies. Information about the health status and risks to health of the population is one of the corner-stones of prevention, particularly for evidence-based planning and evaluation of health policies and preventive activities. Some population-level information, such as morbidity and mortality, can be obtained from registries, while some can be obtained from the WHO STEPwise approach to surveillance (STEPS) survey of risk factors for NCDs which focuses on obtaining core data on the risk factors established as determining the major disease burden.

There are no available data on morbidity or the prevalence of risk factors for NCDs from surveys conducted so far among Syrian refugees living in Turkey. Comprehensive and up-to-date data are needed on the risk factors (tobacco use, harmful use of alcohol, unhealthy diet and physical inactivity) for NCDs in order to evaluate the effectiveness of current public health policies and the response of United Nations agencies and to develop prevention and control interventions as well as activities and policies for NCDs by United Nations organizations. The survey conducted in accordance with WHO methodology uses STEP 1, comprising a questionnaire survey through face-to-face interview, and STEP 2, comprising a series of physical measurements of body weight and height, waist and hip circumference, blood pressure and heart rate. This will provide comparable and reliable information on the prevalence of risk factors for NCDs in different countries around the world.

We are grateful to our partners, the Ministry of Health and the Prime Minister's Disaster and Emergency Management Authority, for implementing the STEPS survey among Syrians living in Turkey, as well as to other collaborators at international and national levels who provided technical assistance in carrying out the survey.

**Dr. Pavel URSU**  
WHO Representative in Turkey

## EXECUTIVE SUMMARY

The WHO STEPS survey for Syrian refugees living in Turkey was a cross-sectional study based on the refugee population in 10 provinces. The survey was conducted in December 2015 using the WHO STEPS survey and methodology.

34% of the Syrian refugees currently smoke a tobacco product. 30.8% of individuals aged 18-29 years, a 36.3% of those aged 30-44, a 38.3% of those aged 45-59, and a 29.7% of those aged 60-69 currently smoke a tobacco product. While 55.0% of men stated that they currently smoke a tobacco product, only 11.8% of women refugees currently smoke a tobacco product.

98.6% of the Syrian refugees have never consumed alcohol at all. The proportion of those Syrian refugees who have not consumed alcohol in the past 12 months stands at 99.2%.

Syrian refugees shows consume vegetables more than 4 days a week. Average values vary marginally between men and women. While this average is 4.4 days a week for men, it is 4.0 for women. A high 40.0% of Syrian refugees do not eat any fruit/vegetables during the day. A 46.0% of the respondents consume 1 or 2 servings of fruit/vegetables in a day while 7.4% consume 3 or 4 servings in a day.

37.2% of Syrian refugees add salt always/often to their meal before eating. A significant decline is visible in salt consumption with age, which is very likely due to health advice.

6.4% of Syrian refugees have history of cardiovascular disease (CVD). 6.9% of men and 5.8% of women.

All adult women aged 18-69 years, 7.2 percent had screening for cervical cancer.

The proportion of individuals who have had their blood sugar measured but have not been diagnosed with high blood sugar 15.9%. Overall for both sexes, 4.1% of individuals have been diagnosed with high blood sugar in the past 12 months.

The hypertension prevalence (which have high blood pressure arterial measurement or currently using drugs due to high blood pressure) for men is 27.2% for women is 23.8% and for both sexes is 25.6%. 23.4% in hypertensive men and 18.9% hypertensive women are not drugs. There is a significant increasing trend with age for people with having hypertension and not drugs; of those who have hypertension.

Body Mass index (BMI) risk categories for the Syrian refugees living in Turkey showed that 1.4% of 18-69 years old refugee population found to be as underweight, 38.3% as normal, 32.6% as overweight, and that of the remaining 27.7% as obese. More importantly, the survey findings on the BMI risk categories showed that 35.6% of men are overweight and 20.7% are obese. Strikingly, the survey results show that 29.0% of women refugee population are overweight and 36.2% are obese. Women are significantly more likely to suffer from overweight obesity than men (60.3% compared with 56.2%). The prevalence of overweight has a significant increasing trend with age reaching from 41.0% in 18-29 age group to 83.3% in 18-69 age group when both sexes are considered.

The STEPS questionnaire surveyed five major risk factors classified as follows: daily cigarette smoking, consuming less than 5 portions per day of fruit and/or vegetables, failing to meet physical activity recommendations, overweight or obesity and high blood pressure.

Only 0.3% of the Syrian refugees aged 18-69 was at low risk of noncommunicable diseases compared to 41.1% at moderate risk (with 1-2 risk factors) and high 58.7% in high risk (with 3-5 risk factors). Having 3-5 risk factors were more common among men (61.3%) than women (56.1%). 45.7% of men and 46.1% of women in the 18-44 years age group at high risk. A strikingly a high percentage of men (81.7%) and women (87.1%) aged 45-69 years have high combined risk (more than 3 risk factors).







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# CHAPTER 1:

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## SURVEY DESIGN and FIELD IMPLEMENTATION

# CHAPTER 1:

## SURVEY DESIGN and FIELD IMPLEMENTATION

### ►► INTRODUCTION

The Syrian Arab Republic is located on the eastern shores of the Mediterranean Sea and to the south of Turkey. Syria has an area of 185.6 thousand square kilometres. It is estimated that Syria's total population was 22.5 million as of 2012 (CIA World Factbook)<sup>1</sup>. The official language is Arabic, and Damascus, with a population of 1.7 million is the capital. Aleppo is the largest city with a population of 4.6 million. Average life expectancy in Syria is 72 for men and 77 for women. Syria has an overwhelmingly young population. In 2012, roughly 35% of the total population was aged under 15. The median age in the same year was 22. According to World Bank World Development Indicators, the Gross Domestic Product per capita was 3,289 US Dollars in 2012 (World Bank, World Development Indicators, 2013). Syria's main exports are agricultural products and oil. In 2012, 17% of Syria's workforce was employed in agriculture, 16% in industry, and 67% in the services sector before the internal conflict (CIA World Factbook, 2008 estimates).

The internal conflict in Syria since it started in early spring of 2011 has forced millions of people to seek asylum in Turkey, Iraq, Lebanon, Jordan and Egypt. Currently 4.8 million Syrian refugees are registered as refugees outside Syria. As of September 1, 2016, Turkey hosts 2.7 million Syrian refugees under the Temporary Protection (SRTTP) status.

Turkey started accept Syrian refugees as SRTTPs since March 2011. As of September 2016, Disaster and Emergency Management Authority (AFAD) of Turkey operates 26 refugee camps (named as "Temporary Sheltering Centers" by the Turkish authorities) hosting 285 thousand Syrian refugees in addition to 2.5 million Syrian refugees living in various cities in out-camp settlements. The expenses of the Turkish government for the SRTTPs have now exceeded 10 billion dollars (May 11, 2016 estimates) according to the UN standards. Large numbers of refugees concentrated in cities Şanlıurfa, Gaziantep, Hatay, Kilis, Mardin, Adana, Mersin, Adıyaman, Kahramanmaraş, İstanbul, Ankara, and İzmir have been posing considerable challenges that have not been easy to handle for Turkey. Intense concentration of SRTTPs in several cities creating demands on health, education, security, and other social service systems that substantially exceeds the existing capacity at the local and national levels.

In 2013 [1] and again in 2014 [2] the Turkish authorities, more specifically, AFAD conducted an extensive profiling survey of the Syrian refugees living in Turkey. The 2014 survey on the Syrian refugees living Turkey in September 2014 is the outcome of the multi-agency initiative, involving the Turkish authorities, i.e., AFAD and the UN agencies, the World Health Organization (WHO) and UNICEF, under the leadership of AFAD. The 2014 survey concentrated on the health and nutrition status of Syrian children aged between 6-60 months and Syrian mothers. The surveys reached a total of 1214 households with a total of 7794 individuals.

The 2014 survey brought results of enormous significance. Amongst the children surveyed (aged between 6-60 months) the prevalence of stunting (HAZ <-2 SD) was 23.9% (of these 9.3% severely stunted), wasting (WHZ <-2 SD) was 4.3% (of these 1.6% severely wasted) and underweight (WAZ <-2 SD) was 9.2% (of these 2.8% severely underweight). For overweight (WHZ > +2 SD) the prevalence was 5.7%. These percentages when classified, according to severity of malnutrition, using the WHO criteria for public health significance, are of medium public health significance for stunting and low for underweight and wasting. Contrary to what would normally be expected in an emergency setting, and in an acute refugee assistance situation, this survey has shown that the most dominant nutrition problem, among the Syrian refugee children living in Turkey is chronic and not acute. Many times, refugees' assistance in situations of extended displacement continue to provide emergency-level services long after the refugee population stabilizes. Unfortunately, no research exists on the health status of the adult SRTTPs in Turkey, which may help to shape future policies.

The 2014 AFAD Survey showed that 46.5% of the SRTTPs in Turkey are aged 18+ and more than half of the adults were women, which makes the adult population more vulnerable. The SRTTPs residing particularly outside the camps were living under extremely poor life conditions, which should be expected to affect their health conditions and increase the risk of noncommunicable diseases (NCDs) due to more unfavourable behavioural risk factors. More than 80% of SRTTPs have their house heavily damaged or completely destroyed, more than 95%

<sup>1</sup> CIA World Factbook July 2012 estimates (<https://www.cia.gov/library/publications/the-world-factbook/>, accessed May 14, 2016).

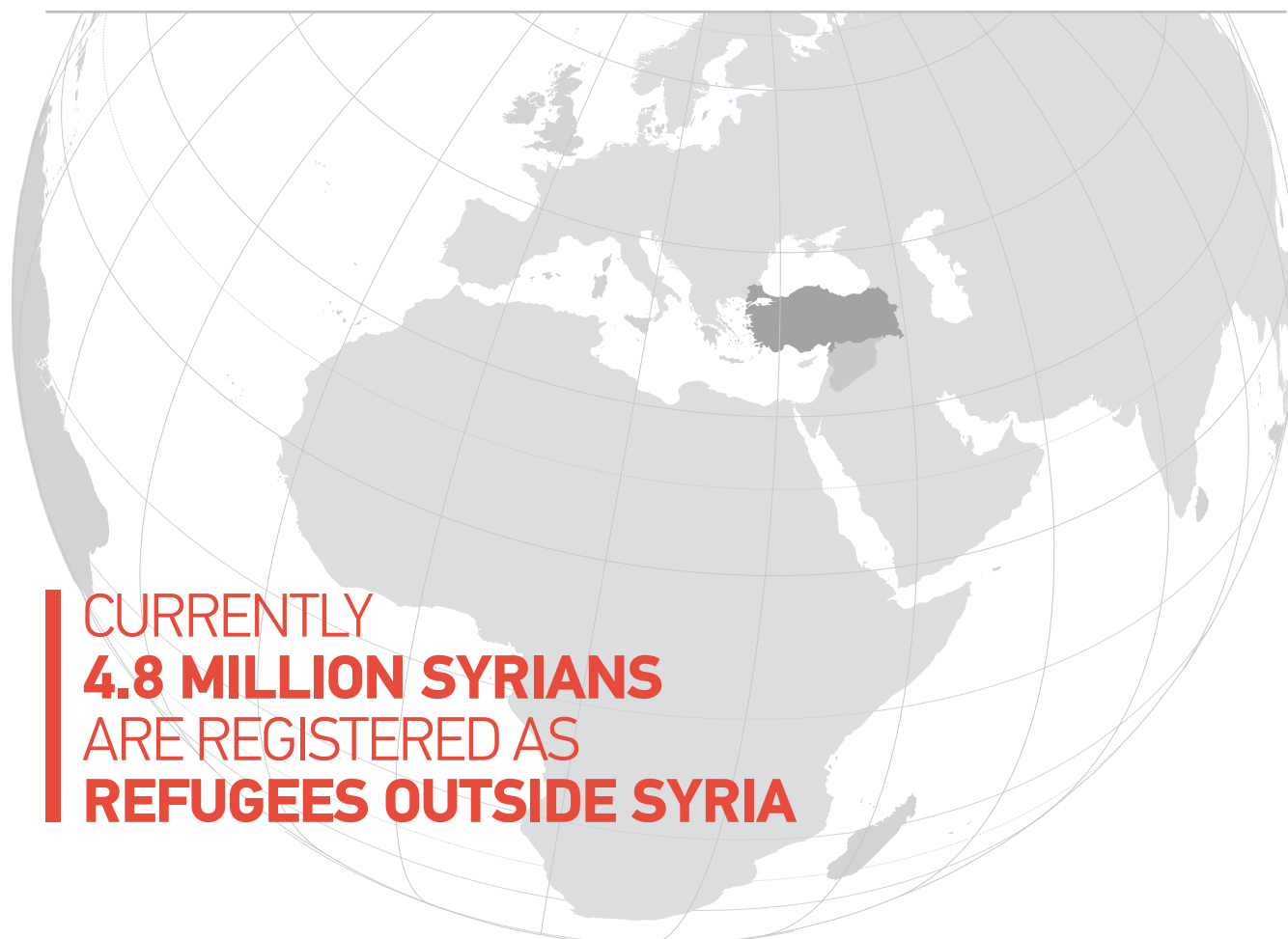
<sup>2</sup> <http://www.hurriyet.com.tr/multecilere-10-milyar-dolar-harcadik-ornegi-yok-40102674>, accessed September 4, 2016.

are living on an income of less than 150 US dollars, and more than 30% have at least one family member died in the war. The survey also revealed extreme nutritional issues for the out-camp SRTPs. More than 80% of the out-camp SRTPs were not able to cook at least one meal in a day due to insufficient income.

Given the extreme conditions under which the SRTPs are forced to live, the long-run outcomes in terms of health will certainly be highly unfavourable. The risk of NCDs should be expected as outlying figures in the coming years. This, unfortunately, have significant long-term cost implications both in terms of lives and resources. The health system in Turkey already lacks physical and human resources capacity in some regions and the long-term financial burden for the government is already signalling high levels.

Against this backdrop, this research entitled “Health Status Survey of Syrian Refugees Living in Turkey: Noncommunicable Disease Risk Factor Surveillance among Syrian Refugees”, led by AFAD and in collaboration with the World Health Organization (WHO) and Ministry of Health of Turkey (MH) is a first step

that will bring field based survey information which will form the base for formulating long-term policies for all relevant parties, particularly the Turkish authorities and the UN agencies. The research uses the WHO STEP-wise approach to non-communicable disease risk factor surveillance (WHO STEPS) methodology, which is well established over decades and used in many countries. The study is also unique as it is the first of its kind that applies the STEPS methodology to refugee population. With the expectation that the survey will be repeated in the future for the refugees residing particularly in Turkey, this survey greatly helped the academics, practitioners and policy makers at all levels.



## CHAPTER 1:

# SURVEY DESIGN and FIELD IMPLEMENTATION

### ►► MOTIVATION

Noncommunicable diseases (NCDs) are the leading cause of death at global, regional and national levels. Six out of 10 deaths at global level and eight out of 10 deaths in the WHO European and Eastern Mediterranean Regional Office (EMRO) Regions are caused by NCDs. A WHO study predicted that NCDs will account for 80% of the global burden of disease by 2020, causing six out of every ten deaths in developing and low income countries [3]. At dawn of the third millennium, NCDs becoming much commonplace, sweeping the most parts of the entire globe, particularly with an increasing trend in developing, particularly low income, countries [4]; accounting for 56% of all deaths in low- and middle-income countries [5]. The majority of NCDs commonly causing deaths include hypertension, cardiovascular diseases (CVDs), chronic pulmonary diseases, diabetes mellitus, obesity and cancers. These diseases also do cause high long-term treatment costs, a fact that usually overlooked. They are strongly associated with common lifestyle risk factors such as smoking, alcohol consumption, a diet rich in fats, sugars, and salts; and physical inactivity. Unfortunately, these risk factors are triggered under extremely pressuring life conditions of refugees. The NCD risk factors usually appear when a person reaches middle age, after years of living with unhealthy behaviours. Under non-conflict or non-war life conditions, which we term “normal conditions”, these behaviours are often linked to modernization and urbanization and result in interrelated conditions like raised blood pressure and obesity. The risk factors also highly linked to the socioeconomic conditions. For instance, in sub-Saharan Africa where the average income is lowest in the world and socio economic variables are at extreme to high unfavourable levels, the average age of death from CVDs is at least 10 years younger than in developed countries [6]. The life conditions of refugees worldwide are certainly having much worse conditions than the sub-Saharan Africa, implying extremely high risk factors for NCDs.

The burden of NCDs disease undermines the social and economic development of a country. The high out of pocket expenses of NCDs diseases to the individuals, families, health system, and economy are already very high and climbing. Without adequate prevention of the common risk factors and early identification of NCDs, these costs will increase in the society. Given that refugees stay for about 17 years in the host communities, there is an already high burden of the SRTPs in Turkey and will increase unprecedentedly due to rising NCD risk factors.

The rising NCD risks under normal living conditional has already been voiced out by the national and international organizations. To respond to the growing burden of NCDs, the United Nations Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases endorsed by the Sixty-fourth World Health Assembly (resolution WHA64.11), which requests the Director-General to develop, together with relevant United Nations agencies and entities, an implementation and follow-up plan for the outcomes of the Conference and the High-level Meeting of the United Nations General Assembly on the Prevention and Control of Non-communicable Diseases.

In this context, the Ministry of Health carries out a number of programs to prevent and control the risk factors, in which national policies and long-term strategies have been developed and implemented, and studies are being carried out to monitor and evaluate the activities to reach our targets. Health services within the scope of the current programs are also provided to all Syrian refugees in our country.

Disasters and armed conflicts often result in significant impacts on human health, including the loss of many lives. Emergency-related injuries and traumas, forced displacement, deterioration of living conditions as well as the interruption of regular medical treatment, often linked to the destruction of health facilities, all can affect the health of people living with NCDs.

While the impact of NCDs on the health of populations, health systems and socio-economic development is increasingly evident and recognized worldwide, their importance in humanitarian emergencies has not yet received the full attention it deserves. Poorly documented, the specific needs and practices related to the management of patients with NCDs during emergencies are just beginning to receive the needed attention from organizations coordinating international humanitarian assistance. While strategies and operational plans for the management of conditions such as HIV/AIDS and mental health in emergencies have recently been developed, similar ones for NCDs are yet to be developed. Similarly, ethical principles and technical guidance on how to assess and respond to the needs of people with NCDs during emergencies are still missing.

The current crisis in Syria and the burden shouldered by Syrian refugees displaced within Syria and scattered in



refugee camps and urban settings in neighbouring countries exemplifies the challenge posed by NCDs that increasingly account for a large proportion of population needs and demands for services during humanitarian emergencies. While important experiences in addressing NCDs-related needs have been accumulating in Syria and in countries engaged in Syria humanitarian assistance, those experiences are yet to be documented and lessons from them are yet to be synthesized in order to inform a coherent and sustainable regional response to NCDs in other emergencies and crises.

## ►► SURVEY GOAL AND OBJECTIVES

The primary goal of the Health Status Survey is to determine health status, health care use, health determinants and the prevalence of major risk factors for NCDs among Syrian Refugees in Turkey, using WHO- approved STEPS methodology for the evaluation of the baseline situation and more efficient planning of activities for the prevention and control of NCDs. The survey will obtain information that will set a base for policy development for the central government authorities and national and international agencies.

### Survey objectives

The objectives of the survey are:

1. to determine health status such as self-perceived health and chronic conditions;
2. to determine the prevalence of behavioural risk factors for NCDs among Syrian refugees aged 18–69 years;
3. to determine the prevalence of biological risk factors for NCDs – hypertension etc. – among Syrian refugees aged 18–69 years;
4. to determine the difference in the prevalence of risk factors between sexes, areas of residence, city of origin in Syria, and across age groups;
5. to determine health care use such as family health center, hospitalization, consultations, unmet needs, use of medicines, preventive actions.

Scaling up WHO and other UN organizations' response in this field needs to be based on a clear situation analysis of current prevalence of diseases and its risk factors, practices, challenges and gaps, with regards to the provision of NCD care during emergencies. Turkey now hosts the largest number of Syrian refugees and offers a great opportunity for the field surveys on the risk factors for NCDs since most refugees in Turkey are now registered by the central government, they are concentrated in certain cities, where reaching out these refugees is relatively easy.

### Rationale for the survey

Information about the health and health risks of the population is one of the corner-stones of prevention. It is needed for evidence based planning and evaluation of health policies including preventive interventions. Some population level information, such as morbidity and mortality can be obtained from registries. Some can be obtained from interview surveys such as WHO STEPS Survey and European Health Interview Survey by providing information on major public health problems which cannot be obtained objectively or at all from other sources.

There is no available data on morbidity and the prevalence of risk factors for NCDs from previous surveys conducted among Syrian refugees living in Turkey. There is a need for comprehensive and up-to-date data on NCDs risk factors (tobacco use, harmful use of alcohol, unhealthy diet and physically inactive) in order to evaluate the effectiveness of ongoing public health policies and response of UN Agencies and to develop further NCDs prevention and control interventions and activities including policies by UN organizations as well as the national agencies and the government of Turkey. 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 NCDs risk factors and it provides the necessary evidence for an NCDs epidemiological surveillance system. The STEPS has a proven strong methodology tested in many countries. However, to the best of our knowledge, this study is the first applying the STEPS methodology to refugee population.

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## SURVEY DESIGN and FIELD IMPLEMENTATION

### ►► SURVEY METHODOLOGY

#### Survey design

The survey on health status will be conducted with its purpose to establish the baseline information for the development of the Turkey Regional Refugee & Resilience Plan 2015-16 for the implementation of the Health Sector Response Plan and particularly in the continuation and strengthening of essential health care services (including medication for chronic diseases) for Syrian refugees on prevention and control of NCDs for the years 2016–2017.

The survey was carried out using first two consecutive steps of the three step STEPS approach, according to the WHO concept of using a step-wise approach to the surveillance of NCD risk factors and considering local necessities and resources. The original questionnaire was revised to include additional questions to determine health status such as self-perceived health, chronic conditions and to determine health care use such as family health center, hospitalization, consultations, unmet needs, use of medicines, preventive actions, city of origin in Syria, entry time to Turkey, income earned before the war in Syria, and income and work status in Turkey.

**STEP 1** comprises a questionnaire survey – the WHO STEPS Instrument for Chronic Disease Risk Factor Surveillance expanded by health status and health care questions. This is a 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, health status, health care access and use. The original STEP 1 questionnaire has been revised to ensure that refugees living in camps and off-campus settlements are distinguished.

**STEP 2** comprises 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.

The WHO STEPS Instrument for Chronic Disease Risk Factor Surveillance with additional questions were translated into Arabic and Turkish and used to take into consideration specific characteristics/requirements within the country.

#### Scope of the Survey

The scope of the survey included STEP 1 and STEP 2. Specifically, all core modules of STEP 1 which describe the basic demographic features and measures tobacco smoking, alcohol consumption, fruit and vegetable consumption and physical activity; and all expanded modules of STEP 1 which describe demographic breakdowns (e.g., employment status); extended questions for refugee population specific to Syrian refugees (e.g., income in the home and host country, etc.); collect information on ex-smokers and smokeless tobacco; capture information on drinking with meals and drinking in the past 7 days; collect information about oil and fat consumption and meals outside a home; capture sedentary behaviour; and describe blood pressure and diabetes history were done. Similarly, all core modules of STEP 2 which measure the height, weight, waist circumference and blood pressure of subjects; and all expanded modules of STEP 2 which measure hip circumference and heart rate were covered.

#### Survey population and sampling

##### Sample Design Considerations

A total of 5,760 subjects (5,128 outside camps and 632 in camps) aged 18–69 years was required with the following assumptions. For calculating the sample size, the prevalence of overweight and obesity ( $P=50\%$ ) identified during the previous surveys on the health status of the population was used (see [1] and [2]), assuming a 95% confidence interval (CI) ( $Z=1.96$ ), a 5% acceptable margin of error ( $e$ ), a complex sampling design effect ( $D$ ) coefficient of 1.50, and equal representation of sexes in each age group ( $S$ ) (four age groups for each sex or a total of eight groups). Calculations resulted in a sample size of 4608 individuals, which will be further increased by an inflation factor of 20% ( $i=0.20$ ) (5,760) to account for contingencies such as non-response and recording errors (see Formula 1).

*Formula 1.* Sample size calculation formula:

$$n = Z^2 \frac{P(1-P)}{e^2} .D.S. \left( \frac{1}{1-i} \right)$$

where

Z = level of confidence

P = baseline level of the indicators

e = margin of error

D = design effect

S = number of age-sex groups

i = non-response and recording error inflation factor

Applied to our assumptions, Formula 1 yields:

$$n = 1.96^2 \frac{0.50 * 0.50}{0.5^2} \cdot 1.50 \cdot 8 \cdot 1.25 \cong 5760$$

Selection of the samples was performed by AFAD according to the STEPS methodology representing Syrian refugees living in Turkey. Based on the previous experiences, snowball sampling was avoided in this survey. A multistage random sampling methodology was used in this study. At the top level in and out-camp sample sizes are determined based on the proportion of refugees in each settlement. At the second stage 10 cities are selected where the Syrian refugee populations has the highest concentration (79% of the total SRTPs). A second level multi-stage random sampling is designed to select the Syrian refugees living outside camps and simple random sampling is used to select the Syrian refugees living in camps.

For the out-camp settlement, a sampling design based on the geographic distribution of Syrian refugees is developed that gives equal representation to Syrian refugees living in non-dense refugee community areas. This was possible since all cities have 1.9 million Syrian refugees registered with authorities. High, medium, low dense refugee areas are obtained from local AFAD offices with the estimates of refugees in each area. Then a random sample of neighborhoods are determined and each neighborhood is assigned a sample size in proportion to refugee population in the area. Neighborhood Mukhtars are consulted to obtain a list of Syrian households and random number of households are identified in the last stage. A hypothetical illustration is given for Gaziantep province in **Figure 1**.

Refugee population estimates for the high, medium, and low concentration areas are as follows:

- High concentration areas: 100,000 refugees
- Medium concentration areas: 50,000 refugees
- Low concentration areas: 10,000 refugees

Number of random regions are 2 from the high con-

centration areas, 3 from the medium concentration, and 2 from the low concentration areas. These numbers are determined in proportion to the population estimates.

Assuming that the top level province sample was 746 surveys, the random households are allocated proportionally as follows:

- 500 surveys in high concentration areas (250 survey in each randomly selected high concentration area)
- 200 surveys in medium concentration areas (66 or 67 survey in each randomly selected medium concentration area)
- 46 surveys in low concentration areas (23 survey in each randomly selected low concentration area)

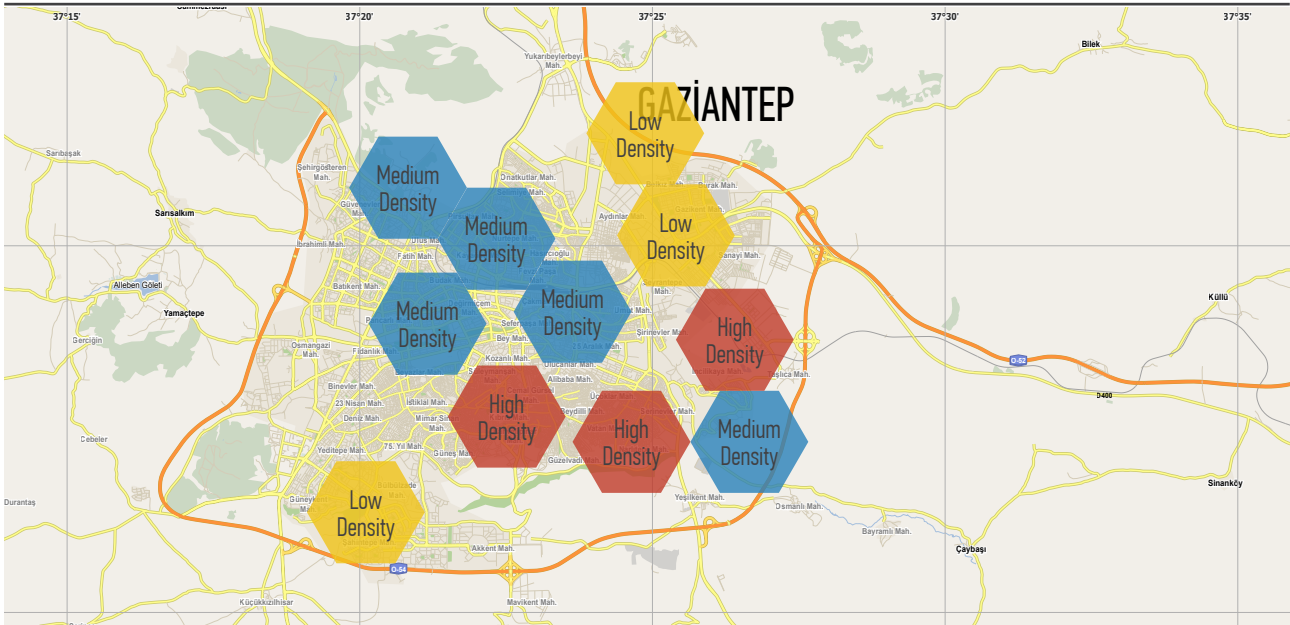
Although all efforts have been made to obtain a best representative sample, there might be still be some sample selection bias because 21% of the Syrian refugee population in Turkey could not be included in the sample. Some providences and sub-province level locations could not be included in the sampling because it was difficult to reach refugees living in these locations.

A second sample selections bias might exist due to unavailability of accurate addresses refugees in the neighbourhood level. It was discovered that the official registration addresses were only accurate about 40% to 60%, because refugees do not stay long in the same address. In order to solve this issue, address lists at neighbourhood level are obtained by from the neighbourhood managers (Mukhtar) and random sampling of households are progressively done using these lists. Given the unavailability of accurate address lists this approach was the best practical method for random household sapling.

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**FIGURE 1:** Neighbourhood Level Random Sampling



### Geographic distribution of samples

At the top level 10 cities are selected based on their SRTPs population. These cities are Adana, Ankara, Gaziantep, Hatay, İstanbul, Kahramanmaraş, Kilis, Osmaniye, Şanlıurfa, and Mersin. **Table 1** gives number of SRTPs living in these cities as of September 2015, which the survey sample was based on. These cities host 79% percent of SRTPs living in Turkey. **Figure 2** represents the geographic distribution of SRTPs living in Turkey. The figure shows that the cities Şanlıurfa, Gaziantep, Hatay, and İstanbul are highest density refugee host provinces. Şanlıurfa, among all, hosts more than 350 thousand Syrian refugees.

**Figure 3** displays the distribution of SRTPs by province living in out-camp settlements. Highest concentration areas for the Syrian refugees in the out-camp settlements are Hatay (322,006 refugees), İstanbul (300,987), and Şanlıurfa (251,285), respectively. High concentration of Syrian refugees in İstanbul is due to better work opportunities available while the concentration in Hatay is mostly due to easy access and the function of the province as the initial entry point for the SRTPs.

As of September 2015, on which the survey sample was based on, the distribution of SRTPs per camp is given in **Table 2**. Geographic concentration of SRTPs living in-camp settlements is represented in **Figure 4**. Excluding cities like İstanbul, İzmir, and Mersin, where non camp is operated by AFAD, the concentration of the in-camp SRTPs parallels the out-camp concentration with highest density in south east Turkey. The highest number of refugees living in camps is 101,915 refugees in Şanlıurfa, followed by 53,078 refugees in Gaziantep and 34,073 refugees in Kilis, respectively.

**TABLE 1 :** Estimate of Syrian Refugees by Province

Province	Refugee Number	Province	Refugee Number
ADANA	120,573	K. MARAŞ	71,981
ADYAMAN	21,612	KARABÜK	150
AFYON	1,916	KARAMAN	224
AĞRI	713	KARS	96
AKSARAY	431	KASTAMONU	343
AMASYA	59	KAYSERİ	29,893
ANKARA	42,208	KIRIKKALE	246
ANTALYA	44	KIRKLARELİ	2,077
ARDAHAN	21	KIRŞEHİR	441
ARTVİN	39	KİLİS	114,175
AYDIN	5,239	KOCAELİ	12,937
BALIKESİR	1140	KONYA	36,724
BARTIN	10	KÜTAHYA	193
BATMAN	15,332	MALATYA	15,143
BAYBURT	22	MANİSA	3,785
BİLECİK	341	MARDİN	86,933
BİNGÖL	367	MERSİN	113,236
BİTLİS	508	MUĞLA	6,464
BOLU	426	MUŞ	578
BURDUR	3,314	NEVŞEHİR	2,893
BURSA	69,757	NİĞDE	1,738
ÇANAKKALE	2,568	ORDU	218
ÇANKIRI	112	OSMANIYE	31,966
ÇORUM	783	RİZE	323
DENİZLİ	3,773	SAKARYA	1,971
DİYARBAKIR	25,282	SAMSUN	1,945
DÜZCE	230	SİİRT	2,394
EDİRNE	6,588	SİNOP	30
ELAZIĞ	2,590	SİVAS	635
ERZİNCAN	149	ŞANLIURFA	353,200
ERZURUM	226	ŞIRNAK	16,338
ESKİŞEHİR	380	TEKİRDAĞ	3,275
G. ANTEP	266,660	TOKAT	308
GİRESUN	57	TRABZON	819
GÜMÜŞHANE	52	TUNCELİ	80
HAKKARİ	669	UŞAK	737
HATAY	336,663	VAN	1,298
IĞDIR	97	YALOVA	1,618
ISPARTA	1,965	YOZGAT	1,606
İSTANBUL	300,987	ZONGULDAK	124
İZMİR	72,409	<b>TOTAL</b>	<b>2,225,447</b>

Based on the selection of cities as survey locations, 10 camps are selected as survey sites. The randomly selected survey site camps are Sarıçam tent province, Nizip 1 tent city, Nizip 2 container city, Kahramanmaraş Merkez tent city, Altınözü 1 tent city, Altınözü 2 tent city, Harran container city, Suruç tent city, Öncüpinar container city, and Cevdetiye tent city. These are allocated equal number of in-camp survey samples.

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**TABLE 2 :** Distribution of Syrian Refugees In Camps As of December 1, 2015

Province	Camp Name	Refugee Number	Province Total
HATAY	Altınözü 1 Tent city	1,356	14,657
	Altınözü 2 Tent city	2,912	
	Yayladağı 1 Tent city	2,666	
	Yayladağı 2 Tent city	3,035	
	Apaydın Container city	4,688	
GAZİANTEP	İslahiye 1 Tent city	8,882	53,078
	İslahiye 2 Tent city	11,090	
	Karkamış Tent city	10,273	
	Nizip 1 Tent city	7,081	
	Nizip 2 Container city	10,811	
	Nizip 2 Container city	4,941	
ŞANLIURFA	Ceylanpınar Tent city	18,650	101,915
	Akçakale Tent city	28,540	
	Harran Container city	13,942	
	Viranşehir Tent city	17,271	
	Suruç Tent city	23,512	
KİLİS	Öncüpınar Container city	10,496	34,073
	Elbeyli Beşiriyiye Container city	23,577	
MARDİN	Midyat Tent city	3,130	15,923
	Nusaybin Tent city	1,854	
	Derik Tent city	3,314	
	Derik Tent city	7,625	
KAHRAMANMARAŞ	Merkez Tent city	17,568	17,568
OSMANİYE	Cevdetiye Tent city	9,163	9,163
ADİYAMAN	Merkez Tent city	9,635	9,635
ADANA	Sarıçam Tent city	10,771	10,771
MALATYA	Beydağı Container city	7,635	7,635

Due to time and cost considerations cities are divided into two groups as the high concentration and low concentration cities using the sampling plan as explained above and illustrated in **Figure 1**. High concentration cities include Gaziantep Şanlıurfa, and İstanbul while low concentration cities include Adana, Ankara, Hatay, Kahramanmaraş, Kilis, Osmaniye, and Mersin. This division of the density of the concentration of the refugees can be seen in **Figure 2**. Although Hatay hosts high number of refugees and a high density refugee concentration province, it was not included among the high concentration cities because it is the entry point of most refugees to Turkey and a large number of refugees only stay a short time before they relocate other cities.

The distribution of samples for out- and in-camp settlements per province is given in **Table 3**. The total number of surveys per province is rounded to 445 for the low concentration cities and to 890 for the high concentration cities. The rounding is based on practical considerations to equalize the number of surveys per team member. The in- and out-camp division of the samples is based on the proportion of total

number of refugees given in **Table 1** and **Table 2**, respectively, and rounded to equalize per team surveys. The geographic allocation of the number of survey samples per province is given in **Figure 5**.

**Table 4** gives the number of surveys conducted per camp. The distribution of the in-camp settlement survey samples is again rounded for team load considerations and low and high concentration division of the cities.

**TABLE 3 :** Distribution of In and Out-Camp Surveys by Province

Province	Number of teams	Out-camp surveys	In-camp surveys
ADANA	1	373	72
ANKARA	1	445	
GAZİANTEP	2	746	144
KAHRAMANMARAŞ	1	373	72
HATAY	1	373	72
MERSİN	1	445	
İSTANBUL	2	890	
ŞANLIURFA	2	746	144
KİLİS	1	373	72
OSMANİYE	1	373	72
<b>TOTAL</b>	<b>13</b>	<b>5,137</b>	<b>648</b>

**TABLE 4 :** Distribution of In-Camp Surveys by Camp

Province	Name of the camp	Number of surveys
HATAY	Altınözü 1 Tent city	36
	Altınözü 2 Tent city	36
GAZİANTEP	Nizip 1 Tent city	72
	Nizip 2 Container city	72
ŞANLIURFA	Suruç Tent city	72
	Harran Container city	72
KİLİS	Öncüpınar Container city	72
KAHRAMANMARAŞ	Merkez Tent city	72
OSMANİYE	Cevdetiye Tent city	72
ADANA	Sarıçam Tent city	72
<b>TOTAL</b>		<b>648</b>



# CHAPTER 1: SURVEY DESIGN and FIELD IMPLEMENTATION

FIGURE 2 : Geographic Distribution of The Estimate of Syrian Refugees by Province

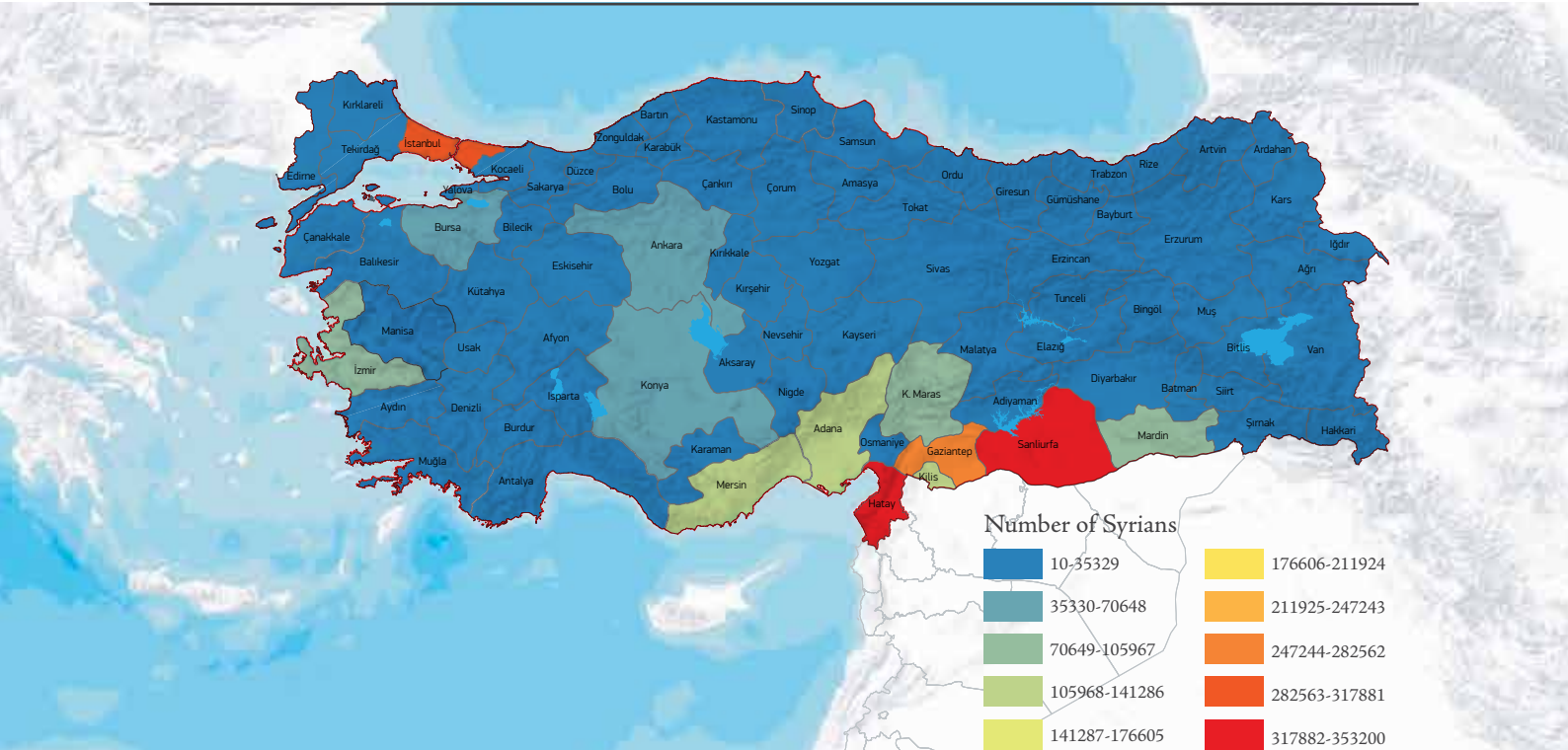
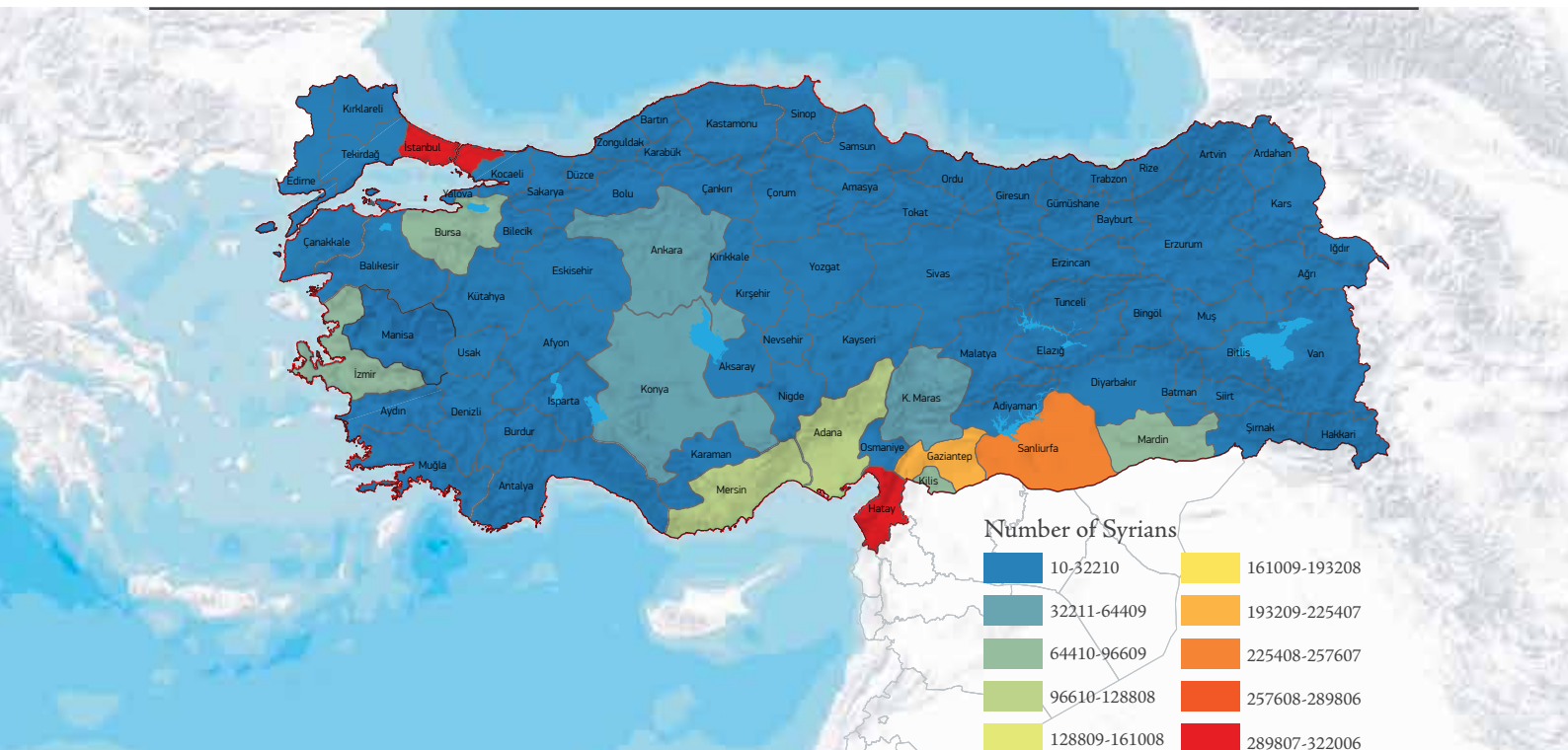
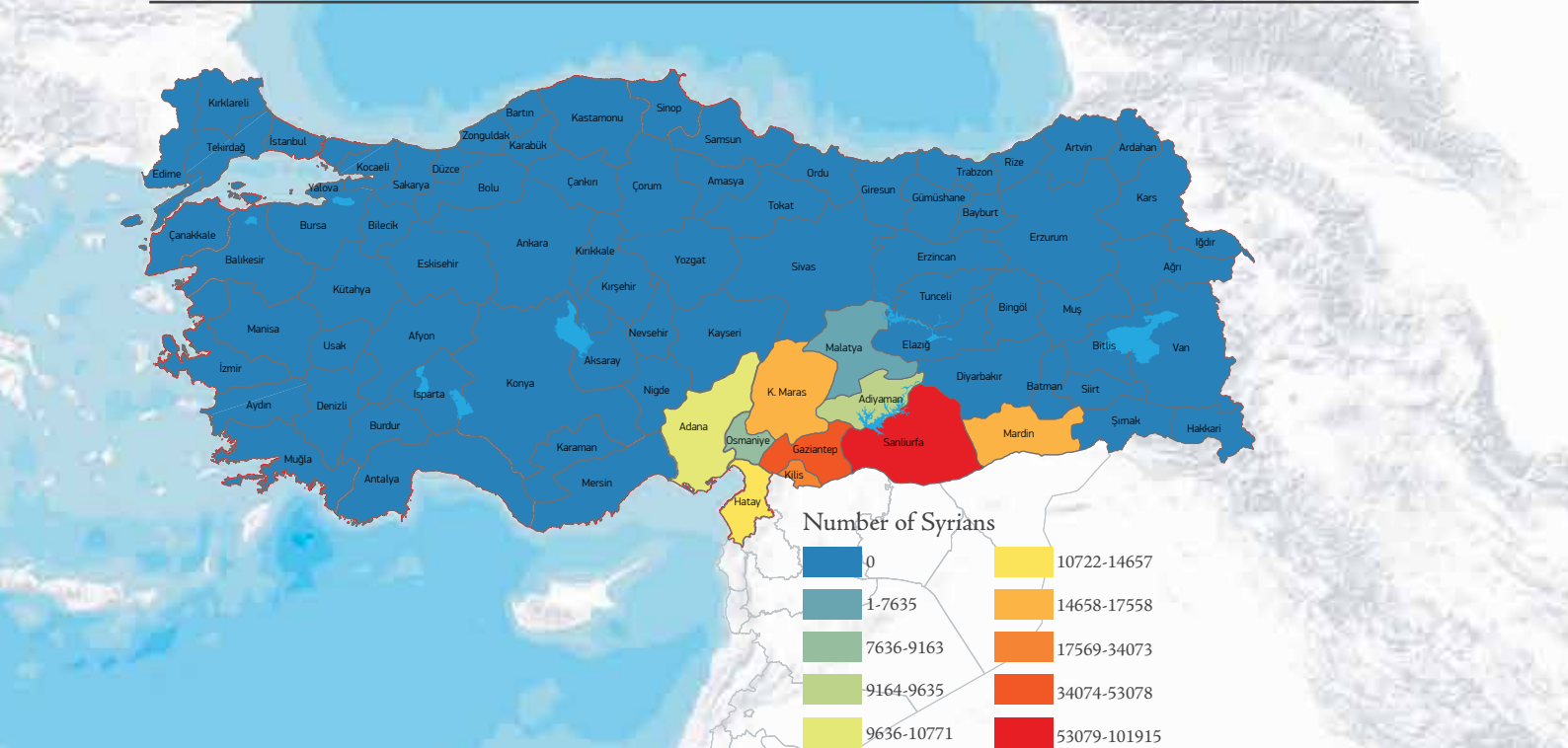


FIGURE 3 : Distribution of Syrian Refugees by Province Living In Out-Camp Settlements

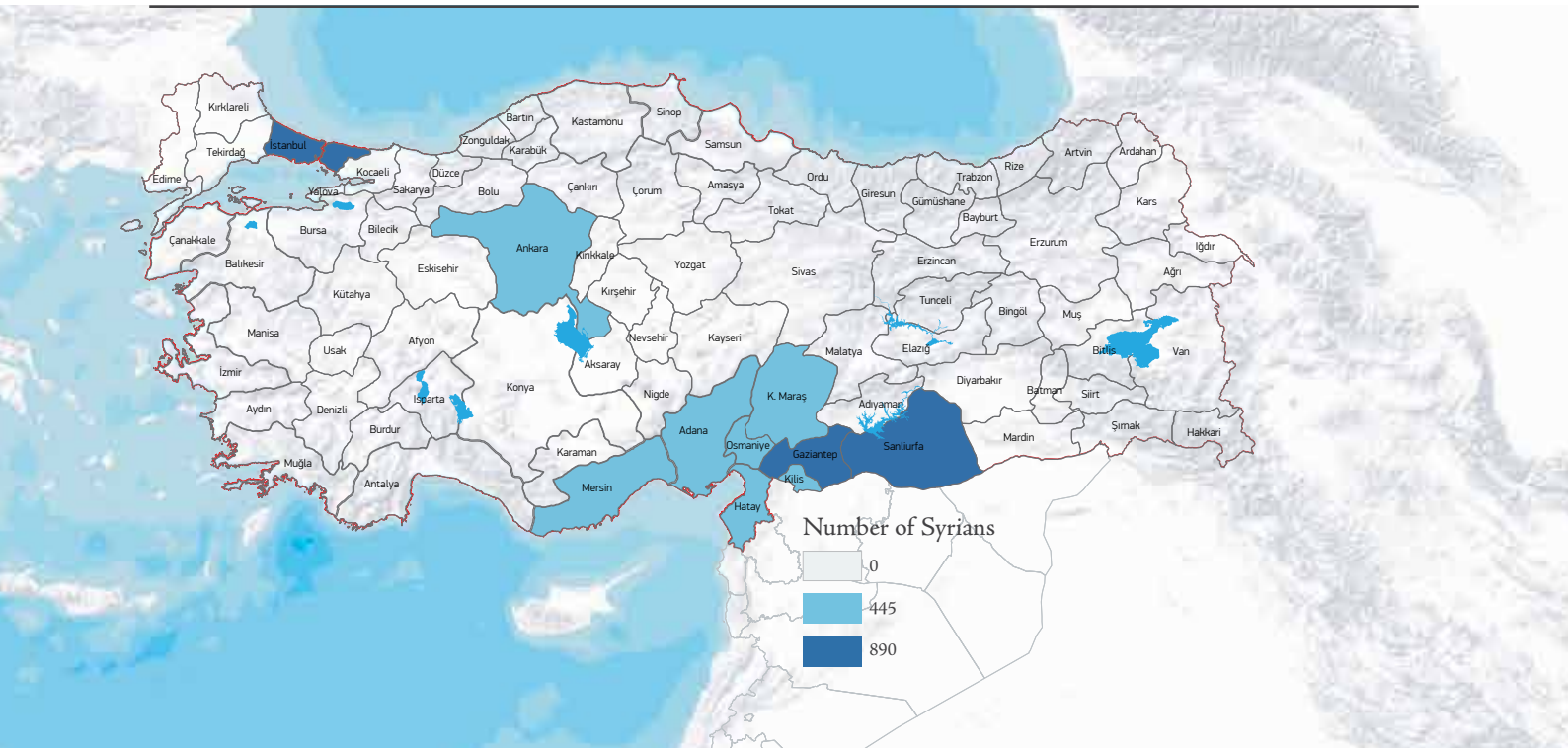




**FIGURE 4 :** Distribution of Syrian Refugees by Province Living In Camp Settlements



**FIGURE 5 :** Distribution of Survey Sample by Province



## CHAPTER 1: SURVEY DESIGN and FIELD IMPLEMENTATION

### Training of field data collectors

Field data collectors and field data supervisors were recruited from the Republic of Turkey Prime Ministry Disaster & Emergency Management Authority (AFAD). A two-day workshop on the Health Status Survey on the prevalence of NCD factors and health care use and data collection methodology was organized by the WHO Country Office in Turkey in collaboration with the Ministry of Health and AFAD on 3–4 December 2015. A total of 53 data collectors (13 teams), 4 team coordinators and trainers (Total of 57) attended the workshop. The training of data collectors was conducted by Dr. Toker Ergüder (WHO, Health Status Survey Country Coordinator), Professor Mehmet Balçılar (Health Status Survey Site Coordinator), Dr. Zübeyde Ökan Altunay (Ministry of Health of Turkey), and Dr. Özgür Erdem (Ministry of Health of Turkey). On the first day the trainees were exposed to methods of sampling at the household level and of obtaining informed consent from selected survey respondents. The core of the training focused on the survey questionnaire and the skills required to use tablet PCs for data entry. The second two days of the training comprised interactive sessions to introduce data collection methods for STEPS 1, 2 survey.

### Pilot application

The data collectors participated in the pilot application study by performing the steps 1 and 2 of the STEPS survey in Ankara and entering data via tablets. The pilot application was aimed at confirming the ability of field data collectors to use the questionnaire, make physical measurements and use tablets, and to test the intelligibility of the questions in the current population. Pilot application More than 40 individuals have participated in the pre-test phase. A questionnaire was distributed to each of the teams, each team conducted a survey of 2 individuals, made physical measurements, and performed data retention. There were 13 data collection teams, each comprising four individuals: one interviewer, one clinical health professional and two interpreters. Also AFAD nominated and Ministry of Health each nominated 2 team coordinator/supervisor. AFAD specialist Cem Vural and social worker Asiye Bekarca Şen were nominated by AFAD, and Dr. Zübeyde Ökan Altunay and Dr. Özgür Erdem were nominated by the Ministry of Health as the team coordinator/supervisor. Each team also assigned a team

leader which was selected from one of the health specialists or interviewers who work for AFAD. Interpreters were selected from the Syrian refugees living in various cities in Turkey.

### Data collection process

Validated questionnaires (WHO STEPS Instrument for Chronic Disease Risk Factors Surveillance expanded by health status such as self-perceived health, chronic conditions and health care use such as family health center, hospitalization, consultations, unmet needs, use of medicines, preventive actions questions) – comprising core and expanded items as well as two optional modules on dietary salt and health care – were translated into Turkish and Arabic, adapted to country specifics, translated back into English, reviewed and approved by Dr. Toker Ergüder (Health Status Survey Country Coordinator) and Professor Mehmet Balçılar (Health Status Survey Site Coordinator) and used for the survey data collection.

The survey data were collected between 7-25 December 2015. Data collection took place at following 10 cities where more than 30.000 Syrian refugees are living outside camps (Adana, Ankara, Gaziantep, Hatay, İstanbul, Kahramanmaraş, Kilis, Osmaniye, Şanlıurfa, and Mersin) and 10 camps (Sarıçam tent city, Nizip 1 tent city, Nizip 2 container city, Kahramanmaraş Merkez tent city, Altınözü 1 tent city, Altınözü 2 tent city, Harran container city, Suruç tent city, Öncüpınar container city, and Cevdetiye tent city).

Team composition over the cities:

Adana (1), Ankara (1), Gaziantep (2), Hatay (1), İstanbul (2), Kahramanmaraş (1), Kilis (1), Osmaniye (1), Şanlıurfa (2), and Mersin (1). Total of 13 teams and 53 staff will be assigned by AFAD and Ministry of Health each assigned two team coordinators/supervisors, who were responsible for monitoring the progress in collaboration with Prof. Mehmet Balçılar. The list of teams by assignment province and camp are given in **Table 5**.

**TABLE 5 :** Team Members and Their Distribution by Province and Camp

Province	Name	Title /Province of work	Camps Assignment
ADANA	Ramazan ÖZDEMİR	Health specialist /Afyon	Sarıçam Tent city
	Cihan Kenan YÜZER	Social worker /Adana	
	Ahmet KELAHMED	Interpreter /Osmaniye	
	Rima TÜRKMEN	Interpreter /Adana	
	Perihan ŞİRİN	Interpreter /Adana	
ANKARA	Gülgez AĞBABA	Social worker /Ankara	
	Fatma DİNÇER	Health specialist /Ankara	
	Muhammet KELAHMED	Interpreter /Ankara	
GAZİANTEP	Naziha SALW	Interpreter /Ankara	Nizip 1 Tent city Nizip 2 Container city
	Nurcan ÇİÇEK	Social worker /Yozgat	
	Adil ŞİRAZ	Social worker /Gaziantep	
	İdris ÇETİN	Health specialist /Kırşehir	
	Mesut BEKTAŞ	Health specialist /Malatya	
	Muhammed CUMA	Interpreter /Mersin	
	Gassan CUMA	Interpreter /Gaziantep	
	Nesrin CUMA	Interpreter /Gaziantep	
KAHRAMANMARAŞ	Zekiye M. HAKEM	Interpreter /Gaziantep	Merkez Tent city
	Tuğba SAPANCI	Social worker /Kahramanmaraş	
	Kıbar KESLER	Health specialist /Kahramanmaraş	
	Yasemin ŞEYHYUSUF	Interpreter /Osmaniye	
HATAY	Neda HOPUR	Interpreter	Altınözü 1 Tent city Altınözü 2 Tent city
	Özhan ÖZGEN	Social worker /Hatay	
	Mustafa KÖKTEN	Health specialist /Ankara	
	İman KONBEL	Interpreter /Mersin	
	Nur KONBEL	Interpreter /Hatay	
MERSİN	Hamide ÜNAL	Hemşire /Ankara	
	Ayşe MANCILIK	Social worker /Ankara	
	Murad HASAN	Interpreter /Mersin	
İSTANBUL	Nur JAARA	Interpreter /Mersin	
	Gülseren ÖRENÇ	Social worker /İstanbul	
	Zekeriya ÖZTÜRK	Social worker /İstanbul	
	Hilmiye Bahar KINALI	Health specialist /Bursa	
	Nurşen AKSU	Health specialist /Bursa	
	Muhammed Omar GRAN	Interpreter /İstanbul	
	Metin HASAN	Interpreter /İstanbul	
	Kawlha JAREN	Interpreter /İstanbul	
Tomris CEREN	Interpreter /İstanbul		
ŞANLIURFA	Ahmet TURUNÇ	Social worker /Samsun	Harran Container city Suruç Tent city
	Veysel KAYA	Social worker /Şanlıurfa	
	Özgür YURTOĞLU	Health specialist /Ankara	
	Ömer Faruk GÖKBULUT	Health specialist /Ankara	
	Yasemin ABDO	Interpreter /Kahramanmaraş	
	İman ARNAOUT	Interpreter /Osmaniye	
	Riham DEDE	Interpreter /Şanlıurfa	
Ayşe DEDE	Interpreter /Şanlıurfa		
KİLİS	Ertuğrul USTA	Social worker /Samsun	Öncüpınar Container city
	Aykut TÜRK	Health specialist /Samsun	
	Mustafa DERVİŞ	Interpreter /Gaziantep	
OSMANİYE	Lava KHALİL	Interpreter	Cevdetiye Tent city
	Seda ZOROVALI	Social worker /Afyon	
	Çetin ÖZTÜRK	Health specialist /Afyon	
	Semir CEREN	Interpreter /Osmaniye	
	Emine ŞERŞİ	Interpreter /Osmaniye	

## CHAPTER 1: SURVEY DESIGN and FIELD IMPLEMENTATION

### ►► SURVEY DATA COLLECTION

Survey data collection was carried out by 13 teams with 4 people in each team. Survey teams consisted of one interviewer, one health staff or technician, 2 Arabic–Turkish interpreter and a driver with a car. On the day of data collection, the selected households were visited and general information is given (verbally) on the goal and objectives of the survey. The consent of the household was obtained. If the household was not willing to participate in the survey or consent could not be obtained, then the household was not included in the survey. There were only a few reported case of rejection or non-consent, these were assumed as non-response cases. The survey sample was already adjusted for non-response and no substitute household is used. If the consent of the household to participate in the survey was obtained, then, all participants were selected from among all adults aged 18–69 years in each household. Further information was given to the selected participant and two additional active consents is requested (one for each of STEPS 1 and 2)

### ►► MONITORING OF DATA COLLECTION

The monitoring team (AFAD field coordinator/supervisor) comprised 4 representatives from the AFAD and Ministry of Health, with the task of monitoring the survey data collection in the field. The teams carried out this monitoring in the field and provided technical and logistical support to data collection teams throughout the data collection process. The teams visited households during the days and filled surveys on the paper. Data entry was done during evenings via tablet PCs to a web based secure server maintained by Prof. Mehmet Balcılar and running at AFAD. Continuous feedback were provided to teams on the entry progress and deviation of the sampling from the already known age and sex distribution. After one thirds of the surveys completed it was noticed that men/women ratio was unbalanced due to men being at work during the days. The teams then directed to balance the sex distribution by including more man by visiting mosques and other places where men would be more inclusive. This was not a foreseen issue and field based correction is preferred rather than post-correction based on weighting. Otherwise, the sample would likely to be biased as most men who were working would not be reflected in the survey.

FIGURE 6 : Team Members Conducting Survey



## ▶▶ DATA ENTRY AND CLEANING

The survey data first filled in paper forms classified by province, day, and unit number. The forms then duplicated by entering the data via web based system hosted at AFAD using IPADs (see Figure 7). The paper forms were shipped back to AFAD and will be kept confidential and preserved until all data are verified for entry errors. The team then completed 100% of the data entry by January 1, 2016 and conducted targeted number of 5,831 interviews, of which 41 were non-response. The field teams randomly conducted additional surveys to match the target sample size. We randomly select Upon the completion of the entry by January 1, 2016. The data was converted

into Microsoft Excel® format. Each survey respondent had a unique identifier comprised cluster, household number within cluster and individual ID number. Next, the survey data is compiled into a single file, and the accuracy of recording respondents' age and sex, among other variables, is established within four weeks using range and logic checking functions. Finally, data checking is carried out using the analysis code provided by WHO HQ, which includes a code to check the data prior to every analysis performed.

FIGURE 7 : On-Line Version of The Steps Questionnaire

Any inconsistency or data entry error discovered during the cleaning and control process is corrected by locating the original paper form.

Final number of interviews completed after the cleaning and consistency check is given in

Table 6 by province. Although the targeted number is achieved, number of surveys completed by province deviates from the planned due to non-response and recording errors. However, the difference between actual and planned number of surveys by province is not significant.

TABLE 6 : Number of Interviews Completed by Province

Provinces	Number of Surveys Completed
Adana	438
Ankara	447
Gaziantep	915
Hatay	460
İstanbul	864
Kahramanmaraş	456
Kilis	450
Mersin	457
Osmaniye	449
Şanlıurfa	895
<b>Total</b>	<b>5,831</b>

## CHAPTER 1: SURVEY DESIGN and FIELD IMPLEMENTATION

### ▶▶ WEIGHTING OF DATA

FIGURE 8 : A View From Filled Questionnaires Grouped by Day



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 and area of residence distribution of the sample versus (vs) the target population and probabilities of selection. The sample weight for

each case in the survey sample accounts for the number of cases it represents in the sampling frame, based on the sample selection procedure. The first stage sample weights based on the inclusion probabilities of the province level population sampling units (PSU) are given in Table 7. Equal inclusion of the relevant age-sex groups is assumed.

TABLE 7 : Inclusion Probabilities of Population Sampling Units (PSU) At The Province Level

PSU Number	Names (or abbreviations) of Your Primary Sampling Units	Estimated Size of Sampling Units	Selected	Probability of Inclusion
1	Adana	131,344	Yes	0.5254
2	Ankara	42,208		
3	Gaziantep	319,738	Yes	1.0000
4	Hatay	351,320	Yes	1.0000
5	İstanbul	300,987	Yes	1.0000
6	Kahramanmaraş	89,549	Yes	0.3582
7	Kilis	148,248	Yes	0.5930
8	Mersin	113,236		
9	Osmaniye	41,129	Yes	0.1645
10	Şanlıurfa	455,115	Yes	1.0000
11	Adıyaman	21,612	Yes	0.0865
12	Afyonkarahisar	1,916		
13	Ağrı	713		
14	Aksaray	431		
15	Amasya	59		

The population weighting is based on the age and sex distribution of the Syrian refugees obtained from the AFAD (2014) Survey which has the most accurate information as it includes more than 15000 refugees in the sample and Syrian refugees were not moving to other re-

gions of Turkey. The assumed actual age-sex distribution of the population obtained from the former 2014 AFAD survey are given in Table 8. Populations weights are obtained by taking the ratio of the age-sex distribution in Table 8 to the age-sex proportions of the STEPS survey.

**TABLE 8 :** Age-Sex Distribution of The Population

Sex	Age Range	Proportion of Population
Male	25-34	0.04
Male	35-44	0.08
Male	45-54	0.11
Male	55-64	0.15
Female	25-34	0.02
Female	35-44	0.17
Female	45-54	0.26
Female	55-64	0.17
Total		1.00

The third weighting is used for nonresponses. The product of the sample, population, and nonresponse weights are used in all weighted analysis.

## ▶▶ DATA ANALYSIS

Statistical analysis of the survey data was performed Prof. Dr. Mehmet Balcilar along the guidelines suggested by Dr. Toker Ergüder, National Professional Officer of WHO in Turkey. Data analyses were performed using appropriate methods for the complex sample design of the survey.

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% confidence interval (CI). Sampling error,

which could potentially affect the accuracy of the results of the current survey, were measured by the standard error of variables. Margins of error in prevalence and in measures of central tendency are represented by numeric values for the lower and upper limits of a 95% CI.

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 are adjusted using population, sample, and nonresponse weights.

THE POPULATION WEIGHTING IS BASED ON  
THE AGE AND SEX DISTRIBUTION  
OF THE SYRIAN REFUGEES OBTAINED FROM  
THE **AFAD 2014 SURVEY**





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# CHAPTER 2:

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DEMOGRAPHIC CHARACTERISTICS  
of the SYRIAN REFUGEES  
LIVING IN TURKEY

## CHAPTER 2:

# DEMOGRAPHIC CHARACTERISTICS of the SYRIAN REFUGEES LIVING IN TURKEY

Primary purpose of this survey is to obtain information on the risk factors of Non-Communicable diseases (NCDs) for the Syrian refugees living in Turkey using the WHO STEPS approach. In addition to information on primary NCDs risk factors, survey also collected information on major demographic characteristics of the respondents. A few question, such as the time of leaving Syria, income when living in Syria, and province of residence when in Syria, etc., were also added to the STEPS questionnaire. This modification is needed in order obtain information on refugee specific characteristic. The prevalence of NCDs are certainly highly linked to some of the demographic characteristics. Therefore, in this chapter, we present some information on the demographic characteristics of the SRTPs in Turkey.

### ►► SOCIO-DEMOGRAPHIC PROFILE

#### Age and sex characteristics

A total of 5,760 refugees included in the survey. Of both sexes only those aged 18-69 years are included into the study. All of the 5,760 respondents completed the questionnaire for both steps 1 and 2. Of those 5,760 who responded, 42.3% are men and 57.7% women (Table 9).

Table 9 and Figure 9 show the breakdown of survey respondents by sex and age group (in percent). The data indicates that while men make up 42.3% of the Syrian refugees, women account for 57.7%. In interpreting and assessing these proportions, it must be remembered that the survey respondents are limited to individuals aged 18 to 69. Therefore, age-sex distribution is not representative of the whole refugee population in Turkey.

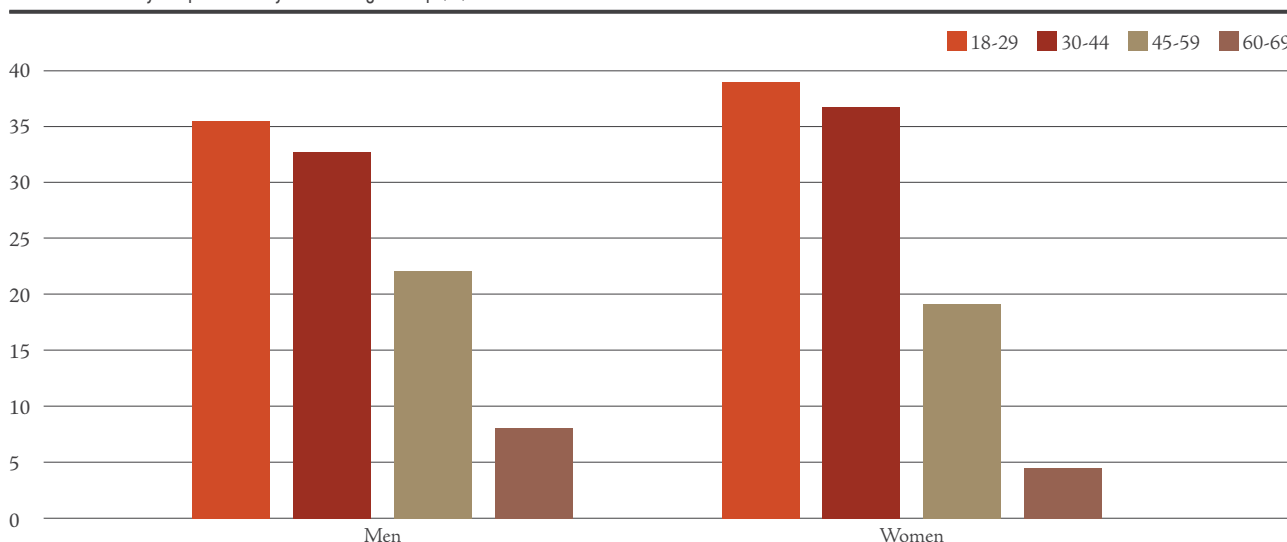
The age distribution of the Syrian refugee population was categorized into four groups, namely 18-29, 30-44, 45-59, and 60-69. Based on this categorization, 37.8% of the Syrian refugees are in the 18-29 age group, 35.7% are

in the 30-44 age group, and 20.6% are in the 45-59 age group. Those in the oldest age group of 60-69 make up 6.0% of the Syrian population.

As can be seen from the graphics presented in the figure, on average, men are likely to be older than women. While 35.7% of the men are in the 18-29 age group, this figure is 39.3% for the women. 33.8% of the men are in the 30-44 age group whereas this figure is 37.1% for the women. 22.4% of the men are in the 45-59 age group while 20.6% of the women are in the same age group. While 8.2% of the men are in the last age group of 60- to 69-year-olds, this figure is slightly over 4.3% for the women.

The average age of the survey respondents stands at 35.9 years. The average age of the men respondents is 37.2 years and that of women is 34.9 years.

FIGURE 9 : Survey Respondents by Sex and Age Group (%)



**TABLE 9 :** Survey Respondents by Sex and Age Group (%)

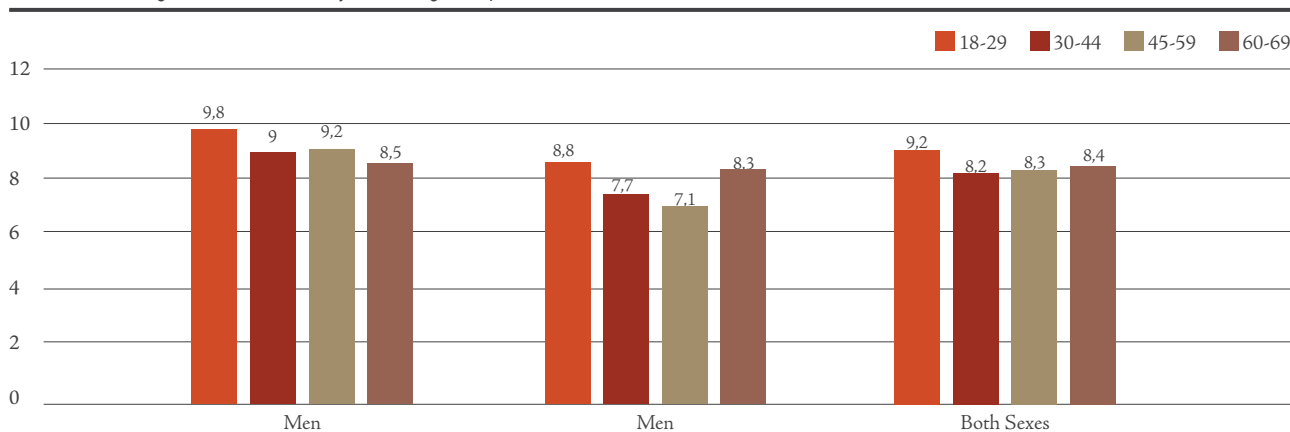
Age Group	Men		Women		Both Sexes	
	n	%	n	%	n	%
18-29	868	35.7	1,308	39.3	2,176	37.8
30-44	822	33.8	1,235	37.1	2,057	35.7
45-59	545	22.4	639	19.2	1,184	20.6
60-69	200	8.2	143	4.3	343	6.0
<b>18-69</b>	<b>2,435</b>	<b>100</b>	<b>3,325</b>	<b>100</b>	<b>5,760</b>	<b>100</b>
Sex (%)	42.3		57.7		100	
Average Age	37.2		34.9		35.9	

## Education

Figure 10 and Table 10 show the average years of education of the survey respondents by sex and age group. Pre-school education has been ignored in the calculation of the average years of education. Before looking into the breakdown, it is observed that the mean numbers of years of education is 8.7 years for the overall Syrian refugee population in Turkey. The low mean numbers of years of education is due to 76.8% of the respondents having education level less than high school, indeed 14.9% of the respondents did not receive any education. The average

years of education differs greatly based on both sex and age group. The most educated group in terms of average years of education is the Syrian refugees aged 18 to 29. As age progresses, the average years of education decreases proportionally. Syrian refugees aged 18 to 29 received a 9.2 mean numbers of years of education. In the 30-44 age group, this figure is 8.2 years. The average years of education for the Syrian refugees aged 45 to 59 is 8.3 years while it is 8.4 years for the oldest age group of 60- to 69-year-olds. It is observed that the average years of education of the Syrian refugees in the 18-29 age group is 0.8 years more than that of those in the 60-69 age group.

**FIGURE 10 :** Average Years of Education by Sex and Age Group (%)



**TABLE 10 :** Average Years of Education by Sex and Age Group (%)

Age Group	Men		Women		Both Sexes	
	n	%	n	%	n	%
18-29	811	9.8	1,211	8.8	2,022	9.2
30-44	742	9.0	1,079	7.7	1,821	8.2
45-59	481	9.2	367	7.1	848	8.3
60-69	139	8.5	31	8.3	170	8.4
<b>18-69</b>	<b>2,173</b>	<b>9.3</b>	<b>2,688</b>	<b>8.1</b>	<b>4,861</b>	<b>8.7</b>

## CHAPTER 2:

# DEMOGRAPHIC CHARACTERISTICS of the SYRIAN REFUGEES LIVING IN TURKEY

As with age groups, the average years of education differ significantly between sexes too. The average years of education for men is 9.3 years whereas it is 8.1 years for women. The figures show that, on average, men receive 1.2 more years of schooling.

The average years of education for men aged 18 to 29 is 9.8 years. This indicates that the most education in years group among all groups is men aged 18 to 29. The average years of education for men aged 30 to 44 is 9.0

years, and it is 9.2 years for men aged 45 to 59. The average years of education for men aged 60 to 69 was found to be 8.5 years.

While the average years of education for women respondents aged 18 to 29 is 9.2 years, it is 8.2 years for women aged 30 to 44. The average years of education for the women respondents aged 45 to 59 is 8.3 years. The average years of education for the women respondents aged 60 to 69 was found to be only 8.4 years.

**TABLE 11** : Education Level by Sex and Age Group (%)

Age Group	n	% No formal schooling	% Less than primary school	% Primary school completed	% Secondary school completed	% High school completed	% College/ University completed	% Post graduate degree completed
<b>Men</b>								
18-29	867	5.7	10.3	26.6	21.2	24.7	11.0	0.6
30-44	820	9.0	11.2	34.2	20.0	11.2	13.2	1.2
45-59	545	11.0	13.2	31.0	15.8	14.9	12.7	1.5
60-69	200	30.0	17.5	22.0	9.0	9.5	11.0	1.0
18-69	2,432	10.0	11.8	29.8	18.6	16.7	12.1	1.0
<b>Women</b>								
18-29	1,307	5.9	13.5	35.1	19.2	18.8	6.8	0.7
30-44	1,231	11.8	18.7	39.8	13.7	7.6	8.0	0.5
45-59	639	43.0	18.8	21.3	7.4	3.6	5.5	0.5
60-69	143	79.7	4.9	7.0	2.8	2.1	3.5	0.0
18-69	3,320	18.4	16.1	33.0	14.2	11.0	6.8	0.5
<b>Both Sexes</b>								
18-29	2,174	5.8	12.2	31.7	20.0	21.2	8.5	0.6
30-44	2,051	10.7	15.7	37.5	16.2	9.0	10.0	0.8
45-59	1,184	28.3	16.2	25.8	11.2	8.8	8.8	0.9
60-69	343	50.7	12.2	15.7	6.4	6.4	7.9	0.6
18-69	5,752	14.9	14.3	31.6	16.1	13.4	9.1	0.8

Table 11 shows the education level attained by the survey respondents by sex and age group. An overall assessment of Table 11 shows that 14.9% of the Syrian refugees have not received any education, in other words, have never been schooled. It can further be observed that another 14.3% were involved in formal education yet dropped out from primary school. Table 11 shows that 31.6% of the Syrian refugees finished primary school, 16.1% finished secondary school, and 13.4% finished high school. 9.1% of the respondents are university graduates and 0.8% started completing postgraduate education. If we combine the no-education, primary school dropout and primary school graduate categories, one could see that the highest level of education that 60.8%, i.e. three quarters, of the Syrian refugees received is primary school education. In contrast, only 9.1% of the Syrian refugees received university education.

Looking at Table 11 on the basis of age groups, it becomes evident that as age increases, the proportion of the group with no education increases. While 5.8% of those aged 18 to 29 have received no education at all, this proportion rises to 10.7% for individuals aged 30 to 44, to 28.3% for those aged 45 to 59, and to 50.7% for the 60-69 age group. In contrast, the proportion of those who received at least high school education is 30.3% in the 18-29 age group, 19.8% in the 30-44 age group, 18.5% in the 45-59 age group, and 14.9% in the 60-69 age group. In summary, we can conclude that, as age progresses, education level goes down, and that, in contrast, younger individuals possess a higher education level. These results are perfectly compatible with the average years of education provided in Figure 10 and Table 10.

**Table 11** further show that 10.0% of the Syrian refugee men have received no education at all. Moreover, 11.8% of the men attended primary school but dropped out. We also see that 29.8% of the men finished primary school, 18.6% finished secondary school, and 16.7% finished high school. 12.1% of the men graduated from university and 1.0% completed their postgraduate education. As with the overall picture, it is observed that as age progresses, education level drops off for men as well. While only 5.7% of the men aged 18 to 29 have received no education at all, this proportion rises to 9.0% for the men aged 30 to 44, to 11.0% for the men aged 45 to 59, and to 30.0% for the men aged 60 to 69. In other words, almost one third of the men in the 60-69 age group have not received any education at all.

A significant 18.4% of the Syrian refugee women have not received any education at all. Indeed, this proportion corresponds almost to one fifth of the Syrian refugee women. Moreover, 16.1% of the women attended but later dropped out from primary school, and only 33.0% of the women graduated from primary school. If we combine together these three categories, we can conclude that the highest level of education that 67.5%, i.e., almost two thirds, of the Syrian refugee women received is primary school education. 14.2% of the women graduated from secondary school, and 11.0% finished high school. While the proportion of women university graduates stands at 6.8%,

that of the women who completed their postgraduate education is merely five per thousand.

As we stated earlier, education level declines with age for Syrian refugees living in Turkey. It must be noted, however, that this is particularly salient for women. While 5.9% of the women aged 18 to 29 have received no education at all, this proportion rises to 11.8% for the women aged 30 to 44, and to 43.0% for the women aged 45 to 59. Perhaps, the most striking figure in terms of women education is the proportion of the women aged 60 to 69 who have received no education at all. Indeed, 79.7%, i.e., almost four fifths, of the women in this age group have received no education at all. Supporting the overall tendency regarding age, it is observed that the proportion of women who received at least high school education tends to decline with age. While the proportion of the women aged 18 to 29 who received at least high school education is 26.3%, this figure falls down to 16.1% for the women aged 30 to 44, to 9.6% for the women aged 45 to 59, and to 5.6% for the women aged 60 to 69. There are probably two reasons for this result: (1) percentage of girls who were sent to high school was increasing in Syria in the recent years and (2) considering the 5 years of time Syrian refugees living in Turkey, a higher proportion of girls were able to go to high school in Turkey, particularly those living in camps.



**THE HIGHEST LEVEL OF EDUCATION  
THAT 67.5%  
OF THE SYRIAN REFUGEE WOMEN  
RECEIVED IS PRIMARY SCHOOL EDUCATION.**

## CHAPTER 2:

# DEMOGRAPHIC CHARACTERISTICS of the SYRIAN REFUGEES LIVING IN TURKEY

### Marital status

Table 12 presents the marital status of the survey respondents by sex and age group. A general assessment of the marital status of the Syrian refugees shows that the proportion of the individuals who have never married stands at 13.5%. Table 12 shows that 81.8% of the Syri-

an refugees are married, and 0.5% of them are separated/divorced. While 5.4% of the respondents are widowed, about 0.1% of them stated they cohabit with a partner, noting that those who stated cohabiting are all men.

**TABLE 12 :** Marital Status Distribution by Sex and Age Group (%)

Age Group	n	% Never married	% Currently married	% Separated	% Divorced	% Widowed	% Cohabiting
<b>Men</b>							
18-29	868	53.8	45.3	0.2	0.2	0.2	0.2
30-44	822	3.9	95.6	0.1	0.1	0.2	0.0
45-59	545	0.2	98.7	0.2	0.0	0.7	0.2
60-69	200	0.0	99.0	0.0	0.0	1.0	0.0
<b>18-69</b>	<b>2,435</b>	<b>20.5</b>	<b>78.6</b>	<b>0.2</b>	<b>0.1</b>	<b>0.4</b>	<b>0.1</b>
<b>Women</b>							
18-29	1308	18.2	77.4	0.3	0.2	3.9	
30-44	1235	2.9	89.0	0.3	0.7	7.0	
45-59	639	0.6	81.7	0.3	0.3	17.1	
60-69	143	1.4	59.4	0.0	0.0	39.2	
<b>18-69</b>	<b>3,325</b>	<b>8.4</b>	<b>81.8</b>	<b>0.3</b>	<b>0.4</b>	<b>9.1</b>	
<b>Both Sexes</b>							
18-29	2,176	32.4	64.6	0.3	0.2	2.4	0.1
30-44	2,057	3.3	91.6	0.2	0.5	4.3	0.0
45-59	1,184	0.4	89.5	0.3	0.2	9.5	0.1
60-69	343	0.6	82.5	0.0	0.0	16.9	0.0
<b>18-69</b>	<b>5,760</b>	<b>13.5</b>	<b>80.5</b>	<b>0.2</b>	<b>0.3</b>	<b>5.4</b>	<b>0.1</b>

An examination of the marital status based on age groups indicates that the proportion of those who have never married declines as age increases. While 32.4%, i.e., more than one third, of the respondents aged 18 to 29 have never married, this figure goes down to 3.3% in the 30-44 age group, to 4 per thousand in the 45-59 age group, and to 6 per thousand in the 60-69 age group. The proportion of the widowed individuals increases as age progresses. While only 2.4% of those aged 18 to 29 lost their spouse, this proportion goes up to 4.3% in the 30-44 age group, and to 9.5% in the 45-59 age group. Lastly, 16.9% of those aged 60 to 69 lost their spouse. It is known that a significant number of this spouse loss was due the war in Syria (see AFAD, 2014 and 2015).

Upon examining the marital status of the men regardless of the age group, it is observed that the proportion of those who have never married is 20.5%. In other words, about one fifth of the refugee men have never married. The proportion of the men stating they are separated, lost their spouse, or cohabit with a partner is only 0.8% in total.

Examining the marital status of the women in Table 12, regardless of age groups, it is observed that the breakdown of marital status for the women is different from that of the men. While the proportion of the women who have never married stands at 8.4%. The proportion of the separated/divorced women is about seven per thousand. The category in which the marital status of women and men diverge the most is the widowed category. This proportion is four per thousand for men, and slightly exceeds 9% for women. Previous surveys by AFAD (2014, 2015) found that the high percentage for the widowed women is due many women whose husband died in the war in Syria since it is start in March 2011.

The data reveals the following findings for the marital status of Syrian refugees living in Turkey in terms age and sex:

- While 53.8% of the men aged 18 to 29 have never married, this proportion stands at 18.2% for women. While the proportion of widowers in this age group is about four per thousand for men, the proportion of widows stands at 3.9% in the same age group for women.

- While 3.9% of the men aged 30 to 44 have never married, this proportion stands at 2.9% for the women. While married men have a significant majority with 95.6% in this age group, the proportion of married women in this age group stands at 89.0%. A major part of this difference is due to high number of widowed women. This is because while only two per thousand of the men aged 30 to 44 lost their spouses; this proportion is 7.0% for the women.
- Only 0.2% the Syrian refugee men aged 45 to 59 who have never married, and the proportion of those who are married is 98.7%. However, the proportion of married women in the same age group is about 81.7%. As in the other age groups, the

gap here is due to women who lost their spouses. While the proportion of the widowed men in the 45-59 age group is approximately 0.7%, which of the widowed women in the same age group is 17.1%. In other words, about one fifth of the Syrian women aged 45 to 59 are widows. This is largely due to men casualties due the war in Syria.

- A high 16.9% of the refugees in the oldest age group of 60- to 69-years-olds stated that they lost their spouses. However, this proportion suggests stark distributional differences vis-à-vis sex. While the proportion of the widowed refugee men aged 60 to 69 is below 1.0%, a striking 39.2% of the women in the same age group are widows.

## ►► HOUSEHOLD SIZE AND SEX OF THE HOUSEHOLD HEAD

Table 13 presents the number of individuals in a household (from the age of 18 to 70) with respect to the sex of the head of the household in the surveyed provinces selected for the sample. Before going into the breakdown of the data by sex and province, it can be concluded from

the overall figures that Syrian refugee households are composed of 3.5 individuals aged 18-69 on average. The average was found to be 3.6 for the households headed by men and 3.4 for those headed by women.

**TABLE 13 :** Sex of The Head of The Household and Average Number of The Individuals Over Age of 18 In The Household by Survey Province

Provinces	Sex of the Head of the Household					
	Men		Women		Both Sexes	
	Number	Average	Number	Average	Number	Average
Adana	186	3.2	253	3.4	439	3.3
Ankara	213	3.1	229	2.9	442	3.0
Gaziantep	335	3.4	565	3.1	900	3.3
Hatay	220	3.8	234	3.6	454	3.7
İstanbul	326	3.7	533	3.5	859	3.6
Kahramanmaraş	97	3.8	354	2.9	451	3.1
Kilis	205	3.6	237	3.9	442	3.7
Mersin	207	3.6	243	4.0	450	3.8
Osmaniye	184	3.4	257	3.0	441	3.2
Şanlıurfa	462	3.9	420	3.6	882	3.7
<b>Total</b>	<b>2,435</b>	<b>3.6</b>	<b>3,325</b>	<b>3.4</b>	<b>5,760</b>	<b>3.5</b>

Due to various factors, such as the income, availability of work opportunities etc., refugee household size may vary across the provinces over Turkey. Among the provinces, the province with the lowest average of household members between age of 18 and 69 is Ankara with 3 household members on average. Ankara is followed by Kahramanmaraş with 3.1 household members on average, Osmaniye with 3.2, and Gaziantep and Adana with 3.3 each. While the average number of members in Syrian households in Istanbul is 3.6, it is 3.7 in Hatay, Kilis and Şanlıurfa. Mersin ranks first among all the provinces in the sample with respect to the average number of household members, with 3.8.

There is a difference of approximately 1 person aged 18-69 per household member between Ankara and Mersin. In other words, the Syrian households in Mersin are 26.7% more crowded than those in Ankara.

An examination on the basis of sex of the head of the household reveals that the households headed by women in Mersin are the most crowded with 4.0 household members on average and the least crowded are the households headed by women in Kahramanmaraş and Ankara with 2.9 household members on average.

## CHAPTER 2:

# DEMOGRAPHIC CHARACTERISTICS of the SYRIAN REFUGEES LIVING IN TURKEY

## Employment

Survey obtained information on the employment status of refugees aged 18-69 based on the last 12 months. The employment and income status is one of the most important socio-economic variables that determine the

NCDs prevalence rates, serving as one of the underlying risk factors for NCDs. Therefore, we summarize the employment and income status of the refugees by the age group and sex.

**TABLE 14 :** Employment In The Last 12 Months by Sex and Age Group (%)

Age Group	n	Unfit for Work (Disabled/ Debilitating Illness)	Civil Servant	Retiree	Artisan	Homemaker	Unemployed (Fit for Work)	Labourer	Unemployed	Student	Unremunerated Worker	Total
<b>Men</b>												
18-29	847	1.5	2.8	0.2	3.5	1.1	22.3	55.3	0.1	13.0	0.1	100.0
30-44	779	4.5	3.1	0.3	4.6	1.0	30.2	55.1	0.4	0.1	0.8	100.0
45-59	532	13.0	2.6	5.6	4.1	0.4	48.5	24.8	0.4	0.0	0.6	100.0
60-69	190	40.5	1.1	13.2	1.1	1.1	36.8	5.8	0.5	0.0	0.0	100.0
18-69	2,348	8.3	2.7	2.5	3.8	0.9	32.0	44.3	0.3	4.7	0.4	100.0
<b>Women</b>												
18-29	1,287	0.2	2.3	0.0	0.3	80.5	5.1	4.8	0.2	6.4	0.1	100.0
30-44	1,211	0.2	2.7	0.2	0.5	86.3	2.4	7.0	0.3	0.2	0.2	100.0
45-59	631	2.5	1.6	0.5	0.2	88.7	3.0	2.2	0.3	0.2	0.8	100.0
60-69	141	13.5	0.7	0.7	0.0	84.4	0.7	0.0	0.0	0.0	0.0	100.0
18-69	3,270	1.3	2.3	0.2	0.3	84.4	3.5	4.9	0.3	2.6	0.2	100.0
<b>Both Sexes</b>												
18-29	2,134	0.7	2.5	0.1	1.6	49.0	11.9	24.8	0.2	9.0	0.1	100.0
30-44	1,990	1.9	2.9	0.2	2.1	52.9	13.3	25.8	0.4	0.2	0.4	100.0
45-59	1,163	7.3	2.1	2.8	2.0	48.3	23.8	12.6	0.3	0.1	0.7	100.0
60-69	331	29.0	0.9	7.9	0.6	36.6	21.5	3.3	0.3	0.0	0.0	100.0
18-69	5,618	4.2	2.5	1.2	1.8	49.5	15.4	21.4	0.3	3.5	0.3	100.0

Table 14 gives the distribution Syrian refugee participating in the survey in the last 12 months by occupation. We first make a general assessment of the employment situation of the Syrian refugees before the analysis by the sex- or age group. A high 49.5%, i.e., half, of the Syrian refugees (mostly women) stated that they were homemakers. This is followed by labourers with 21.4%, and fit-for-work but unemployed refugees with 15.4%. A 4.2% of the refugees stated that they were unable to work due to a disability or debilitating illness. Students make up 3.5%, and the proportion of civil servants is 2.5%.

There are a few points that must be emphasized in terms of age groups. As age increases, the proportion of the Syrian refugees who are unfit for work increases exponentially. While a low 0.7% of those aged 18 to 29 are unfit for work, this proportion increases to 1.9% for those aged 30 to 44, to 7.3% for those aged 45 to 59, and to 29.0% for the 60-69 age group. The proportion of the ref-

ugees who are unemployed but fit for work also goes up with age. While 11.9% of those aged 18 to 29 are unemployed but fit for work, this proportion increases to 13.3% for those aged 30 to 44, to 23.8% for those aged 45 to 59, and to 21.5% for the 60-69 age group. The proportion of those who stated they worked as a labourer in the last 12 months is 24.8% in the 18-29 age group, 25.8% in the 30-44 age group, 12.6% in the 45-59 age group, and 3.3% in the 60-69 age group.

Table 14 shows that 44.3% of the Syrian refugee men stated they worked as labourers. In contrast, 32.0% of them stated that they were fit for work yet unemployed. In other words, close to one third of the Syrian men are made up of fit-for-work but unemployed people. An 8.4% of the men are unfit for work due to a disability or illness, a 4.7% stated they are students, a 3.8% stated that they worked as tradesmen, and a 2.7% stated that they worked as civil servants, with another 2.5% stating that they were retired.



A high 55.3% of the men aged 18 to 29 are labourers. In this age group, 22.3% are unemployed but fit for work, and 13.0% are students. Across all age groups and both sexes, the group with the highest proportion of students is the men aged 18 to 29. A 55.1% of the men aged 30 to 44 are labourers and 30.2% are unemployed yet fit for work. A 48.5% of the men aged 45 to 59 stated they were fit for work but unemployed. A 24.8% are labourers and 13.0% are unfit for work. A 40.5% of the men aged 60 to 69 are unfit for work and 36.8% are unemployed yet fit for work. A 13.2% of the men in this age group are retired.

Homemakers composed a major part of the women. While a great majority of women (84.4%) stated they

were homemakers, a 4.9% said they worked as labourers. The proportion of those who are fit for work yet unemployed is 3.5%. The student proportion in women is 2.6%. A 80.5% of the women aged 18 to 29 are homemakers. The age group with the lowest homemaker proportion among women is the 18-29 age group. In this age group, 5.1% are unemployed but fit for work and 4.8% are labourers. The proportion of students is 6.4%. While 86.3% of the women aged 30 to 44 are homemakers, 7.0% are labourers, 3.7% are civil servants, and 2.4% are unemployed yet fit for work. A 88.7% of the women aged 45 to 59 and 84.4% of the women aged 60 to 69 are homemakers.

## Income

Analogues to the employment status, the household income of the Syrian refugees are assessed based upon average earnings over the past 12 months. 3679 out of 5760 surveyed participants gave a response to the question on income. The survey questionnaire allowed response both in terms of Syrian pound or Turkish lira denominated responses. We report income both in terms of Turkish Lira (TL) and US dollars (USD). The official exchange rate of the Central Bank of Turkey on December 15, 2015 is used to convert the Turkish Lira denominated income figures into USD figures.

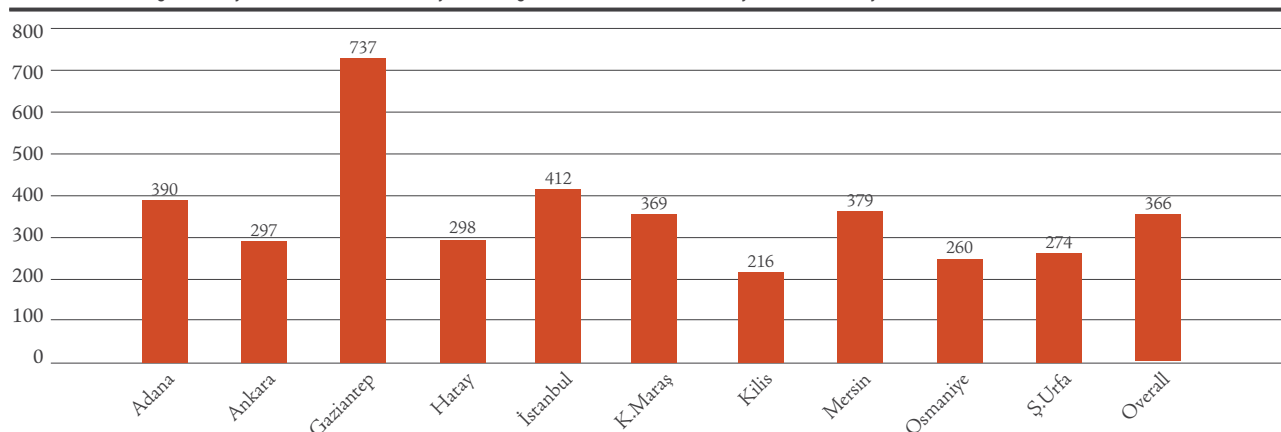
The findings for income are reported in **Table 14** and province averages is plotted in **Figure 11**. Mean reported household income per month is 366 USD (1,089 TL). Considering that household income consists of joint earnings of working age adults (aged from 18 years to 69 years) and the average household size is 3.5 persons, an average income earned by an adult person per month is 311.15 TL and 104.57 USD per month (10.37 TL and 3.49 USD per day). The figures are below the poverty line

(around 11 TL per day) but not the hunger lines (around 4 TL per day) set for Turkey for the year 2016. The figures certainly much above the “\$1 a day” international hunger lines. However, given the purchasing power parity disadvantage in Turkey, “\$1 a day” should not be applied for people living in Turkey.



MEAN REPORTED  
HOUSEHOLD  
INCOME PER MONTH  
IS **366 USD**

**FIGURE 11 :** Average Monthly Household Incomes of Syrian Refugees In The Twelve Months by Province and by Sex (USD)



## CHAPTER 2:

# DEMOGRAPHIC CHARACTERISTICS of the SYRIAN REFUGEES LIVING IN TURKEY

**TABLE 15 :** Average Monthly Household Income of Syrian Refugees In The Last Twelve Months by Province Lived In Turkey and by Sex

Provinces	Men			Women			Both Sexes		
	Number	Average TL	Average USD*	Number	Average TL	Average USD*	Number	Average TL	Average USD*
Adana	118	1,233	414	16	630	212	134	1,161	390
Ankara	140	859	289	55	943	317	195	882	297
Gaziantep	241	1,615	543	142	3,171	1,066	383	2,192	737
Hatay	205	999	336	221	784	264	426	887	298
İstanbul	307	1,150	386	483	1,274	428	790	1,226	412
K.Maraş	60	1,748	588	99	706	237	159	1,099	369
Kilis	176	731	246	196	561	189	372	641	216
Mersin	155	1,306	439	169	964	324	324	1,127	379
Osmaniye	137	825	277	211	740	249	348	773	260
Şanlıurfa	320	939	315	228	643	216	548	816	274
<b>Overall</b>	<b>1,859</b>	<b>1,109</b>	<b>373</b>	<b>1,820</b>	<b>1,069</b>	<b>359</b>	<b>3,679</b>	<b>1,089</b>	<b>366</b>

\*1 USD = 2.9755 TL Central Bank of Turkey, [www.tcmb.gov.tr](http://www.tcmb.gov.tr) [15.12.2015]

Table 15 also shows the household incomes in Turkish Lira (TL) and American Dollar (USD) denominations by province lived in Turkey and by sex. It is observed that the average monthly household income of the Syrian refugees in Turkey is approximately 1,089 TL (366 USD). It must be stressed that this figure is less than the minimum wage in Turkey which has been 1,300 TL after tax as of January 1,2016.

There are significant discrepancies among the provinces with respect to average monthly household income. The highest income group is the refugees in Gaziantep. The average monthly household income of the refugees residing in Gaziantep is 2,192 TL (737 USD). Gaziantep is followed by the Syrian refugees in İstanbul with 1,226 TL (412 USD). Higher income levels in Gaziantep and İstanbul are likely related to the availability better job opportunities for Syrian refugees in these provinces. With 1161 TL (390 USD), 1,127 TL (379 USD), and 1099 TL (369 USD) respectively; Adana, Mersin, and Kahramanmaraş are among the provinces where the Syrian refugees have an average monthly household income of over 1,000 TL. While the average monthly household income of the Syrian refugees in Hatay is 887 TL (298 USD), it is 882 TL (297 USD) for those in Ankara, and 816 TL (274 USD) for those in Şanlıurfa. The two provinces where the monthly household income is the lowest are Osmaniye and Kilis. While the Syrian refugees in Osmaniye earned in the last year a monthly household income of 773 TL (260 USD) on average, this average for the Syrian refugees in Kilis is as low as 641 TL (216 USD).

A comparison of Gaziantep, where the Syrian refugees have the highest household income, and Kilis, where they

have the lowest income shows that the Syrian households in Gaziantep earn approximately three times as much as those in Kilis.

A sex-based analysis indicates that the households headed by men earn more than the households headed by women. While the average income of the households headed by men in the last 12 months stands at about 1,109 TL (373 USD), this average is 1,069 TL (359 USD) for households headed by women, an insignificant difference. In this respect, we see that men headed households earn only 3.7% more than women headed households.

While a purely sex-based analysis indicates a minor difference of 3.7%, it is observed that greater discrepancies are likely to be encountered in a province-based analysis. In Adana, the income of the households headed by men is 1,233 TL (414 USD) whereas it is 630 TL (212 USD) for households headed by women. In contrast, the households headed by women earn more than those headed by men in Ankara. In Ankara, the income of the households headed by women is 943 TL (317 USD) whereas it is 859 TL (289 USD) for those headed by men.

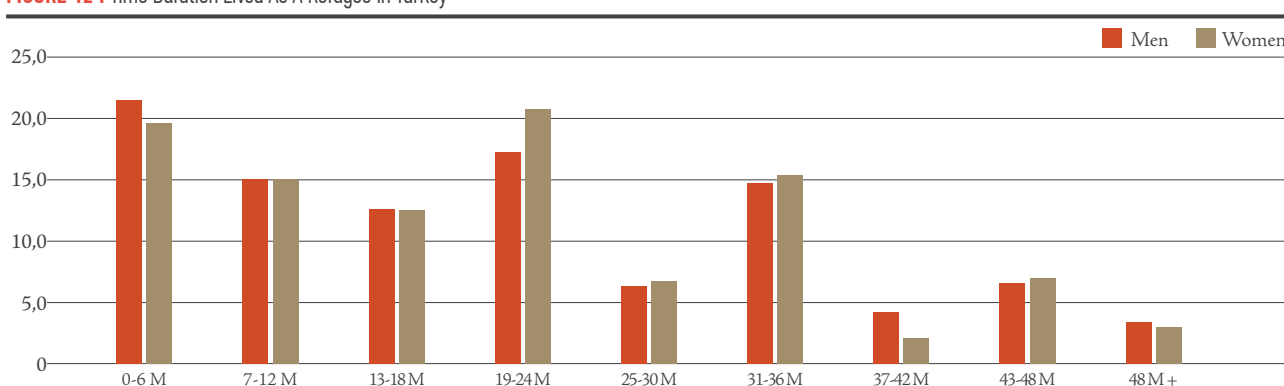
While the households headed by men earned more than those headed by women during the course of the last 12 months in Adana, Hatay, Kahramanmaraş, Kilis, Mersin, Osmaniye, and Şanlıurfa; the reverse is true for the provinces of Ankara, Gaziantep, and İstanbul.

## ▶▶ TIME DURATION AS A REFUGEE IN TURKEY

Original STEPS questionnaire version 3.1 was modified to obtain information on the refugee related factors. One of these is the duration of time spent as a refugee in Turkey. Duration of time spent in Turkey may have different implications. As more time passes, SRTPs get

access to the health system and become better informed about all aspects of the legal and social environment, more importantly be able to find a job. All these factors will have consequences on NCDs risk factors.

**FIGURE 12 :** Time Duration Lived As A Refugee In Turkey



**TABLE 16 :** Time Duration Lived As A Refugee In Turkey

Time spent in Turkey	Men		Women		Both Sexes	
	n	%	n	%	n	%
0 - 6 months	533	21.9	655	19.7	1,188	20.6
7 - 12 months	368	15.1	503	15.1	871	15.1
13 - 18 months	300	12.3	404	12.2	704	12.2
19 - 24 months	420	17.2	694	20.9	1,114	19.3
25 - 30 months	153	6.3	217	6.5	370	6.4
31 - 36 months	361	14.8	510	15.3	871	15.1
37 - 42 months	102	4.2	74	2.2	176	3.1
43 - 48 Ay	145	6.0	208	6.3	353	6.1
48 +	53	2.2	60	1.8	113	2.0
<b>Total</b>	<b>2,435</b>	<b>100.0</b>	<b>3,325</b>	<b>100.0</b>	<b>5,760</b>	<b>100.0</b>
<b>Average (months)</b>	<b>21.1</b>		<b>21.3</b>		<b>21.2</b>	

Table 16 presents the duration of time Syrian refugees have been in Turkey by sex. The average duration of time Syrian refugees have lived in Turkey is provided in the last row of Table 16 also appear in Figure 12. It can be seen from Table 16 and Figure 12 that Syrian refugees have lived in Turkey for 21.2 months on average. Considering that the Syrian Crisis broke out in March 2011, we can argue that this almost two-year period is quite significant long duration.

Table 16 shows that a 20.6% of the Syrian refugees have been in Turkey for less than 6 months. A 15.1% of the Syrian refugees have been in Turkey for 7 to 12 months, and a 12.2% of them have been in Turkey for 13 to 18 months. A 19.3% of the Syrian refugees have lived in Turkey for 19 to

24 months. When these four categories are considered as a whole, it is observed that 67.2%, i.e., more than two thirds, of the Syrian refugees have lived in Turkey for two years at the most.

From Table 16, we see that a 6.4% of the Syrian refugees have lived in Turkey for 25 to 30 months, a 15.1% have lived in Turkey for 31 to 36 months, a 3.1% have lived in Turkey for 37 to 42 months, and a 6.1% have lived in Turkey for 43 to 48 months. The proportion of the Syrian refugees who have been in Turkey for 48 months or more, i.e., at least for four years, stands at only 2.0%.

## CHAPTER 2:

# DEMOGRAPHIC CHARACTERISTICS of the SYRIAN REFUGEES LIVING IN TURKEY

### ►► PROVINCE OF ORIGIN

Table 17 presents the home province of the Syrian refugees were living before entering Turkey. The table also breaks down the figures on the basis of sex of the head of household.

An overall assessment of the Table 17 indicates that an important proportion of the Syrian refugees came from Aleppo. Indeed, 58.6% of the Syrian refugees came

from Aleppo province. In other words, about three out of every five Syrian refugees in Turkey came from Aleppo. Aleppo is followed by Idlib with 8.0%. According to 2012 estimates (CIA Factbook), Aleppo had a population of 4.6 million, and Idlib's population was 1.4 million. Both cities are situated close to the Turkish-Syrian border.

**TABLE 17 :** Syrian Province The Syrian Refugees Came From By Sex of The Head of The Household

Time spent in Turkey	Men		Women		Both Sexes	
	n	%	n	%	n	%
Aleppo	1,328	54.8	2,034	61.4	3,362	58.6
Idlib	186	7.7	271	8.2	457	8.0
Homs	160	6.6	208	6.3	368	6.4
Latakia	159	6.6	173	5.2	332	5.8
Al-Raqqah	159	6.6	162	4.9	321	5.6
Hama	142	5.9	102	3.1	244	4.3
Damascus	84	3.5	159	4.8	243	4.2
Deir ez-Zor	125	5.2	106	3.2	231	4.0
Al-Hasakah	40	1.6	39	1.2	79	1.4
Rif Dimashq	19	0.8	31	0.9	50	0.9
Daraa	17	0.7	24	0.7	41	0.7
Other Provinces	6	0.2	6	0.2	12	0.2
<b>Total</b>	<b>2,425</b>	<b>100.0</b>	<b>3,315</b>	<b>100.0</b>	<b>5,740</b>	<b>100.0</b>

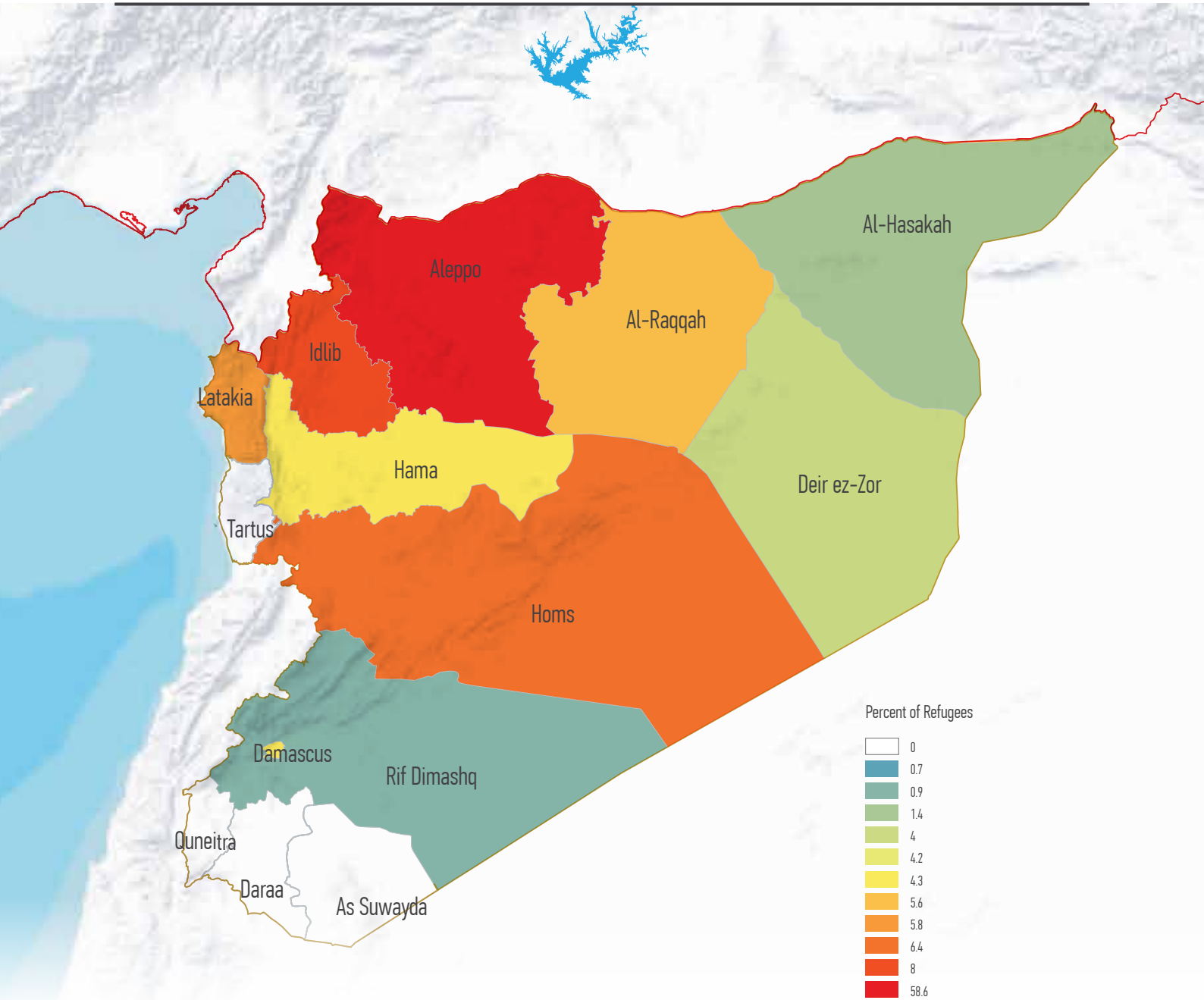
Homs is also one of the important cities Syrians refuge to Turkey. Indeed, a 6.4% of the Syrian refugees in Turkey came from Homs. Those who came from Latakia and al-Raqqah account for 5.8 and 5.8, respectively, of all Syrian refugees in Turkey. Both al-Raqqah and Latakia are nearby cities, albeit not as close as Aleppo and Idlib. According to CAI Factbook 2012 estimates, Latakia had a population of about 1 million.

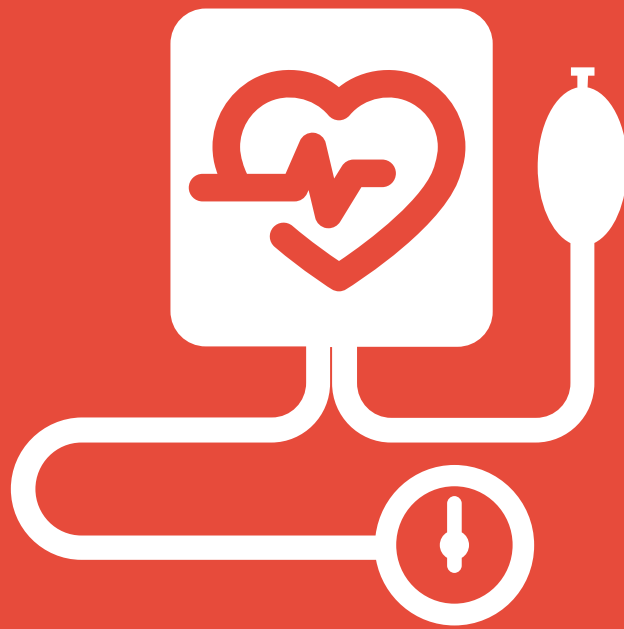
Figure 13 presents the geographic distribution of Syrian refugees by their province of origin. Excluding Homs, most of the Syrian refugees in Turkey came from provinces near the border. This was already reported by AFAD (2014, 2015) where majority of Syrian refugees stated that the reason for seeking asylum in Turkey was accessibly and easy transportation.



**58.6% OF THE SYRIAN REFUGEES  
CAME FROM ALEPPO PROVINCE.**

**FIGURE 13 :** Concentration of Syrian Refugees by Province of Origin





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# CHAPTER 3:

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AN OVERVIEW of  
SURVEILLANCE  
of CHRONIC DISEASE  
RISK FACTORS

## CHAPTER 3:

# AN OVERVIEW of SURVEILLANCE of CHRONIC DISEASE RISK FACTORS

NCDs, mainly cardiovascular diseases, diabetes, cancer and chronic respiratory diseases impose a major and growing burden on health and development in many countries, and their prevalence rates are much higher in low income countries. The war conditions which started in March 2011 have worsened the already very unfavourable conditions in Syria. NCDs are already the leading causes of death and disability, and responsible for 70% of deaths (WHO). This rate might have been increased for Syrian due to extreme war conditions affecting life. This chapter presents an overview of NCD risk factors for Syrian refugees based on a sample of 5,760 refugees aged 18 to 69 years.

### ►► TOBACCO USE

**Table 18** presents the current Syrian refugees' consumption of tobacco products such as cigarettes, cigars, pipes, etc. The results in Table 18 show that 34.0% of the Syrian refugees currently smoke a tobacco product. When both sexes considered, a 30.8% of individuals aged 18-29 years, a 36.3% of those aged 30-44, a 38.3% of those aged 45-59, and a 29.7% of those aged 60-69 currently smoke a tobacco product.

Significant differences exist between men and women in tobacco use. While 55.0% of men stated that they currently smoke a tobacco product, only 11.8% of women ref-

ugees currently smoke a tobacco product. In terms of the age groups, 53.8% of men aged 18-29, 57.4% of those aged 30-44, 55.3% of those aged 45-59, and 46.8% of those aged 60-69 currently smoke a tobacco product.

In women, 8.2% of those aged 18-29, 14.2% of those aged 30-44, 16.9% of those aged 45-59, and 9.6% of those aged 60-69 currently smoke a tobacco product. The group with the lowest prevalence of tobacco use is women aged 18-29, and the group with the highest is men aged 30-44.

**TABLE 18:** Tobacco Use by Sex and Age

Age Group (years)	Percentage of current smokers								
	Men			Women			Both Sexes		
	n	% Current smoker	95% CI	n	% Current smoker	95% CI	n	% Current smoker	95% CI
18-29	781	53.8	50.2-57.4	1,255	8.2	6.6-9.8	2,036	30.8	28.6-33.0
30-44	755	57.4	53.8-61.0	1,176	14.2	12.2-16.3	1,931	36.3	34.0-38.7
45-59	506	55.3	50.9-59.7	611	16.9	13.8-20.0	1,117	38.3	35.2-41.3
60-69	193	46.8	39.6-53.9	137	9.6	4.4-14.7	330	29.7	24.7-34.6
18-69	2,235	55.0	52.9-57.2	3,179	11.8	10.6-12.9	5,414	34.0	32.6-35.4

**Table 19** presents results on whether Syrian refugees who currently smoke do so on a daily basis, on a non-daily basis, and also whether Syrian refugees who currently do not smoke have smoked in the past. In order to examine the proportion of the Syrian refugees who smoke a tobacco product do so on a daily basis, we report the breakdown of the current smokers by daily and non-daily smokers in **Table 19**. Results in **Table 19** shows that 31.6% of the Syrian refugees smoke a tobacco product on a daily basis. In contrast, 2.4% of the refugees do not smoke regularly on a daily basis, but smoke on a non-daily basis. Daily smoking increases with age except the 60-69 age group. When both sexes are considered, 27.8% of all Syrian refugees aged 18-29, 33.9% of all Syrian refugees aged 30-44, 36.9% of all Syrian refugees aged 45-59, and 29.1% of all Syrian refugees aged 60-69 smoke a tobacco product on daily basis.

**Table 19** also show that 61.8% of non-smokers never smoked in the past and 4.2% of the current non-smokers indeed are former smokers.

We observe from **Table 19** that the rates of daily smoking and past smoking habits increases significantly with age. While 27.8% of current smokers aged 18-29 smoke on a daily basis, this proportion rises to 29.1% in those aged 60-69. Also, a 2.3% of the current non-smokers aged 18-29 are former smokers, and 13.5% of those aged 60-69 who are current non-smoker smoked before.



**TABLE 19:** Smoking Status of Syrian Refugees by Sex and Age

Age Group (years)	n	Current smoker				Non-smokers			
		% Daily	95% CI	% Non-daily	95% CI	% Former smoker	95% CI	% Never smoker	95% CI
<b>Men</b>									
18-29	781	49.4	45.8-53.0	4.4	2.9-6.0	3.4	2.1-4.8	42.8	39.2-46.3
30-44	755	54.1	50.5-57.8	3.3	2.0-4.6	5.0	3.4-6.6	37.6	34.1-41.2
45-59	506	53.8	49.3-58.2	1.5	0.5-2.6	10.5	7.7-13.2	34.2	30.0-38.5
60-69	193	45.7	38.5-52.8	1.1	-0.4-2.5	18.5	12.8-24.2	34.7	27.9-41.6
<b>18-69</b>	<b>2,235</b>	<b>51.7</b>	<b>49.5-53.9</b>	<b>3.3</b>	<b>2.5-4.2</b>	<b>6.0</b>	<b>5.0-6.9</b>	<b>39.0</b>	<b>36.9-41.1</b>
<b>Women</b>									
18-29	1,255	6.6	5.1-8.0	1.6	0.9-2.3	1.2	0.6-1.8	90.6	88.9-92.2
30-44	1,176	12.7	10.8-14.7	1.5	0.8-2.2	2.3	1.4-3.1	83.5	81.3-85.7
45-59	611	15.7	12.7-18.7	1.1	0.2-2.0	4.2	2.6-5.8	79.0	75.6-82.3
60-69	137	9.6	4.4-14.7	—	—	7.5	3.0-12.1	82.9	76.4-89.4
<b>18-69</b>	<b>3,179</b>	<b>10.3</b>	<b>9.3-11.4</b>	<b>1.4</b>	<b>1.0-1.9</b>	<b>2.3</b>	<b>1.8-2.8</b>	<b>85.9</b>	<b>84.7-87.1</b>
<b>Both Sexes</b>									
18-29	2,036	27.8	25.6-30.0	3.0	2.2-3.9	2.3	1.6-3.0	66.9	64.6-69.1
30-44	1,931	33.9	31.6-36.2	2.4	1.7-3.2	3.7	2.7-4.6	60.0	57.6-62.4
45-59	1,117	36.9	33.9-39.9	1.4	0.6-2.1	7.7	6.0-9.4	54.1	51.0-57.1
60-69	330	29.1	24.2-34.0	0.6	-0.2-1.4	13.5	9.7-17.3	56.9	51.4-62.3
<b>18-69</b>	<b>5,414</b>	<b>31.6</b>	<b>30.2-33.0</b>	<b>2.4</b>	<b>2.0-2.9</b>	<b>4.2</b>	<b>3.6-4.8</b>	<b>61.8</b>	<b>60.4-63.2</b>

Results in **Table 19** show that 51.7% of male current smokers smoke on a daily basis and 3.3% smoke on a non-daily basis. A 6.0% of men non-smokers smoked before whereas 39.0% of the non-smoker men never smoked.

While 49.4% of current men smokers aged 18-29 smoke regularly on a daily basis, a 45.7% of those aged 60-69 smoke regularly on a daily basis. The proportion of male former smokers also increases with age. While 3.4% of non-smokers men aged 18-29 smoked before, a high 18.5% of those non-smoker men aged 60-69 smoked before.

Smoking is significantly less prevalent in women. While only a 10.3% of the women refugees stated they smoke on a daily basis, a 1.4% stated they do smoke on a non-daily

basis. Among the current non-smoker women, a 2.3% are former smokers, while a 85.9% never smoked.

In order to examine the proportion of the Syrians refugees who are current smoker smoke a tobacco product do so on a daily and non-daily basis **Table 20** reports the breakdown of current daily smokers by age and sex. Results in **Table 20** show that 92.1% of the Syrian refugees who smoke a tobacco product do so regularly on a daily basis. Moreover, daily tobacco use tends to increase with age. Of the respondents who are current smokers, 89.3% of those aged 18-29, 92.5% of those aged 30-44, 96.1% of those aged 45-59, and 96.2% of those aged 60-69 do smoke regularly on a daily basis.

**TABLE 20:** Current Daily Smokers Among Smokers by Age and Sex

Age Group (years)	Men			Women			Both Sexes		
	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI	n	% Daily smokers	95% CI
18-29	473	90.9	88.2-93.6	116	79.3	71.7-86.9	116	79.3	71.7-86.9
30-44	480	93.7	91.4-95.9	186	87.6	82.8-92.4	186	87.6	82.8-92.4
45-59	304	97.1	95.2-99.0	106	91.6	86.0-97.3	106	91.6	86.0-97.3
60-69	98	96.7	93.1-100.4	15	93.3	80.5-106.1	15	93.3	80.5-106.1
<b>18-69</b>	<b>1,355</b>	<b>93.3</b>	<b>91.8-94.7</b>	<b>423</b>	<b>86.0</b>	<b>82.6-89.4</b>	<b>423</b>	<b>86.0</b>	<b>82.6-89.4</b>

While 86.0% of women who smoke a tobacco product do so on a daily basis, 93.3% of men who smoke a tobacco product do so on a daily basis. It can be said, therefore, that men have a higher prevalence of daily tobacco consumption than women and this difference is statistically significant since 95% CI do not overlap.

Of the women refugees who currently smoke a tobacco product, 79.3% of those aged 18-29, 87.6% of those aged 30-

44, 91.6% of those aged 45-59, and 93.3% of those aged 60-69 do smoke on a daily basis. Of men who currently smoke a tobacco product, 90.2% of those aged 18-29, 93.7% of those aged 30-44, 97.1% of those aged 45-59, and 96.7% of those aged 60-69 smoke a tobacco product on a daily basis.

Among the current smokers, the group with the minimum percentage of daily smoking is the women aged 18-29. In contrast, the group which has the highest prevalence

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of daily tobacco use is men aged 60-69. In both men and women, daily tobacco consumption rates increase with age.

Table 21 shows the mean age of initiation of smoking, in years, among smokers for the Syrian refugees. The average age at which Syrian refugees start smoking is 19.5 for

both sexes combined. For both sexes, smokers aged 18-29 start smoking at about 16.8 years old, those aged 30-44 start at about 20.4, those aged 45-59 started at 22.2, and those aged 60-69 start at 24.4.

**TABLE 21:** Mean Age Starting Smoking by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	Mean age	95% CI	n	Mean age	95% CI	n	Mean age	95% CI
18-29	418	16.7	16.3–17.0	90	18.2	17.3–19.0	508	16.8	16.5–17.2
30-44	442	19.6	19.1–20.1	158	23.8	22.6–25.0	600	20.4	19.9–20.9
45-59	291	20.7	19.7–21.6	93	29.2	26.8–31.6	384	22.2	21.2–23.1
60-69	90	23.3	20.9–25.7	14	30.2	22.5–37.9	104	24.4	22.0–26.8
18-69	1241	18.8	18.5–19.1	355	23.5	22.6–24.5	1596	19.5	19.2–19.9

On average, men are initiate smoking about five years earlier than women. While men start smoking on average at age 18.8, women do so at age 23.5. The five-year difference in sexes for smoking initiation, is also statistically significant as the 95% confidence intervals do not overlap.

While men aged 18-29 initiate smoking at about 16.7 years old, those aged 30-44 and 45-59 initiate smoking at age 19.6 and 20.7, respectively, and those aged 60-69 initiate smoking at age 23.3.

For women refugees, average age of initiation of smoking is 18.2 in women aged 18-29, 23.8 in those aged 30-44, 29.2

in those aged 45-59, and 30.2 in those aged 60-69. While the group with the lowest average age of initiation of smoking is men aged 18-29 (age 16.8), the group with the highest is women aged 60-69 (age 30.2).

Table 22 shows the mean duration of smoking, in years, among Syrian refugee smokers. The mean duration of smoking for all Syrian refugees for those aged 18-29 is 6.7 years, for those aged 30-44 for is 16.0 years, for those aged 45-59 for is 28.6 years, and for those aged 60-69 is 39.2 years.

**TABLE 22:** Mean Duration of Smoking by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	Mean duration	95% CI	n	Mean duration	95% CI	n	Mean duration	95% CI
18-29	418	6.7	6.3–7.1	90	6.2	5.3–7.1	508	6.7	6.3–7.0
30-44	442	16.7	16.1–17.3	158	12.9	11.6–14.2	600	16.0	15.4–16.6
45-59	291	30.3	29.2–31.3	93	21.1	18.7–23.5	384	28.6	27.6–29.6
60-69	90	40.2	37.6–42.7	14	34.1	25.9–42.2	104	39.2	36.7–41.7

Smoker men have higher mean duration of smoking in years compared to smoker women. While men smokers aged 18-29 have been smoking for 6.7 years on average, those aged 30-44 have been smoking for 16.7 years, those aged 45-59 for 30.3 years, and those aged 60-69 for 40.2 years.

Women tend have lower mean duration of smoking years compared to the men. It is observed that women Syrian smokers aged 60-69 have been smoking for 34.1 years on average. Female smokers aged 18-29 have been smoking for 6.2 years, those aged 30-44 for 12.9 years, and those aged 45-59 for 21.1 years.

The number of cigarettes used by the Syrian refugees who smoke on a daily basis are provided in Table 23 by sex and age. "Cigarettes" refers to cigarettes commercially produced and distributed in the market. As a pack of cigarettes is a reference norm for most smokers on a daily use, it must be noted that there are generally 20 cigarettes in one commercially produced pack of cigarettes.

**TABLE 23:** Mean Amount of Cigarettes Smoked by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	Mean # of cig.	95% CI	n	Mean # of cig.	95% CI	n	Mean # of cig.	95% CI
18-29	376	20.4	19.5–21.4	64	14.1	11.7–16.6	440	19.8	18.9–20.7
30-44	404	22.2	21.3–23.2	147	15.5	13.8–17.2	551	21.0	20.1–21.9
45-59	258	22.7	21.4–24.1	84	16.4	14.1–18.8	342	21.6	20.4–22.8
60-69	68	18.2	16.2–20.3	10	15.8	7.8–23.8	78	17.9	15.7–20.0
18-69	1,106	21.5	20.9–22.1	305	15.4	14.2–16.5	1411	20.6	20.0–21.1

The Syrian refugees who smoke on a daily basis smoke 20.6 cigarettes on average in one day. Individuals aged 18-29 smoke about 19.8 cigarettes a day, and those aged 30-44 and 45-59 smoke 21.0 and 21.6, respectively, cigarettes a day on average. Individuals aged 60-69 smoke about 17.9 cigarettes a day.

Syrian men smoke 21.5 cigarettes per day on average. Considering that commercially produced cigarette packs generally containing 20 cigarettes, men smoke one pack of cigarettes a day. While young men aged 18-29 smoke an average of 20.4 cigarettes a day, those aged 30-44 smoke more than 22.2 cigarettes, and those aged 45-59 smoke about 22.7 cigarettes. Dissimilar to the previous groups, male smokers aged 60-69 smoke an average of 18.2 cigarettes a day.

On average, women smoke less than men over all age groups. Women smoke an average of 15.4 cigarettes a day. Women aged 18-29 smoke an average of 14.1 cigarettes

a day. While women aged 30-44 smoke 15.5 cigarettes a day, those aged 45-59 smoke 16.4, and women aged 60-69 smoke about 15 cigarettes per day.

On a quantitative basis, men smoke more than women, and youngest and oldest age groups, 18-29 and 60-69, tend to smoke less than the middle age groups, 30-44 and 45-59.

Table 24 shows the smoking cessation trials of Syrian refugees by sex and age. Before looking into the sex disaggregated data it can be observed, as a general overview, that 53% of Syrian refugees, i.e., more than half, have tried to quit smoking. A 50.3% of smokers aged 18-29, 53.6% of smokers aged 30-44, 57.8% of smokers aged 45-59, and 50.9% of smokers aged 60-69 have previously tried to stop smoking. The group that has tried stop smoking the most frequently is the group of individuals aged 45-59.

**TABLE 24:** Current Smokers Who Have Tried To Stop Smoking

Age Group (years)	Men			Women			Both Sexes		
	n	% Tried to stop smoking	95% CI	n	% Tried to stop smoking	95% CI	n	% Tried to stop smoking	95% CI
18-29	466	49.4	44.8-54.0	112	56.2	46.7-65.7	578	50.3	46.1-54.5
30-44	468	53.4	48.8-54.0	180	54.3	46.8-61.8	648	53.6	49.6-57.6
45-59	300	58.3	52.6-64.0	106	55.5	45.8-65.3	406	57.8	52.8-62.7
60-69	95	56.8	46.7-66.8	15	20.5	1.5-39.5	110	50.9	41.3-60.4
18-69	1,329	52.8	50.0-55.5	413	53.9	49.0-58.8	1742	53.0	50.5-55.4

In contrast to the tobacco use, where women and men differ significantly, smoking cessation trials of men and women do not differ significantly. While 52.8% (95% CI: 50.0%-55.5%) of men have tried to stop smoking, a comparable 53.0% (95% CI: 50.5%-55.4%) of women have done so.

While 49.4% of men aged 18-29 have tried to stop smoking, 56.2% of women in the same age group have tried to stop smoking. In the 30-44 age groups, 53.4% of men and 54.3% of women have tried to stop smoking. In the 45-59 and 60-69 age groups, however, the proportion of men who have tried to stop smoking is greater than that of women. While 58.3% of the men in the 45-59 age groups have tried to stop smoking, a 55.5% of the women have done so. A much significant difference is observed

for the 60-69 age group: while 56.8% of men in this age group tries to stop smoking, only 20.5% of women in the same age group have tried to stop smoking.

In addition to direct use of tobacco products, the STEPS questionnaire also investigates second-hand smoking. Table 25, which presents the exposure of Syrian refugees to second-hand smoke, shows that 62.6%, i.e., more than three fifths, of the Syrian refugees are exposed to second-hand smoke. Table 25 also indicates that the group affected most by second-hand smoke is individuals aged 45-59. A 64.9% of these individuals in this age group are exposed to second-hand smoke. A 64.4% of individuals aged 18-29, 59.6% of individuals aged 30-44, and 63.4% of individuals aged 60-69 are exposed to second-hand smoke.

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**TABLE 25:** Exposed To Second-Hand Smoke In Home During The Past 30 Days by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	% Exposed	95% CI	n	% Exposed	95% CI	n	% Exposed	95% CI
18-29	850	60.6	57.2-63.9	1,267	68.4	65.8-71.0	2,117	64.4	62.2-66.5
30-44	813	55.6	52.1-59.1	1,194	64.1	61.3-66.9	2,007	59.6	57.4-61.9
45-59	534	61.6	57.4-65.8	622	68.5	64.7-72.2	1,156	64.6	61.7-67.5
60-69	194	63.8	56.9-70.8	133	62.9	54.5-71.3	327	63.4	58.1-68.8
18-69	2,391	59.1	57.0-61.1	3,216	66.6	64.9-68.2	5,607	62.6	61.3-63.9

In general, Syrian refugee women are more likely to be exposed to second-hand smoke than men due to presence of most women at home in the when a smoker is present. While 59.1% (95% CI: 57.0%-61.1%) of men are exposed to second-hand smoke, the proportion of women exposed to second-hand smoke stands at 66.6% (95% CI: 64.9%-68.2%), a large and statistically significant difference. **Table 25** shows that 60.6% of men aged 18-29, 55.6% of men aged 30-44, 61.6% of men aged 45-59, and 63.8% of men aged 60-69 are exposed to second-hand smoke. In men, the group

that is most affected by second-hand smoke at home is the 60-69 age group, with a percentage standing at 63.8%.

While 68.4% of women aged 18-29 are exposed to second-hand smoke, 64.1% of those aged 30-44, 68.5% of those aged 45-59, and 62.9% of those aged 60-69 are exposed to second-hand smoke. These figures show that women are more exposed to second-hand smoke than men over all age ranges.

## Alcohol Consumption

**Table 26** below shows the alcohol consumption status of Syrian refugees by sex and age. Without disaggregation by sex, it is observed that 98.6% of the Syrian refugees have never consumed alcohol at all. The proportion of those Syrian refugees who have not consumed alcohol in the past 12 months stands at 99.2%. While less than 0.8% of individuals have consumed alcohol in the past 12 months, the proportion of the current alcohol users who have consumed alcohol in the past 30 days stands only at three per thousand.

While 99.4% of the individuals between the age 60 and 69 have never consumed alcohol at all, the proportion of those who have never consumed alcohol is 98.3% in younger individuals aged 18-29. While 0.4% of individuals aged 18-29 have consumed alcohol in the past 12 months, 0.3% of those aged 30-44, and 0.1% of those aged 45-59 have consumed alcohol in the past 12 months. These rates are comparable for current drinkers too. Only 5 per thousands of individuals aged 18-29 used alcohol in the past 30 days.

A high 97.4% of Syrian refugee men have never consumed alcohol and 98.6% of them have not consumed alcohol in the past 12 months. Only six per thousand of the men refugees are current alcohol drinkers and only 0.6% of the men refugees consumed alcohol in the past 12 months. The figures given in **Table 26** shows that

young men are more likely to drink alcohol. However, the difference between the younger and the older individuals vis-à-vis alcohol consumption is a very small one and statistically insignificant. For instance, while 98.9% (95% CI: 97.4%-100.4%) of men aged 60-69 have never consumed alcohol at all, this proportion falls down to 96.6% (95% CI: 95.4%-97.8%) in men aged 18-29. The proportion of current drinkers is higher in the youth, which supports this conclusion. While 1.0% (95% CI: 0.4%-1.7%) of Syrian refugees aged 18-29 are current alcohol drinkers, this proportion is 0.3 (95% CI: 0.0%-0.6%) in the 30-44 age group, and falls to 0.2% (95% CI: -0.2%-0.6%) in the 45-59 age group. A 0.8% of men aged 18-29 have consumed alcohol in the past 12 months, while 0.6% of those aged 30-44 have done so. Consistently with the current alcohol users, the proportions decline with age.

Alcohol consumption in Syrian women is even rarer if not non-existent. Indeed, despite the large sample of 3,292 women respondents to the question on alcohol consumption, almost all of the women respondents stated that they have not consumed alcohol in the past 30 days and also in the past 12 months. Indeed, 99.9% of women are lifetime alcohol abstainer. A 99.9% of women aged 30-44 and 100.0% of all other age groups are lifetime alcohol abstainers.

Based on the results reported in **Table 26**, we can conclude that alcohol consumption is not prevalent in Syrian refugees. However, Syrian refugee men are more likely to drink alcohol than women. We can also argue that younger individuals are more likely to consume alcohol.

**TABLE 26:** Alcohol Consumption Status of Syrian Refugees by Sex and Age

Age Group (years)	n	% Current drinker (past 30 days)	95% CI	% Drank in past 12 months, not current	95% CI	% Past 12 months abstainer	95% CI	% Lifetime abstainer	95% CI
<b>Men</b>									
18-29	856	1.0	0.4-1.7	0.8	-0.1-0.4	98.5	99.4-100.9	96.6	95.4-97.8
30-44	816	0.3	0.0-0.6	0.6	0.1-1.2	98.8	98.4-100.9	97.8	96.8-98.9
45-59	542	0.2	-0.2-0.6	0.1	-0.1-0.4	98.4	98.0-101.1	98.1	96.8-99.4
60-69	200	—	—	—	—	98.9	98.5-101.5	98.9	97.4-100.4
<b>18-69</b>	<b>2,414</b>	<b>0.6</b>	<b>0.3-0.9</b>	<b>0.6</b>	<b>0.3-0.9</b>	<b>98.6</b>	<b>97.7-100.3</b>	<b>97.4</b>	<b>96.8-98.1</b>
<b>Women</b>									
18-29	1,299	—	—	—	—	—	—	100.0	100.0-100.0
30-44	1,218	0.1	-0.1-0.3	—	—	99.9	99.8-100.1	99.9	99.7-100.1
45-59	635	—	—	—	—	—	—	100.0	100.0-100.0
60-69	140	—	—	—	—	—	—	100.0	100.0-100.0
<b>18-69</b>	<b>3,292</b>	<b>0.0</b>	<b>0.0-0.1</b>	—	—	<b>100.0</b>	<b>100.0-100.1</b>	<b>99.9</b>	<b>99.9-100.0</b>
<b>Both Sexes</b>									
18-29	2,155	0.5	0.2-0.9	0.4	-0.1-0.2	99.2	98.9-100.4	98.3	97.6-98.9
30-44	2,034	0.2	0.0-0.4	0.3	0.0-0.6	99.3	99.1-100.4	98.8	98.3-99.4
45-59	1,177	0.1	-0.1-0.3	0.1	-0.1-0.2	99.1	98.9-100.6	98.9	98.2-99.6
60-69	340	—	—	—	—	99.4	99.2-100.8	99.4	98.6-100.2
<b>18-69</b>	<b>5,706</b>	<b>0.3</b>	<b>0.2-0.5</b>	<b>0.3</b>	<b>0.1-0.5</b>	<b>99.2</b>	<b>98.7-100.2</b>	<b>98.6</b>	<b>98.3-99.0</b>



**97.4%** OF SYRIAN REFUGEE MEN HAVE NEVER CONSUMED ALCOHOL AND 98.6% OF THEM HAVE NOT CONSUMED ALCOHOL IN THE PAST 12 MONTHS.

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### ▶▶ DIET

In order to examine the dietary behaviour of Syrian refugees in terms of fruit and vegetable consumption, **Table 27** reports the mean number of days fruit and vegetable consumed in a week. In a typical week, Syrian refugees consume fruit 2.9 days a week. There is no statistically significant difference between men and women with respect to the number of days of consuming fruit. There is also no clear trend in fruit consumption with the age. Although, older refugees tend to have an average somewhat less than the young refugees. For instance, when both sexes are consid-

ered jointly, the average number of days fruit consumed in a week is 3.1 for the 18-29 age group, while it is 2.9 for the 60-69 age group.

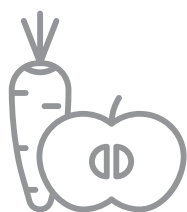
An examination of vegetable consumption for Syrian refugees shows that vegetables are consumed more than 4 days a week, an average of 4.2 days a week. Average values vary marginally between men and women. While the mean number of days vegetables consumed in a typical week is 4.4 days a week for men, it is 4.0 for women.

**TABLE 27:** Mean Number of Days Syrian Refugees Consume Fruit and Vegetables In Week by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	Mean number of days	95% CI	n	Mean number of days	95% CI	n	Mean number of days	95% CI
(a) Mean number of days fruit consumed in a typical week									
18-29	775	3.3	3.2-3.5	1,202	2.9	2.8-3.0	1,977	3.1	3.0-3.2
30-44	734	2.8	2.7-3.0	1,102	2.6	2.5-2.7	1,836	2.7	2.6-2.8
45-59	486	3.1	2.9-3.3	561	2.6	2.5-2.8	1,047	2.9	2.8-3.0
60-69	174	3.0	2.6-3.3	123	2.8	2.4-3.2	297	2.9	2.7-3.2
18-69	2,169	3.1	3.0-3.2	2,988	2.8	2.8-2.9	5,157	2.9	2.9-3.0
(b) Mean number of days vegetables consumed in a typical week									
18-29	835	4.6	4.5-4.8	1,267	4.2	4.1-4.3	2,102	4.4	4.3-4.5
30-44	797	4.1	4.0-4.3	1,179	3.9	3.8-4.1	1,976	4.0	4.0-4.2
45-59	523	4.3	4.1-4.5	611	3.9	3.7-4.0	1,134	4.1	4.0-4.3
60-69	191	3.9	3.6-4.3	136	4.1	3.7-4.5	327	4.0	3.7-4.3
18-69	2,346	4.4	4.3-4.5	3,193	4.0	4.0-4.1	5,539	4.2	4.1-4.3

**Table 28** shows the number of servings of fruit and/or vegetables on average per day by sex and age group. When both sexes are considered, a high 40.0% of Syrian refugees do not eat any fruit/vegetables during the day. A 47.5% of the respondents stated they consumed 1 or 2 servings of fruit/vegetables in a day while 9% stated that they consumed 3 or 4 servings in a day. A 3.6% of the women and men refugee respondents stated that they consume at least 5 servings of fruit/vegetables per day. In terms of the number of fruit and/or vegetable servings per day, there are some significant differences between age

groups. While 34.9% of the respondents aged 18-29 have no fruit/vegetable servings per day, this proportion increases with age, and reaches 43.4% in individuals aged 60-69. A 50.9% of individuals aged 18-29, 44.7% of those aged 30-44, 45.5% of those aged 45-59, and 45.6% of those aged 60-69 have 1 or 2 servings of fruit/vegetables per day. The results reported in **Table 28** indicate no statistically significant differences between the sexes vis-à-vis the number of servings of fruit and/or vegetables on average per day by sex.



**47.5%** OF THE RESPONDENTS STATED THEY CONSUMED 1 OR 2 SERVINGS OF FRUIT/VEGETABLES IN A DAY

**TABLE 28:** Number of Servings of Fruit and/Or Vegetables On Average Per Day by Sex and Age

Age Group (years)	n	% no fruit and/or vegetables	95% CI	% 1-2 servings	95% CI	% 3-4 servings	95% CI	% ≥5 servings	95% CI
<b>Men</b>									
18-29	843	30.1	27.0-33.2	52.4	48.8-55.8	12.0	9.7-14.2	5.6	4.0-7.2
30-44	796	42.1	38.7-45.5	45.3	41.9-48.9	9.5	7.4-11.7	3.0	1.9-4.2
45-59	524	37.2	33.1-41.3	48.7	44.4-53.1	9.1	6.4-11.7	5.0	3.2-6.9
60-69	193	43.9	36.9-50.9	45.3	38.2-52.3	8.8	4.6-13.0	2.0	-0.1-1.0
18-69	2,356	36.4	34.5-38.2	48.8	46.8-50.9	10.4	9.1-11.7	4.4	3.5-5.2
<b>Women</b>									
18-29	1,274	40.0	37.3-42.7	49.4	46.6-52.2	6.9	5.6-8.3	3.7	2.7-4.8
30-44	1,184	46.7	44.0-49.5	43.9	41.1-46.8	7.4	5.9-9.0	1.9	1.1-2.6
45-59	612	48.2	44.3-52.2	41.3	37.4-45.3	7.4	5.2-9.6	3.0	1.7-4.4
60-69	135	42.8	34.3-51.3	46.0	37.4-54.6	10.7	5.5-16.0	0.5	-0.5-1.5
18-69	3,205	43.8	42.2-45.4	46.0	44.3-47.7	7.4	6.5-8.2	2.8	2.2-3.4
<b>Both Sexes</b>									
18-29	2,117	34.9	32.8-37.0	50.9	48.7-53.1	9.5	8.2-10.9	4.7	3.7-5.7
30-44	1,980	44.3	42.1-46.5	44.7	42.4-47.0	8.5	7.2-9.9	2.5	1.8-3.2
45-59	1,136	42.0	39.0-44.9	45.5	42.5-48.5	8.3	6.6-10.1	4.2	2.9-5.4
60-69	328	43.4	38.0-48.8	45.6	40.1-51.1	9.7	6.4-13.0	1.3	0.1-2.6
18-69	5,561	40.0	38.6-41.2	47.5	46.2-48.9	9.0	8.2-9.8	3.6	3.1-4.2

Table 29 shows salt consumption habits of the study population. The table is based on responses to questions about the addition of salt to the meal before eating or during the preparation of the meal.

**TABLE 29:** Salt Consumption Habits of Syrian Refugees by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>(a) Add salt always or often before eating or when eating</b>									
18-29	856	38.9	35.6-42.2	1,298	40.8	38.1-43.5	2,154	40.0	37.7-42.0
30-44	814	40.8	37.2-44.0	1,222	35.0	32.3-37.7	2,036	37.9	35.7-40.1
45-59	541	31.4	27.5-35.4	633	32.8	29.1-36.4	1,174	32.0	29.3-34.8
60-69	198	22.9	17.0-28.8	142	25.7	18.5-32.8	340	24.2	19.6-28.8
18-69	2,409	37.5	35.6-39.4	3,295	36.8	35.2-38.4	5,704	37.2	35.9-38.4
<b>(b) Add salt always or often when cooking or preparing food at home</b>									
18-29	838	51.9	48.5-55.3	1,296	59.2	56.6-61.9	2,134	55.5	53.4-57.7
30-44	805	50.7	47.2-54.1	1,223	55.5	52.8-58.3	2,028	53.0	50.8-55.2
45-59	526	46.1	41.8-50.4	636	50.5	46.6-54.4	1,162	48.1	45.1-51.0
60-69	191	38.0	31.0-44.8	141	41.3	33.1-49.4	332	39.5	34.2-44.8
18-69	2,360	49.8	47.9-51.8	3,296	55.8	54.2-57.4	5,656	52.7	51.4-54.0

When both sexes are considered, Table 29 shows that 37.2% of Syrian refugees add salt always/often to their meal before eating. That is, more than one third of the respondents add salt always or often to their meals. Although there is not a statistically significant difference (at 5% significance level) between the sexes with respect to adding salt during eating, there are significant differences between age groups. While 40.0% of individuals aged 18-29 stated they always/often add salt to their meal before eating, this proportion drops to 37.9% in those aged 30-44, to 32.0% in those aged 45-59, and to 24.2% in

those aged 60-69. A significant decline is visible in salt consumption with age, which is very likely due to health advice.

The second panel of Table 29 shows the addition of salt to meals while cooking or preparing food at home. A high 52.7%, i.e., slightly more than half, of Syrian refugees stated that they always/often add salt to their meals when cooking or preparing at home. A 55.5% of those aged 18-29, 53.0% of those aged 30-44, 48.1% of those aged 45-59, and 39.5% of those aged 60-69 always/often add

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salt to their meals when cooking or preparing at home. As in adding salt to the meal when eating, the proportion of those adding salt when cooking or preparing at home also have a declining trend with age, most likely due to the same reason, i.e., health advice.

Comparing across the sexes, **Table 29** shows that men the percentage of men adding salt always or often when cooking or preparing food at is 49.8% (95% CI: 47.9%-51.8%), while that of women is 55.8% (95% CI: 54.2%-57.4%), a statistically significant difference at 5% significance level. The 7 percentage point difference in between is striking.

We next evaluate the behaviour of the Syrian refugees about the health effects of overconsumption of salt and about reducing their salt consumption. **Table 30** presents the responses to the questions relating to the behaviour about overconsumption of salt and reducing salt consumption.

21.9% of all men and women, think that salt overconsumption can be the cause of serious health problems. Moreover, consciousness on this matter increases signif-

icantly with age. While 23.1% of individuals aged 18-29 think salt overconsumption could cause serious health problems, this proportion rises to 21.9% in individuals aged 30-44, to 20% in those aged 45-59, and to 16.6% in those aged 60-69. Therefore, there is a significant numerical, and also statistical (at 5% significance level), difference of 6.5 percentage points between individuals aged 18-29 and those aged 60-69.

The results in **Table 30** indicate that women are more conscious about the negative impacts of overconsumption of salt than men. While 22.5% (95% CI: 75.7.9%-79.2%) of men think salt overconsumption may cause significant health problems, 21.1% (95% CI: 77.7%-80.2%) of women think so, a statistically significant difference across sexes at 5% significance level. A 23.1% of men aged 18-29, 23.1% of men aged 30-44, 21.9% of men aged 45-59, and 19.1% of men aged 60-69 think salt overconsumption would cause serious health problems.

**TABLE 30:** Awareness On Salt Consumption by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
(a) Think consuming too much salt could cause serious health problem									
18-29	849	23.1	20.2-25.9	1,288	23.1	20.8-25.4	2,137	23.1	21.2-25.0
30-44	811	23.1	20.1-26.1	1,220	20.6	18.3-22.8	2,031	21.9	20.0-23.8
45-59	538	21.0	17.5-24.5	632	18.6	15.5-21.7	1,170	20.0	17.6-22.4
60-69	197	19.1	13.6-24.7	142	13.7	7.9-19.4	339	16.6	12.6-20.6
18-69	2,395	22.5	20.9-24.2	3,282	21.1	19.7-22.5	5,677	21.9	20.8-23.0
(b) Importance of lowering salt in diet									
Age Group (years)	Both Sexes								
	n	% Very important	95% CI	% Somewhat important	95% CI	% Not at all important	95% CI		
18-29	820	49.9	46.4-53.3	29.1	25.9-32.3	21.0	18.2-23.8		
30-44	779	52.4	48.9-55.9	30.3	27.0-33.5	17.3	14.7-19.9		
45-59	521	56.7	52.5-61.0	30.2	26.2-34.1	13.0	5.7-13.8		
60-69	193	64.5	57.7-71.9	25.7	19.6-32.0	9.8	5.7-13.8		
18-69	2,313	52.7	50.7-54.7	29.6	27.7-31.2	17.7	16.2-19.3		





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We see from **Table 30** that 23.1% of women aged 18-29, 20.6% of women aged 30-44, 18.6% of women aged 45-59, and 13.7% of women aged 60-69 think overconsumption of salt would cause health problems.

The comparison across age and sex shows that the most conscious group on the health consequences of overconsumption of salt is women aged 60-69, while the least conscious is men aged 18-29.

The level of importance attached to the reduction of salt intake in dietary habits for both sexes combined is provided in the second panel of **Table 30**. While 52.7% of Syrian refugees think reduction of salt intake in their diets is “very important”, 29.6% think it is “somewhat important”. The combination of these two responses tells us that, overall, 82.3% of the Syrian refugees find the reduction of salt intake important. A 17.7% of Syrian refugees think that salt intake reduction is “not at all important”.

**Table 31** presents the findings on what measures do the Syrian refugees take in order to control their salt intake. The results on various measure are given in **Table 31**, which are broken down by sex and age group.

The measure most frequently used by Syrian refugees to control their salt intake is to restrict their consumption of processed foods. A 62.2% of Syrian refugees stated they restrict their consumption of processed foods to control their salt intake. There is an increasing trend for reducing consumption of processed foods with age. While 60.1% of individuals aged 18-29 avoid consuming processed foods, a higher proportion of 69.9% in those aged 60-69 do so. Furthermore, while 64.3% of women reduce consumption of processed foods in order to control salt intake, 60.3% of men state that they restrict their consumption of processed foods in order to control salt intake.

As a measure of reducing salt intake avoiding of processed foods is followed by avoiding eating foods prepared outside of a home. A 49.7% of the Syrian refugees state that they avoid foods prepared outside of their home in order to control their salt intake. While 47.0% of men avoid foods prepared outside of their home in order to control their salt intake, a higher 52.7% of women do so.

Third panel of **Table 31** presents results for using spices other than salt when cooking in order to reduce salt intake, third most commonly used measure by the respondents. Overall, 41.7% of Syrian refugees state that

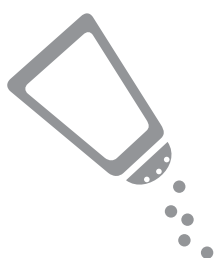
they use spices other than salt when cooking to control their salt intake. The use of this measure, as the avoidance of processed foods, increases with age. While 40.8% of individuals aged 18-29 stated they use spices other than salt when cooking to control their salt intake, this proportion increases to 42.9% in those aged 60-69.

Fourth panel of **Table 31** shows that 12.3% of the Syrian refugees prefer food alternatives low in salt/sodium in order to reduce their salt intake. The group that uses this measure most frequently is women aged 60-69 while the group that uses this measure most rarely is men aged 60-69. With regards to this measure, it appears that while the frequency of preferring food alternatives low in salt/sodium level increases in women with age, younger individuals are the ones using this measure more often.

The last measure used by the respondents to reduce salt intake is to check the salt/sodium content indicated on the label on food items. The figures reported in **Table 31** shows that 10.5%, i.e., about one tenth, of Syrian refugees, stated they check the salt/sodium content on the label on food items when shopping. Comparing across the age groups, we see that this measure is more frequently used by younger individuals. While 11.1% of individuals aged 18-29 use this measure, 10.6% of those aged 30-44, 9.5% of those aged 45-59, and 6.9% of those aged 60-69 do so.

**TABLE 31:** Regularly Used Means For Reducing Salt Consumption by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
<b>(a) Limit consumption of processed foods</b>									
18-29	858	56.4	53.1-59.8	1,292	64.0	61.4-66.6	2,150	60.1	58.0-62.3
30-44	815	62.5	59.2-65.8	1,215	63.8	61.1-66.5	2,030	63.1	61.0-65.3
45-59	539	61.4	57.3-65.6	629	65.4	61.7-69.1	1,168	63.2	60.3-66.0
60-69	198	71.9	65.7-78.1	142	67.6	60.0-75.3	340	69.9	65.1-74.8
18-69	2,410	60.3	58.3-62.2	3,278	64.3	62.7-65.9	5,688	62.2	60.9-63.5
<b>(b) Avoid eating foods prepared outside of a home</b>									
18-29	849	42.1	38.7-45.4	1,090	51.4	48.8-54.1	2,134	46.7	44.5-48.8
30-44	806	49.3	45.8-52.7	1,141	52.7	49.9-55.4	2,017	50.9	48.7-53.1
45-59	541	49.9	45.7-54.1	630	56.4	52.6-60.3	1,170	52.7	49.8-55.6
60-69	200	62.1	55.4-68.8	141	53.6	45.3-62.0	341	58.2	52.9-63.5
18-69	2,396	47.0	45.1-49.0	3,002	52.7	51.2-54.2	5,662	49.7	48.5-51.0
<b>(c) Use spices other than salt when cooking</b>									
18-29	857	41.5	38.4-44.6	1,289	40.1	37.6-42.6	2,146	40.8	38.8-42.8
30-44	814	45.6	42.3-48.8	1,215	40.8	38.2-43.3	2,029	43.3	41.2-45.4
45-59	540	42.3	38.2-46.3	629	37.3	33.5-41.0	1,169	40.1	37.3-43.0
60-69	199	45.6	38.7-52.5	142	39.7	31.5-48.0	341	42.9	37.6-48.2
18-69	2,410	43.3	41.8-44.8	3,275	39.9	38.7-41.2	5,685	41.7	40.7-42.7
<b>(d) Buy low salt/sodium alternatives</b>									
18-29	860	12.7	10.4-15.1	1,293	11.1	9.3-12.9	2,153	12.7	10.4-15.1
30-44	812	12.8	10.4-15.2	1,219	12.9	10.9-14.8	2,031	12.8	10.4-15.2
45-59	543	11.2	8.5-13.9	629	12.2	9.5-14.9	1,172	11.2	8.5-13.9
60-69	199	8.3	4.6-12.1	143	13.2	7.6-18.8	342	8.3	4.6-12.1
18-69	2,414	12.3	10.9-13.7	3,284	12.0	10.9-13.1	5,698	12.3	10.9-13.7
<b>(e) Look at the salt or sodium content on food labels</b>									
18-29	856	11.8	9.6-14.0	1,288	10.3	8.7-12.0	2,144	11.1	9.7-12.5
30-44	813	11.4	9.2-13.6	1,222	9.7	8.0-11.3	2,035	10.6	9.2-12.0
45-59	543	10.8	8.2-13.5	632	7.6	5.6-9.7	1,175	9.5	7.7-11.2
60-69	200	6.7	3.3-10.2	141	7.2	3.0-11.3	341	6.9	4.3-9.6
18-69	2,412	11.3	10.0-12.6	3,283	9.6	8.6-10.5	5,695	10.5	9.6-11.3



**62.2%** OF SYRIAN REFUGEES  
STATED THEY RESTRICT THEIR  
CONSUMPTION OF PROCESSED FOODS TO  
CONTROL THEIR SALT INTAKE

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A list and usage frequency of types of cooking oils Syrian households prefer most frequently is provided in **Table 32**. According to the results in **Table 32**, about 92.3% of Syrian refugees use vegetable oil in meals they cook at home. In other words, more than nine tenths of Syrian households use liquid vegetable oil when cooking.

Vegetable oil is followed by butter. A 2.8% of Syrian refugees stated they use butter when cooking at home. Butter is followed by margarine with 2.6%. Another type of oil that is used when cooking is lard. Four households per

thousand stated they use lard when cooking. The combination of the categories of margarine, butter, and lard means that 5.8% of Syrian refugees use solid fat when cooking at home.

A marginal proportion (one per thousand) of Syrian refugees stated they do not use oil when preparing food and 2.5% stated they use oil other than those listed.

**TABLE 32:** Types of Cooking Oil Or Most Frequently Used In The Household

Type of oil or fat most often used for meal preparation in household								
n (households)	% Vegetable oil	95% CI	% Lard	95% CI	% Butter	95% CI	% Margarine	95% CI
5,672	92.3	91.2-93.5	0.4	0.1-0.7	2.8	2.2-3.5	2.6	1.9-3.3
Type of oil or fat most often used for meal preparation in household								
n (households)	% none in particular	95% CI	% None used	95% CI	% Other	95% CI		
5,672	1.3	0.9-1.9	0.1	0.0-0.3	2.5	0.05-0.5		

As a measure of frequency of eating outside home **Table 33** provides the average number of meals (breakfast, lunch, etc.) eaten outside home in a week.

Overall, Syrian refugees eat an average of 5.5 meals out in a week. Taking one day as consisting of three meals, it can be concluded that Syrian refugees eat out more about

two days per week. While individuals aged 18-29 eat an average of 5.3 meals outside, this proportion stands at 5.4 in those aged 30-44, 6.3 in those aged 45-59, and 6.1 in those aged 60-69. It is observable that older refugees are more likely to eat out.

**TABLE 33:** Mean Number of Meals Eaten Outside Home by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	mean	95% CI	n	mean	95% CI	n	mean	95% CI
18-29	551	4.9	4.6-5.3	506	6.1	5.6-6.6	1,057	5.3	5.0-5.6
30-44	353	4.8	4.3-5.3	373	6.4	5.8-7.0	726	5.4	5.0-5.8
45-59	147	5.1	4.1-6.0	147	8.2	7.1-9.3	294	6.3	5.5-7.0
60-69	45	5.1	3.4-6.7	29	7.4	4.9-9.9	74	6.1	4.6-7.5
18-69	1,096	4.9	4.7-5.1	1055	6.5	6.2-6.7	2,151	5.5	5.3-5.6

There are differences between sexes vis-à-vis eating outside home. While women stated that they ate 6.5 meals out, this average is calculated to be 4.9 for men. Women on average eats 1.6 more meals outside home than men and the difference is statistically significant.

While men aged 18-29 eat 4.9 meals outside home, this proportion goes up to 5.1 in men aged 60-69. The change

in eating out behavior with age is similar for women. The average number of meals eaten outside by women aged 18-29 is 5.3, while it is 6.1 for those women aged 60-69.

## ►► PHYSICAL ACTIVITY

A population's physical activity (or inactivity) can be described in different ways. The two most common ways are

(1) to estimate a population's mean or median physical activity using a continuous indicator such as Metabolic Equivalent (MET)-minutes per week or time spent in physical activity, and

(2) to classify certain percentages of a population in specific groups by setting up cut-points for a specific amount of physical activity.

When analysing STEPS data, both continuous as well as categorical indicators are used.

METs are commonly used to express the intensity of physical activities, and are also used for the analysis of GPAQ data.

Applying MET values to activity levels allows us to calculate total physical activity. MET is the ratio of a person's working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1 kcal/kg/hour. For the analysis of STEPS data, existing guidelines have been adopted: It is estimated that, compared to sitting quietly, a person's caloric consumption is four times as high when being moderately active, and eight times as high when being vigorously active.

Therefore, for the calculation of a person's total physical activity using STEPS data, the following MET values are used:

### 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

- Throughout a week, including activity for work, during transport and leisure time, adults should do at least
- 150 minutes of moderate-intensity physical activity, or
- 75 minutes of vigorous-intensity physical activity, or
- An equivalent combination of moderate- and vigorous-intensity physical activity achieving at least 600 MET-minutes.

Using the STEP approach, physical activity of the Syrian refugees is assessed in terms of intensity and duration of the activity and compared between different sexes, age groups. In terms of intensity, physical activity is classified in high levels, moderate and low. We first evaluate the physical activity of the Syrian refugees by the percentage of respondents not meeting WHO recommendations on physical activity for health broken down by sex and age group.

**Table 34** and **Figure 14** and show the percentage of participants who do not meet the WHO recommendations on physical activity for health, broken down by age group and sex. The overall percentage of participants who, when both sexes are considered jointly, do not meet the WHO recommendations is 63.5%. Women refugees have a higher, statistically different at 5% level, percentage of respondents who do not fulfil the recommendations compared to men, 69.5% (95% CI: 66.4%-72.6%) against 56.6% (95% CI: 52.1%-61.2%). There is a rising trend in the percentage of refugees not meeting the WHO recommendations as age increases, 61.7% for the refugees aged 18-29 vs 87.0% for the refugees aged 60-69 when both sexes are considered jointly.

**Table 35** presents the findings for the level of total physical activity by sex and age according to former WHO recommendations. In terms high levels of physical activity, the results of the survey given in **Table 35** for the Syrian refugees, the prevalence of people engaged in high levels of physical activity is 19.3%. The results show that, indeed, significantly more men (24.9%) engage in high levels of physical activities than women (14.5%), which is a statistically significant difference at the 5% level as the 95% CI do not overlap (20.7%-29.1% for men vs 12.1%-16.9% for women).

In terms of age differences, men aged 30-44 most actively engage in physical activities of high level (31.7%), which decreases with age, reaching the lowest rate in 60-69 age group (7.1%). In women, however, the peak is at between 18 and 29 year of age (16.5%) and the lowest rate is for 60-69, where no high level of physical activity is reported. According to the results in **Table 35**, in both sexes physical activity was at the lowest level in the age group 60-69 years and women accuse nearly 20 years behind men to reach the 10% to 11% level of commitment to high levels of physical activity.

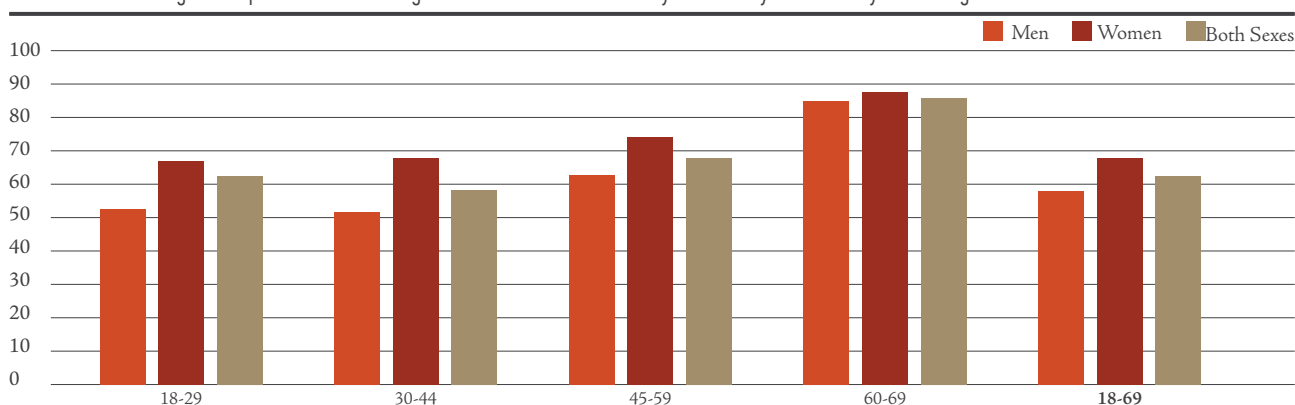
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**TABLE 34:** Percentage of Respondents Not Meeting Who Recommendations On Physical Activity For Health by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	% not meeting recs	95% CI	n	% not meeting recs	95% CI	n	% not meeting recs	95% CI
18-29	129	53.5	44.8-62.3	334	66.5	61.5-71.5	463	61.7	57.2-66.3
30-44	163	51.1	43.4-58.7	227	67.7	61.5-74.0	390	58.6	53.5-63.7
45-59	112	64.2	55.2-73.2	161	74.4	67.4-81.4	273	69.1	63.3-74.9
60-69	49	85.3	74.7-95.8	46	88.5	78.8-98.3	95	87.0	79.9-94.1
18-69	453	56.6	52.1-61.2	768	69.5	66.4-72.6	1,221	63.5	60.8-66.3

**FIGURE 14:** Percentage of Respondents Not Meeting Who Recommendations On Physical Activity For Health by Sex and Age



For the moderate physical activity levels, the results of the survey given in **Table 35** for the Syrian refugees, the prevalence of people engaged in moderate levels of physical activity is 13.4% (95% CI: 11.3%-15.4%) with more but statistically indifferent men (14.6%; 95% CI: 11.2%-18%) engaged in moderate physical activity levels than women (12.3%; 95% CI: 9.9%-14.7%).

In terms of age differences among men, the age group 45-59 years has the peak moderate levels of physical activity (23.8%), while for that of women the peak is at the 30-44 age group (13.9%). The age groups 18-29 and 30-44 have similar levels of moderate physical activity across sexes (12.3% to 13.9%). The lowest levels of moderate levels of physical activity is at 60-69 years age group for both sexes, 7.6% for men and 10.0% for women. The findings of the survey show that in both sexes moderate physical activity levels were prevalent in 45-59 age group for men and 30-44 age group for women.

The results for the low levels of physical activity are also given in the third column of **Table 35**. Among the Syrian refugees included in the survey, a striking 67.3% (95% CI: 64.6%-70.0%) belong to a group at risk physically inactive. Among men the prevalence of low levels of physical activity is 60.4% (95% CI: 55.9%-64.9%) and a significantly higher 73.2% (95% CI: 70.2%-76.2%) for women. Breakdown

by age shows that, there is an increasing trend in low levels of physical activity with age in both sexes, except the 18-29 age group which is less active than the 30-44 age group. Low levels of physical activity is 58.6% for men aged 18-29 years, 55.4% for men aged 30-44 years, 66.0% for men aged 45-59 years, and a striking 85.2% for men aged 60-69 years. Analogously, for women, which has higher percentages of low physical activity on average compared to men, low levels of physical activity is 71.1% for women aged 18-29 years, 70.1% for women aged 30-44 years, 78.4% for women aged 45-59 years, and an extremely high 90.0% for women aged 60-69 years.

**TABLE 35:** Level of Total Physical Activity by Sex and Age (According To Former Recommendations)

Age Group (years)	n	% Low	95% CI	% Moderate	95% CI	% High	95% CI
<b>Men</b>							
18-29	129	58.6	49.8-67.3	12.6	6.6-18.6	28.8	20.8-36.9
30-44	163	55.4	47.8-63.0	12.9	7.5-18.4	31.7	24.4-38.9
45-59	112	66.0	57.1-74.9	23.8	15.8-31.7	10.1	4.3-16.0
60-69	49	85.2	74.7-95.8	7.6	(0.9)-16.1	7.1	0.2-14.1
18-69	453	60.4	55.9-64.9	14.6	11.2-18.0	24.9	20.7-29.1
<b>Women</b>							
18-29	334	71.1	66.4-76.0	12.3	8.6-16.0	16.5	12.6-20.4
30-44	227	70.1	64.0-76.3	13.9	9.2-18.6	15.9	10.8-21.1
45-59	161	78.4	71.8-85.0	10.3	5.6-15.0	11.3	6.0-16.6
60-69	46	90.0	80.6-99.4	10.0	0.6-19.4	—	—
18-69	768	73.2	70.2-76.2	12.3	9.9-14.7	14.5	12.1-16.9
<b>Both Sexes</b>							
18-29	463	66.5	62.0-71.0	12.4	9.2-15.6	21.1	17.1-25.0
30-44	390	62.0	56.9-67.1	13.4	9.7-17.0	24.6	19.9-29.3
45-59	273	72.0	66.3-77.7	17.3	12.5-22.2	10.7	6.7-14.6
60-69	95	87.8	80.8-94.8	8.9	2.5-15.2	3.3	0.03-6.5
18-69	1,221	67.3	64.6-70.0	13.4	11.3-15.4	19.3	16.9-21.7

## ▶▶ HISTORY of CARDIOVASCULAR DISEASE

Out of 5,760 respondents 5,727 responded to the history of heart attack or chest pain from heart disease or stroke of whom 2,422 are men and 3,305 are women. Table 36 reports the percentage of respondents who have ever had a heart attack or chest pain from heart disease (angina) or a stroke among all respondents by gender and age group. The table also reports the 95% CI for each case. The figures in Table 36 show that 6.4% (95% CI: 5.7%-7.0%) of all respondents have history of cardiovascular disease (CVD).

In terms of the age groups, the highest CVD history is observed for the 60-69 age group with 24.7% of the 342 Syrian refugees in this group reporting positive to CVD history. The 60-69 age group is followed by the 45-59 age group with a 14.7% CVD history. Lastly, for 30-44 and 18-29 age groups a 5.0% and 2.4%, respectively, have CVD history.

**TABLE 36:** History of Cardiovascular Disease by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	% CVD history	95% CI	n	% CVD history	95% CI	n	% CVD history	95% CI
18-29	863	3.1	1.9-4.3	1,298	1.7	1-2.4	2,161	2.4	1.7-3.1
30-44	815	4.3	2.8-5.7	1,227	5.9	4.5-7.2	2,042	5.0	4.0-6.0
45-59	544	15.6	12.4-18.7	638	13.6	10.9-16.3	1,182	14.7	12.6-16.9
60-69	200	29.2	22.7-35.6	142	19.4	12.7-26.1	342	24.7	20.0-29.4
18-69	2,422	6.9	5.9-7.9	3,305	5.8	5.0-6.6	5,727	6.4	5.7-7.0

When compare the CVD history across sexes, we notice a significantly higher CVD history for men aged 60-69 years. The CVD history for the men in this age group is 29.2% (95% CI: 22.7%-35.6%) while for that of the women in this age group the percentage with CVD history is 19.4% (95% CI: 12.7%-26.1%), with men having

9.8 percentage points higher CVD history. For the other age groups, the CVD history does not significantly differ across sexes. Most notably the CVD history has a strong increasing trend with age for both sexes.

## CHAPTER 3:

# AN OVERVIEW of SURVEILLANCE of CHRONIC DISEASE RISK FACTORS

### ►► LIFESTYLE ADVICE

Out of 5,470 respondents 5,690 to 5,697 refugees responded to various questions (tobacco use, reducing salt, etc.) on lifestyle of whom 3,285 to 3,290 are women and 2,403 to 2,408 are men.

**Table 37** reports the percentage of respondents who received lifestyle advice from a doctor or health worker during the past three years among all respondents by sex and age group. However, **Table 37** only reports some selected sub types of the lifestyle advice where percentages are quite noticeable. These include quitting tobacco use, reducing salt, and reducing fat in diet. The table also reports the 95% CI for each case. The figures in **Table 37** show that 12.9% (95% CI: 11.9%-13.8%) of all respondents are advised to quit using tobacco or not start using it, 16.4% (95% CI: 15.4%-17.3%) are advised to reduce salt

in diet, while 14.1% (95% CI: 13.1%-15.0%) are advised to reduce fat in diet.

For the advice on tobacco use, the percentage of men who are advised to quit or not start using tobacco is significantly higher than women. 25.6%, 26.6%, 17.0%, and 12.0% of men respondents are advised to quit or not start using tobacco for the age groups 60-69, 45-59, 30-44, and 18-29 years, respectively. These percentages are 18.9%, 13.4%, 9.5%, and 4.3%, respectively, for the women of the same age groups. This result is likely to be due to tobacco use being more common for men relative to women. For both men and women, the high age groups, particularly those above 45 years, are advised against tobacco much strongly (about twice the younger age groups) against using tobacco.

**TABLE 37:** Lifestyle Advices from a Doctor or Health Worker During the Past Three Years by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	% advised	95% CI	n	% advised	95% CI	n	% advised	95% CI
<b>a) Advised by doctor or health worker to quit using tobacco or don't start</b>									
18-29	856	12.0	9.8-14.3	1,293	4.3	3.2-5.5	2,149	8.3	7.0-9.6
30-44	807	17.0	14.3-19.7	1,220	9.5	7.9-11.2	2,027	13.4	11.8-15.0
45-59	540	26.6	22.8-30.4	635	13.4	10.7-16.1	1,175	20.9	18.4-23.4
60-69	200	25.6	19.6-31.7	142	18.9	12.3-25.6	342	22.5	18.1-27.0
18-69	2,403	17.0	15.5-18.6	3,290	8.3	7.3-9.2	5,693	12.9	11.9-13.8
<b>(b) Advised by doctor or health worker to reduce salt in the diet</b>									
18-29	857	7.9	6.0-9.7	1,292	9.9	8.2-11.5	2,149	8.9	7.6-10.1
30-44	809	14.2	11.7-16.6	1,220	15.5	13.5-17.6	2,029	14.8	13.2-16.4
45-59	542	29.2	25.3-33.1	632	33.4	29.7-37.2	1,174	31.0	28.3-33.8
60-69	199	43.5	36.5-50.5	142	51.1	42.7-59.5	341	47.0	41.6-52.4
18-69	2,407	15.5	14.1-17.0	3,286	17.3	16.0-18.6	5,693	16.4	15.4-17.3
<b>(c) Advised by doctor or health worker to reduce fat in the diet</b>									
18-29	856	7.7	5.8-9.5	1,292	6.4	5.0-7.8	2,148	7.0	5.9-8.2
30-44	811	13.6	11.1-16.0	1,220	12.0	10.1-13.9	2,031	12.8	11.3-14.4
45-59	542	28.6	24.8-32.5	635	27.1	23.5-30.6	1,177	28.0	25.3-30.6
60-69	199	37.6	30.7-44.4	142	44.5	36.2-52.9	341	40.8	35.4-46.2
18-69	2,408	14.9	13.4-16.3	3,289	13.2	12.0-14.4	5,697	14.1	13.1-15.0

The results in the second panel of **Table 37** show that 16.4% of all respondents are recommended to reduce salt in diet. The average percentage for salt reduction advice does not significantly differ across women (17.3%) and men (15.5%). A rather noteworthy result is that 47.0% (95% CI: 41.6%-52.4%) of all respondents in the 60-69 years age group are advised for reducing salt in diet. This ratio is higher for women (51.1%) relative to men (43.5%) for the same age group. The advice against salt for the age group 45-59 is 29.2% for men, 33.4% for women, and 31.0% for

both sexes. The advices against salt follow a similar pattern to tobacco use in terms of its trend with age.

Lastly, we report the advice on lifestyle in terms of reducing fat in diet. The advice on reducing fat is reported in the third panel of **Table 37**. 5697 refugees out of 5760 responded to the question on reducing fat. The figures in the table show that 14.1% all respondents advised for reducing fat. In terms of sex, we notice a slight difference in terms of reducing fat. 14.9% of all men respondents are



advised to reduce fat while the figure is slightly lower for women (13.2%). Across the age groups the highest percentage, which is 44.5% with 95% CI of 36.2% and 52.9%, of the refugees who are advised to reduce fat is observed for women aged 60-69 years. For men respondents of the same age group, 37.6% are advised to reduce salt. For both sexes, 28% (95% CI: 25.3%-30.6%) of those aged 45-59 years are advised to reduce salt. We also do not observe much difference in terms of sex for the age groups 18-

29 and 30-44. A 7.0% of the refugee respondents aged 18-29 year are advised to reduce fat, while 12.8% of all refugee respondents aged 30-34 are advised to reduce fat in diet. The pattern of change with age on the advice for fat reduction parallels those of the tobacco use and salt reduction, with much of the concentration in the 60-69 years age group and noticeable figures in the 45-59 years age group.

## ▶▶ CERVICAL CANCER SCREENING

Out of 3,325 women respondents included in the survey 3216 responded to the questions on cervical cancer screening, of whom 1266 are in the 18-29 age group, 1194 are in the 30-44 age group, 623 are in the 45-59 age group and 133 are in the 60-69 age group. **Table 38** reports percentage of female respondents who have ever had a screening test for cervical cancer among all female respondents by age group. The percentages in **Table 38** show that among all adult women aged 18-69 years 7.2

percent (95% CI: 6.3%-8.1%) had screening for cervical cancer. When we consider the age groups, percentage of woman having cervical cancer screening does not exceed 12% for all age groups and this maximum is observed for the 45-59 age group for which 11.9% (95% CI: 9.2%-14.6%) of the women had cervical cancer screening. The 45-59 age group is followed by 60-69, 30-44, and 18-29 age groups, respectively, with 11.7%, 8.0%, and 4.5%.

**TABLE 38:** Percentage of Women Having Screening For Cervical Cancer (18-69 Age)

Age Group (years)	Women		
	n	% ever tested	95% CI
18-29	1,266	4.5	3.3-5.6
30-44	1,194	8.0	6.4-9.6
45-59	623	11.9	9.2-14.6
60-69	133	11.7	6.1-17.4
18-69	3,216	7.2	6.3-8.1

**TABLE 39:** Percentage of Women Having Screening For Cervical Cancer (30-49 Age)

Age Group (years)	Women		
	n	% ever tested	95% CI
30-49	1448	8.8	7.3-10.3

In **Table 39** we report the cervical cancer screening response for the combined age group 30-49. From **Table 39** we see that the percentage of female respondents aged 30-49 who have ever had a screening test for cervical cancer is 8.8% with 95% CI of 7.3% to 10.3%.



ADULT WOMEN AGED 18-69 YEARS  
**7.2 PERCENT**  
HAD SCREENING FOR  
CERVICAL CANCER

## CHAPTER 3:

# AN OVERVIEW of SURVEILLANCE of CHRONIC DISEASE RISK FACTORS

### ►► HISTORY of DIABETES

Although STEPS survey for Syrian refugees does not include STEP 3 for biochemical measurements, the survey questionnaire includes questions on diabetes and blood sugar measurements. **Table 40** provides blood sugar measurements and high blood sugar diagnoses history of Syrian refugees by age and sex.

Overall 79.8%, i.e., close to four fifths, of Syrian refugees have never had their blood sugar measured. This proportion is strikingly higher in youth. While 88.6% of individuals aged 18- 29 have never had their blood sugar checked, this proportion drops to 79.1% in those aged 30-44, to 61.7% in those aged 45-59, and to 52.4% in those aged 60-69.

**TABLE 40:** Blood Sugar Measurement and Diagnosis History by Sex and Age

Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
<b>Men</b>									
18-29	859	89.7	87.5-91.8	9.7	7.6-11.8	0.2	-0.2-0.5	0.5	0.0-0.9
30-44	811	80.2	77.4-83.1	16.0	13.4-18.6	0.7	0.1-1.3	3.1	1.9-4.3
45-59	538	63.0	58.8-67.2	22.4	18.8-26.1	1.8	0.6-3.0	12.8	9.9-15.7
60-69	197	62.0	55.0-68.9	21.1	15.2-27.1	3.5	0.9-6.1	13.4	8.5-18.3
<b>18-69</b>	<b>2,405</b>	<b>80.3</b>	<b>78.7-81.9</b>	<b>14.7</b>	<b>16.2-1.0</b>	<b>0.8</b>	<b>1.2-1.0</b>	<b>4.1</b>	<b>4.9-1.0</b>
<b>Women</b>									
18-29	1,294	87.5	85.6-89.4	11.8	10.0-13.7	0.3	-0.0-0.6	0.4	0.0-0.7
30-44	1,219	77.3	74.9-79.7	20.2	17.8-22.5	0.5	0.1-0.9	2.0	1.2-2.9
45-59	628	60.0	56.0-63.9	23.1	19.6-26.5	3.6	2.1-5.1	13.4	10.6-16.1
60-69	142	41.3	33.1-49.4	26.6	19.0-34.1	7.0	2.5-11.4	25.2	17.8-32.6
<b>18-69</b>	<b>3,283</b>	<b>77.7</b>	<b>76.3-79.0</b>	<b>17.2</b>	<b>18.5-0.9</b>	<b>1.1</b>	<b>1.5-0.9</b>	<b>4.0</b>	<b>4.6-0.9</b>
<b>Both Sexes</b>									
18-29	2,153	88.6	87.2-90.0	10.7	9.4-12.1	0.2	-0.0-0.5	0.4	0.1-0.7
30-44	2,030	78.9	77.0-80.7	17.9	16.2-19.7	0.6	0.2-1.0	2.6	1.8-3.3
45-59	1,166	61.7	58.8-64.6	22.7	20.2-25.3	2.6	1.7-3.5	13.0	11.0-15.1
60-69	339	52.4	47.0-57.8	23.7	18.9-28.4	5.1	2.6-7.6	18.8	14.5-23.2
<b>18-69</b>	<b>5,688</b>	<b>79.1</b>	<b>78.0-80.1</b>	<b>15.9</b>	<b>16.9-1.0</b>	<b>1.0</b>	<b>1.2-1.0</b>	<b>4.1</b>	<b>4.6- 1.0</b>

The proportion of individuals who have had their blood sugar measured but have not been diagnosed with high blood sugar is 15.9%. This proportion stands at 1.70% in individuals aged 18-29, at 17.9% in those aged 30-44, at 22.7% in those aged 45-59, and at 23.7% in those aged 60-69.

Overall for both sexes, 4.1% of individuals have been diagnosed with high blood sugar in the past 12 months. This proportion varies significantly between younger and older individuals. While four per thousand of individuals aged 18-29 have been diagnosed with high blood sugar in the past 12 months, this proportion increases to 2.6% in those aged 30-44, to 13.0% in those aged 45-59, and to 18.8% in those aged 60-69.

A 1.0% of the individuals were diagnosed with high blood sugar more than 12 months ago. While only two per

thousand of individuals aged 18-29 were diagnosed with high blood sugar more than 12 months ago, this proportion stands at six per thousand in those aged 30-44, 2.6% in those aged 45-59, and at 5.1% in those aged 60-69.

If one is to combine the individuals diagnosed with high blood sugar in the past 12 months and more than 12 months ago, it is observed that about 5.1% of Syrian refugees have been diagnosed with high blood sugar before.

**Table 40** shows that 80.3% of men have never had their blood sugar measured. As in the overall tendency, this proportion declines with age. The proportion of men who have had their blood sugar measured but have not been diagnosed with high blood sugar is 14.7%. A 4.1% of men have been diagnosed with high blood sugar in the past 12 months, and 0.8% of them were so diagnosed more than 12 months ago. When these two categories are

combined, it is concluded that 4.9% of men suffer from high blood sugar.

According to the results reported in the second panel of **Table 40**, 77.7% of women have never had their blood sugar measured. As in men, this proportion declines with age in a systematic manner. The proportion of women who have had their blood sugar measured but have not been diagnosed with high blood sugar stands at 17.2%. A 4.0% of women have been diagnosed with high blood sugar in the past 12 months, and 1.1% of them were so diagnosed more than 12 months ago. When these two categories are combined, it is concluded that 5.1% of women suffer from high blood sugar.

**Table 41** presents the different treatments Syrian refugees follow for high blood sugar. 72.0%, i.e., close to three fourths, of the Syrian refugees who have been diagnosed with high blood sugar before take medication prescribed by a doctor or a health worker. Among those who have been prescribed diabetes, 28.0% are currently taking insulin. The percentage of those who have been prescribed diabetes and currently taking insulin do not show significant difference across sexes.

**TABLE 41:** Treatment of Diabetes by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
(a) Currently taking drugs (medication) prescribed for diabetes among those previously diagnosed									
18-69	145	68.6	60.5-76.7	185	75.7	69.4-82.1	330	72.0	66.8-77.2
(b) Currently taking insulin prescribed for diabetes among those previously diagnosed									
18-69	144	29.1	21.2-37.1	183	26.7	20.1-33.3	327	28.0	22.8-33.1

There are some minor differences between men and women who have been diagnosed with high blood sugar vis-à-vis use of prescribed medication. While 68.6% (95% CI: 60.5%-76.7%), i.e., less than seven tenths, of men use prescribed medication for high blood sugar, 75.7% (95% CI: 69.4%-82.1%) of women do so. The 7.1 percentage point difference is, however, not statistically significant as the confidence intervals overlap. However, women seem more likely to prefer to use prescribed medication than men.

The second panel of **Table 41** is concerned with use of insulin, another method of treatment for high blood sugar. The second panel of **Table 41** shows that 28% of Syrian refugees diagnosed with high blood sugar currently use insulin.

The insulin use rates for both men and women are very similar. While 29.1%(95% CI: 21.2%-37.1%) of men aged 18-69 diagnosed with high blood sugar stated they use insulin for high blood sugar, 26.7% (95% CI: 20.1%-33.3%) of women aged 18-69, stated they use insulin.

**Table 42** reports percentage of respondents who have sought traditional remedies for diabetes. Overall for both sexes, 5.1% of Syrian refugees diagnosed with high blood sugar stated that they went to traditional healers for treat-

ment. A significant portion of those receiving treatment from traditional healers are the elderly. While none of the individuals aged 18-29 stated they went to traditional healers for treatment, this might be misleading as there are only 14 individuals responding to this question in this age group. The proportion of refugees receiving treatment from traditional healers is 0.9% in individuals aged 30- 44, 7.2% in those aged 45-59, and 6.4% in those aged 60-69.

**Table 42** shows that 8.3% of men aged 45-59 and 5.3% of men aged 60-69 go to traditional healers for treatment. These proportions do not vary much for women. A 0.9% of young women aged 30-44 stated they went to traditional healers, whereas 7.2% of those aged 45-59, and 6.4% of those aged 60-69 stated they that they received treatment from traditional healers.

**Table 42** also provides the rates for taking herbal/traditional remedies for high blood sugar. Overall, 7.2% of Syrian refugees diagnosed with high blood sugar take herbal/traditional remedies. While no of individuals aged 18-29 take herbal/traditional remedies, which is due to only three respondents in this age category and may not be accurate, a 2.6% of those aged 30-44, 9.4% of those aged 45-59, and 9.3% of those aged 60-69 take herbal/traditional remedies for high blood sugar.

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# AN OVERVIEW of SURVEILLANCE of CHRONIC DISEASE RISK FACTORS

Especially older men use herbal/traditional remedies compared to other age groups and sex. This is evident from the finding that 10.0% of men aged 45-59 years take herbal/traditional remedies whereas 11.6% of those aged 60-69 do so.

For women, 2.6% of those aged 30-44, 9.4% of those aged 45-59, and 9.3% of those aged 60-69 use herbal/traditional remedies for high blood sugar.

**TABLE 42:** Use of Traditional Remedies For Diabetes

Age Group (years)	Men			Women			Both Sexes		
	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI
(a) Seen a traditional healer for diabetes among those previously diagnosed									
18-29	6	---	---	8	---	---	14	---	---
30-44	30	---	---	31	2.3	-2.2-6.8	61	0.9	-0.8-2.6
45-59	76	8.3	2.3-14.3	102	5.9	1.2-10.7	178	7.2	3.2-11.2
60-69	33	5.3	-2.2-12.9	43	7.1	0.1-14.0	76	6.4	1.3-11.5
18-69	145	5.0	1.8-8.3	184	5.2	2.1-8.3	329	5.1	2.8-7.4
Age Group (years)	Men			Women			Both Sexes		
	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI
(b) Currently taking herbal or traditional treatment for diabetes among those previously diagnosed									
18-29	6	---	---	8	---	---	14	---	---
30-44	30	---	---	31	6.9	-0.8-14.5	61	2.6	-0.3-5.5
45-59	76	10.7	3.8-17.6	102	7.9	2.5-13.4	178	9.4	4.9-13.9
60-69	33	11.6	0.5-22.7	43	7.9	0.2-15.5	76	9.3	2.9-15.6
18-69	145	7.2	3.3-11.1	184	7.3	3.6-10.9	329	7.2	4.5-9.953

## ►► PHYSICAL MEASUREMENTS

### Blood Pressure Measurement

STEP 2 of the WHO-STPS approach includes physical measures. As one of the core risk factors, the survey measured systolic blood pressure (SBP) and diastolic blood pressures (DBP) three times on the right arm of the survey participants in a sitting position. First DBP measure is excluded and all the analysis is based on the last two DBP measures. Blood pressure was measured using OMRON Series 10 automatic blood pressure monitor. In order to detect hypertension, the arithmetic mean of three measurements is used in the analysis. During the implementation, there measurements were taken after the participant had rested for 5 minutes. A three-minute resting is required between the three measurements.

Using the STEPS methodology, we define the percentage of raised blood pressure as follows:

SBP  $\geq$  140 and /or DBP  $\geq$  90 mmHg, or currently on medication for raised blood pressure

Using the STEPS methodology, three criteria is used to categorize the raised blood pressure. The three criteria categorize the percentage of respondents having treated and/or controlled of raised blood pressure among those with raised blood pressure (SBP  $\geq$ 140 and/or DBP  $\geq$  90 mmHg) or currently on medication for raised blood pressure as follows:

- Percent on medication and SBP<140 and DBP<90
- Percent on medication and SBP $\geq$ 140 and/or DBP $\geq$ 90
- Percent not on medication and SBP $\geq$ 140 and/or DBP $\geq$ 90

## Hypertension

According to WHO raised blood pressure is estimated to cause 7.5 million deaths worldwide, about 12.8% of the total of all deaths. This survey on SRTPs assesses

### History of raised blood pressure

**Table 43** provides the history of blood pressure measurements and high blood pressure diagnoses of Syrian refugees by age and sex.

Overall 60.0%, i.e. close to three fifths, of Syrian refugees have never had their blood pressure measured. This proportion is higher in youth. While 71.5% of individuals aged 18-29 have never had their blood pressure measured, this proportion drops to 58.0% in those aged 30-44, to 42.4% in those aged 45-59, and to 30.0% in those aged 60-69.

**Table 43** shows that the proportion of women who have had their blood pressure measured but have not been diagnosed with high blood pressure is 29.1%. This proportion stands at 25.5% in women aged 18-29, at 33.9% in those aged 30-44, at 29.5% in those aged 45-59, and at 21.8% in those aged 60-69.

Results in **Table 43** indicate that 8.2% of women have been diagnosed with high blood pressure in the past 12 months. This proportion varies significantly between younger and older women, with an increasing trend with age. While 2.0% of women aged 18-29 have been diagnosed with high blood pressure in the past 12 months, this proportion increases to 6.1% in those aged 30-44, to 20.6% in those aged 45-59, and to 39.5% in those aged 60-69.

A 2.8% of women were diagnosed with high blood pressure more than 12 months ago. While only 1% of women aged 18-29 were diagnosed with high blood pressure more than 12 months ago, this proportion stands at 2.0% in those aged 30-44, at 7.5% in those aged 45-59, and at 8.7% in those aged 60-69.

According to **Table 43**, the proportion of men whose blood pressures were measured, but not diagnosed with high blood pressure, is 26.1%. This rate is 21.3% for individuals aged 18-29, 31.4% for 30-44 age group, 28% for 45-59 age group and 19.2% for 60-69 age group.

The results in **Table 43** show that the proportion of men diagnosed with high blood pressure in the last 12 months is 6.3%. This ratio shows significant differences

hypertension as a risk factor for NCDs based both the questionnaire items on history of raised blood pressure and physical measurements.

between young and old individuals and increases with age. 1% of males in the 18-29 age group were diagnosed with high blood pressure in the last 12 months, compared to 3.9% in males aged 30-44, to 16.6% in females aged 45-59, and in the 60-69 age group to 34.7%.

2.6% of men were diagnosed with high blood pressure before 12 months. Only 0.9% of men in the 18-29 age group were diagnosed with high blood pressure before 12 months, this ratio was 1.8% for males aged 30-44, 6.4% for males aged 45-59 and 60-69 and 9.3% for the age group. In terms of sexes, results in **Table 43** indicate that 65.0% of men have never had their blood pressure measured. As in the overall tendency, this proportion declines with age. The proportion of men who have had their blood pressure measured but have not been diagnosed with high blood pressure stands at about 26.1%. A 6.3% of men have been diagnosed with high blood pressure in the past 12 months, and 2.6% of them were so diagnosed more than 12 months ago. When these two categories are combined, it is concluded that 8.9% of men suffer from high blood pressure.

We see from the **Table 43** that 60% of women have never had their blood pressure measured. As in men, this proportion declines with age. The proportion of women who have had their blood pressure measured but have not been diagnosed with high blood pressure stands at 29.1%. 8.2% of women have been diagnosed with high blood pressure in the past 12 months, and about 2.8% of them were so diagnosed more than 12 months ago. When these two categories are combined, it is concluded that 11% of women were diagnosed with high blood pressure in the last 12 months or before.

Therefore, the proportion of women diagnosed with high blood pressure is 1.1 percentage points higher than men. However, it must be noted that the proportion of men who have never had their blood pressure measured is 5 percentage points higher than that of women.

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**TABLE 43:** Blood Pressure Measurement and Diagnosis History by Sex and Age

Age Group (years)	n	% Never measured	95% CI	% measured, not diagnosed	95% CI	% diagnosed, but not within past 12 months	95% CI	% diagnosed within past 12 months	95% CI
<b>Men</b>									
18-29	858	76.9	74.0-79.8	21.3	18.4-24.1	0.9	0.2-1.5	1.0	0.4-1.6
30-44	805	62.8	59.4-66.2	31.4	28.2-34.7	1.8	0.9-2.8	3.9	2.6-5.3
45-59	538	49.0	44.8-53.3	28.0	24.1-31.8	6.4	4.2-8.5	16.6	13.4-19.8
60-69	200	36.8	30.1-43.6	19.2	13.5-24.9	9.3	5.2-13.3	34.7	27.9-41.4
<b>18-69</b>	<b>2,401</b>	<b>65.0</b>	<b>63.1-67.0</b>	<b>26.1</b>	<b>24.3-27.9</b>	<b>2.6</b>	<b>1.9-3.2</b>	<b>6.3</b>	<b>5.5-7.2</b>
<b>Women</b>									
18-29	1,293	65.8	63.2-68.5	30.0	27.5-32.5	1.1	0.5-1.7	3.1	2.1-4.1
30-44	1,221	52.8	50.0-55.6	36.5	33.8-39.2	2.3	1.4-3.2	8.4	6.8-10.0
45-59	627	33.7	29.9-37.4	31.6	27.8-35.3	9.0	6.7-11.3	25.8	22.3-29.3
60-69	139	21.9	15.1-28.7	24.8	17.5-32.2	8.0	3.4-12.6	45.2	36.8-53.7
<b>18-69</b>	<b>3,280</b>	<b>54.4</b>	<b>52.7-56.0</b>	<b>32.4</b>	<b>30.9-34.0</b>	<b>3.0</b>	<b>2.4-3.6</b>	<b>10.2</b>	<b>9.2-11.3</b>
<b>Both Sexes</b>									
18-29	2,151	71.5	69.5-73.5	25.5	23.6-27.4	1.0	0.5-1.4	2.0	1.5-2.6
30-44	2,026	58.0	55.8-60.3	33.9	31.7-36.0	2.0	1.4-2.7	6.1	5.0-7.1
45-59	1,165	42.4	39.4-45.3	29.5	26.8-32.2	7.5	5.9-9.1	20.6	18.2-23.0
60-69	339	30.0	25.1-34.9	21.8	17.2-26.3	8.7	5.7-11.7	39.5	34.1-44.9
<b>18-69</b>	<b>5,681</b>	<b>60.0</b>	<b>58.7-61.3</b>	<b>29.1</b>	<b>27.9-30.3</b>	<b>2.8</b>	<b>2.3-3.2</b>	<b>8.2</b>	<b>7.5-8.9</b>

Table 44 provides results regarding the treatment methods used by Syrian refugees diagnosed with high blood pressure. The results presented in Table 44 show that 56% of the Syrian refugees who have been diagnosed with high blood pressure stated that they currently do take medication prescribed by a doctor or a health worker. Although these proportions are comparable for both men and women, not being statistically different at the 5% significance level, there are significant differences in terms of age groups, as the rate has a strong increasing trend with age. While only 28.1% of individuals aged 18-29 who have been diagnosed with high blood pressure take prescribed medication, this proportion rises to 37.1% in individuals aged 30-44, to 67.9% in those aged 45-59, and to 73.8% in those aged 60-69, showing the strong trend of prescribed drug use with age.

From the results in Table 44, it is seen that the group with the lowest rate of prescribed medication use despite being diagnosed with high blood pressure is men aged 30-44. In contrast, the group in which medication use is the most prevalent is women aged 60-69.

The results in Table 44 show that 5.9% of individuals diagnosed with high blood pressure stated that they went to traditional healers for treatment. A significant portion of those receiving treatment from traditional healers are the elderly. While only 2.9% of individuals aged 18-29

went to traditional healers for treatment, this proportion goes up to 5.2% in those aged 30-44, to 7% for those aged 45-59, and to 6.2% for those aged 60-69.

No of men aged 18-29 goes to traditional healers. 3.8% of men aged 30-44, 8.5% of men aged 45-59, and about 6.6% of men aged 60-69 go to traditional healers for treatment. The situation is somewhat different in women. 4.3% of women aged 18-29, the youngest group, stated they went to traditional healers whereas 6.0% of those aged 30-44 use traditional healers, and the proportion is 5.8% for both age groups 45-59 and 60-69.

**TABLE 44:** Treatment of Raised Blood Pressure by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
<b>(a) Currently taking drugs (medication) for raised blood pressure prescribed by doctor or health worker among those diagnosed</b>									
18-29	6	53.3	11.4-95.2	9	40.4	6.2-74.6	15	46.6	19.5-73.6
30-44	32	13.0	0.9-25.1	26	48.4	27.9-68.9	58	25.0	13.6-36.4
45-59	75	51.0	39.6-62.3	74	52.4	41.3-63.5	149	51.5	43.2-59.8
60-69	41	51.7	36.0-67.4	27	58.5	38.9-78.1	68	54.7	42.6-66.9
18-69	154	40.4	32.2-48.5	136	51.8	42.9-60.7	290	44.9	38.8-50.9
Age Group (years)	Men			Women			Both Sexes		
	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI	n	% seen trad. healer	95% CI
<b>(b) Seen a traditional healer among those previously diagnosed</b>									
18-29	6	—	—	9	26.3	-6.0-58.4	15	13.6	-4.5-31.8
30-44	31	3.2	-3.0-9.3	25	4.3	-4.0-12.6	56	3.5	-1.4-8.5
45-59	75	7.1	1.9-12.3	74	2.5	-1.1-6.1	149	5.3	1.6-9.0
60-69	41	7.0	-1.0-15.0	27	6.5	-2.6-15.7	68	6.8	0.8-12.8
18-69	153	5.6	2.4-8.8	135	6.0	1.3-10.7	288	5.8	3.0-8.5
Age Group (years)	Men			Women			Both Sexes		
	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI	n	% taking trad. meds	95% CI
<b>(c) Currently taking herbal or traditional remedy for raised blood pressure among those previously diagnosed</b>									
18-29	17	—	—	53	4.1	-1.5-9.7	70	2.8	-1.0-6.6
30-44	48	1.4	-1.4-4.3	132	5.0	1.3-8.7	180	3.7	1.1-6.3
45-59	121	9.4	4.3-14.6	219	5.8	2.8-8.8	340	7.5	4.5-10.4
60-69	86	9.0	3.0-15.0	71	2.4	-1.0-5.8	157	5.7	2.2-9.2
18-69	272	6.6	3.9-9.3	475	4.7	2.9-6.6	747	5.5	3.9-7.1

The last panel **Table 44** provides the rates for taking herbal/traditional remedies for high blood pressure. 5.5% of Syrian refugees diagnosed with high blood pressure take herbal/traditional remedies. While 2.8% of individuals aged 18-29 take herbal/traditional remedies, 3.7% of those aged 30-44, 7.5% of those aged 45-59, and 5.7% of those aged 60-69 take herbal/traditional remedies.

From the results in the last panel **Table 44** it is seen that men are more likely to take herbal/traditional remedies than women. While 6.6% of men diagnosed with high blood pressure take herbal/traditional remedies, 4.7% of women do so. Especially older men have higher

tendency to take herbal/traditional remedies. This is evident from the finding that 0.0% of men aged 18-29 take herbal/traditional remedies whereas 1.4% of those aged 30-44, 9.4% of those aged 45-59, and 9.0% of those aged 60-69 take herbal/traditional remedies.

While 4.1% of women aged 18-29 take herbal/traditional remedies, 5.0% of those aged 30-44, 5.8% of those aged 45-59, and about 2.4% of those aged 60-69 do so.

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### Mean Blood Pressure

Figure 15 and first panel of Table 45 present mean systolic blood pressure (SBP) measures by sex and age group, while Figure 16 and second panel of Table 45 present mean diastolic blood pressure (DBP) measures also by sex and age group. We also presents the 95% CI for the mean figures for SBP and DBP in Table 45. According to the results given in mean in Table 45 and Figure 15, SBP is 120.8 mmHg (95% CI: 120.4-121.3) for the study population in general, and 124.8 mmHg (95% CI: 124.1-125.4) for men, and 116.5 mmHg (95% CI: 115.9-117.1) for women. As Figure 16 shows mean SBP is higher for men compared to women for all age groups.

From the results in in Table 45, we see that DBP in 80.7 mmHg (95% CI:80.4-81.0) in the study population when both sexes are combined, and 81.3 mmHg (95% CI: 80.9-81.8) for men, while it is 80.1 mmHg (95% CI: 79.7-80.5) for women. Analogous to SBP measures, the DBP measures are higher for men than women for all age groups (see Figure 16). The mean DBP for men is particularly higher than women particularly for the age group 60-69.

FIGURE 15: Mean Systolic Blood Pressure Measurement by Sex and Age

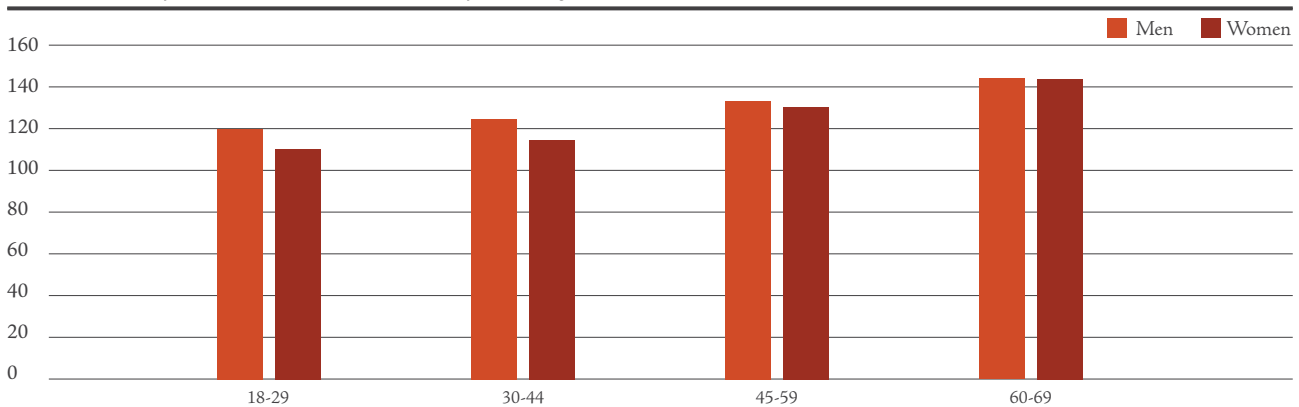
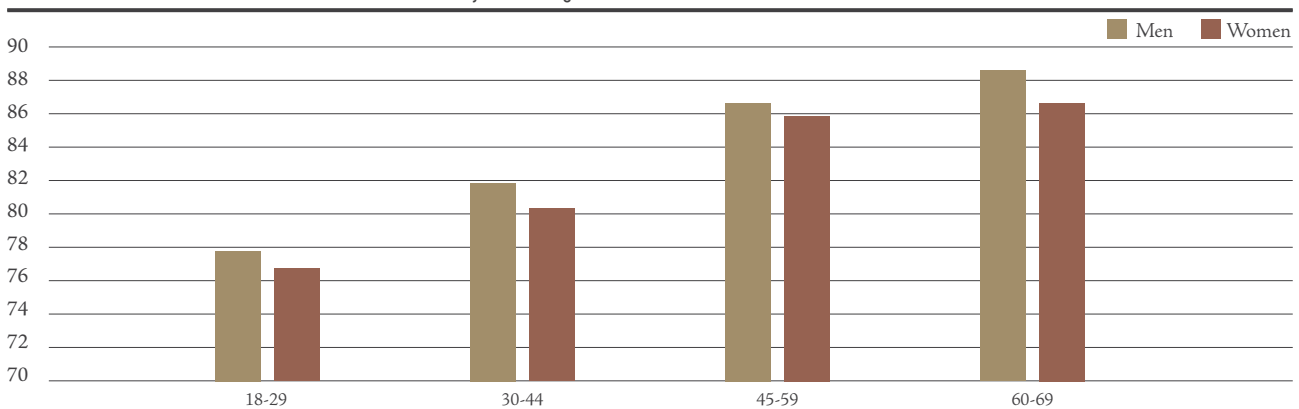


FIGURE 16: Mean Diastolic Blood Pressure Measurement by Sex and Age





**TABLE 45:** Mean Systolic and Diastolic Blood Pressure Measurement by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
(a) Mean systolic blood pressure (mmHg)									
18-29	862	120.1	119.3-121.0	1298	109.6	108.8-110.3	2,160	115.0	114.4-115.6
30-44	815	123.6	122.6-124.6	1222	116.2	115.3-117.1	2,037	120.1	119.4-120.8
45-59	540	133.6	131.9-135.2	636	129.9	128.2-131.5	1,176	132.0	130.8-133.1
60-69	200	142.7	139.6-145.9	142	142.8	138.8-146.9	342	142.8	140.2-145.3
18-69	2,417	124.8	124.1-125.4	3298	116.5	115.9-117.1	5,715	120.8	120.4-121.3
Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
(b) Mean diastolic blood pressure (mmHg)									
18-29	861	77.9	77.1-78.6	1,297	76.9	76.4-77.5	2,158	77.4	77.0-77.9
30-44	815	81.9	81.2-82.6	1,221	80.6	79.9-81.2	2,036	81.3	80.8-81.8
45-59	540	86.6	85.6-87.5	636	86.0	85.0-86.9	1,176	86.3	85.6-87.0
60-69	200	88.4	86.4-90.4	142	86.8	84.8-88.9	342	87.7	86.2-89.1
18-69	2,416	81.3	80.9-81.8	3,296	80.1	79.7-80.5	5,712	80.7	80.4-81.0

## Hypertension

In this section we discuss the survey findings relating to the hypertension. As an indicator of hypertension, we use  $BP \geq 140$  and/or  $DBP \geq 90$  mmHg or currently on medication for raised blood pressure. Based on this indicator, the prevalence rates for hypertension are presented in **Figure 17** and **Table 46** by sex and age groups. The figures presented in **Figure 17** and **Table 46** show that the prevalence of hypertension was 25.6% (95% CI: 24.4%-26.7%) in the overall SRTPs study population, 27.2% (95% CI: 25.5%-29.0%) for men, and 23.8% (95% CI: 22.3%-25.2%) in women. The results show that the prevalence of hypertension in men is higher than in women, and the difference is statistically significant at the 5% significance level, indicated by non-overlapping 95% CIs.

As it can be observed from **Figure 17** that the prevalence of hypertension significantly increases with age for both sexes. The hypertension prevalence rate for men is 15.1% for 18-29 years age group, 25.9% for 30-44 years age group, 49.3% for 45-59 years age group, and 63.7% for 60-69 years age group (first panel of **Table 46**). Sim-

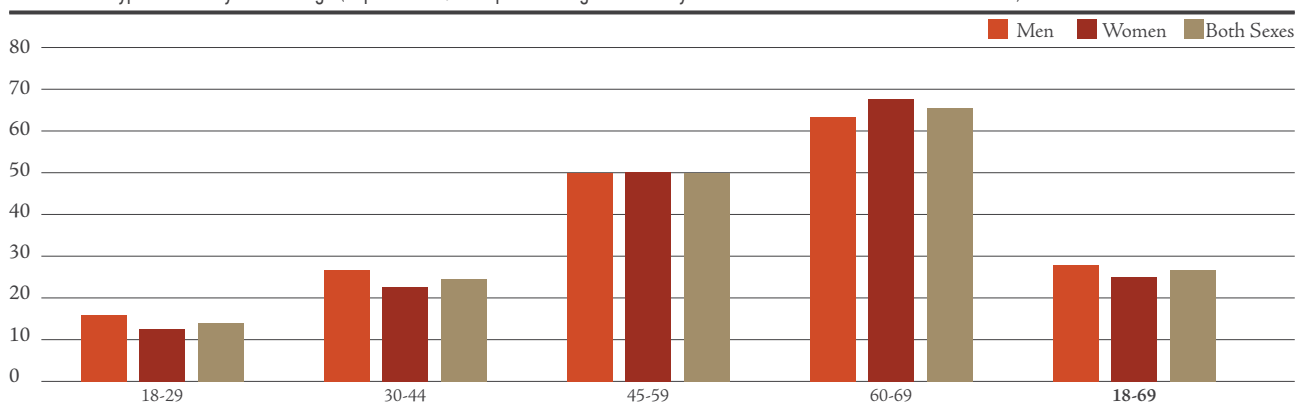
ilarly, we see from **Table 46** that the hypertension prevalence rate for women is 11.8% for 18-29 years age group, 22.5% for 30-44 years age group, 49.3% for 45-59 years age group, and 67.8% for 60-69 years age group.

Considering the figures reported in **Table 47**, we see that of those who had hypertension 21.3% (95% CI: 20.2%-22.4%) were not on medication. This rate was particularly high for the 60-59 and 45-59 years age groups with 52.6% and 40.5%, respectively. For men, 23.4% of those who had hypertension were not on medication, while this same rate was found to be 18.9%. In terms of the age distribution of the refugees with hypertension but not on medication, highest percentages are observed for 60-59 and 45-59 age groups; 53.4% and 41.7% for men, and 51.4% and 38.9% for women, respectively for the 60-59 and 45-59 age groups.

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**FIGURE 17:** Hypertension by Sex and Age (Sbp $\geq$ 140 and/Or Dbp $\geq$ 90 MmHg Or Currently On Medication For Raised Blood Pressure)



**TABLE 46:** Hypertension by Sex and Age (Sbp $\geq$ 140 and/Or Dbp $\geq$ 90 MmHg Or Currently On Medication For Raised Blood Pressure)

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
(a) Mean systolic blood pressure (mmHg)									
18-29	862	15.1	12.7-17.5	1,297	11.8	10.1-13.6	2,159	13.5	12.0-15.0
30-44	815	25.9	22.8-29.0	1,221	22.5	20.1-24.9	2,036	24.3	22.3-26.2
45-59	540	49.3	45.0-53.6	636	49.3	45.4-53.3	1,176	49.3	46.3-52.3
60-69	200	63.7	56.9-70.5	142	67.8	60.0-75.7	342	65.6	60.5-70.8
18-69	2,417	27.2	25.5-29.0	3,296	23.8	22.3-25.2	5,713	25.6	24.4-26.7

**TABLE 47:** Hypertension (SBP  $\geq$ 140 and/Or DBP  $\geq$  90 MmHg), Excluding Those On Medication For Raised Blood Pressure

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
SBP $\geq$ 140 and/or DBP $\geq$ 90 mmHg, excluding those on medication for raised blood pressure									
18-29	850	2.3	1.2-3.3	1,283	1.8	1.1-2.5	2,133	2.0	1.4-2.7
30-44	789	5.3	3.7-6.9	1,171	3.9	2.8-5.0	1,960	4.7	3.7-5.6
45-59	468	13.8	10.7-17.0	527	11.4	8.7-14.1	995	12.8	10.7-14.9
60-69	155	29.2	22.0-36.5	96	21.7	13.2-30.3	251	26.1	20.5-31.6
18-69	2,262	6.3	5.3-7.2	3,077	4.5	3.8-5.2	5,339	5.4	4.8-6.0

Table 48 reports the use of antihypertensive drugs in participants who had either high blood pressure measured or had controlled blood pressure medications, by age group and sex. The results in Table 48 shows that the overall prevalence of controlled hypertension (e.g., on drugs and SBP < 140 and DBP < 90 mmHg) is 74.4%, which is higher in women than in men (76.2% against 72.8%). There is a significant downward trend in uncontrolled hypertension with age. Indeed, overall prevalence of controlled hypertension (e.g., on drugs and SBP < 140 and DBP < 90 mmHg) is 50.7% and 34.4% for 45-59 and 60-69 age groups, respectively.

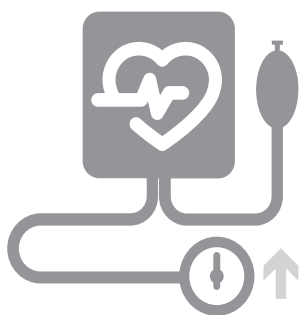
Treatment and monitoring of hypertension among those with hypertension, 21.3% (95% CI of 20.2% to 22.4%) are not on anti-hypertensive drugs, 25.6% (CI 95% from 24.4%-26.7) were on anti-hypertensive medication, but still had

high blood pressure or did not follow (Table 48 third panel for both sexes).

The hypertension control analysis reported in Table 48 for the sexes shows that 23.4% (95% CI: 21.7%-25.1%) in hypertensive men and 18.9% (95% CI: 17.6%-20.3) hypertensive women are not on drugs. However, there is a significant increasing trend with age for people with having hypertension and not on drugs. For instance, of those who has hypertension (i.e. SBP $\geq$ 140 and/or DBP $\geq$ 90 mmHg), 40.5% and 52.6% are not on any antihypertensive drug for the 45-59 and 60-69 age groups, respectively, while this is only 12.5% for the 18-29 age group. We do not observe any significant difference across sexes for those who have hypertensive women and not on any antihypertensive drug.

**TABLE 48:** Respondents With Treated and/Or Controlled Raised Blood Pressure On Medication and Not On Medication

Age Group (years)	n	Men					
		% On medication and SBP<140 and DBP<90	95% CI	% On medication and SBP≥140 and/or DBP≥90	95% CI	% Not on medication and SBP≥140 and/or DBP≥90	95% CI
18-29	862	84.9	82.5-87.3	15.1	12.7-17.5	13.9	11.6-16.3
30-44	815	74.1	71.0-77.2	25.9	22.8-29.0	23.5	20.4-26.5
45-59	540	50.7	46.4-55.0	49.3	45.0-53.6	41.7	37.2-46.3
60-69	200	36.3	29.5-43.1	63.7	56.9-70.5	53.4	45.4-61.4
18-69	2,417	72.8	71.0-74.5	27.2	25.5-29.0	23.4	21.7-25.1
Age Group (years)	n	Women					
		% On medication and SBP<140 and DBP<90	95% CI	% On medication and SBP≥140 and/or DBP≥90	95% CI	% Not on medication and SBP≥140 and/or DBP≥90	95% CI
18-29	1,297	88.2	86.4-89.9	11.8	10.1-13.6	11.0	9.2-12.7
30-44	1,221	77.5	75.1-79.9	22.5	20.1-24.9	19.2	16.9-21.4
45-59	636	50.7	46.7-54.6	49.3	45.4-53.3	38.9	34.6-43.1
60-69	142	32.2	24.3-40.0	67.8	60.0-75.7	51.4	41.2-61.6
18-69	3,296	76.2	74.8-77.7	23.8	22.3-25.2	18.9	17.6-20.3
Age Group (years)	n	Both Sexes					
		% On medication and SBP<140 and DBP<90	95% CI	% On medication and SBP≥140 and/or DBP≥90	95% CI	% Not on medication and SBP≥140 and/or DBP≥90	95% CI
18-29	2,159	86.5	85.0-88.0	13.5	12.0-15.0	12.5	11.0-14.0
30-44	2,036	75.7	73.8-77.7	24.3	22.3-26.2	21.4	19.5-23.3
45-59	1,176	50.7	47.7-53.7	49.3	46.3-52.3	40.5	37.3-43.7
60-69	342	34.4	29.2-39.5	65.6	60.5-70.8	52.6	46.3-58.9
18-69	5,713	74.4	73.3-75.6	25.6	24.4-26.7	21.3	20.2-22.4



**23.4%** IN HYPERTENSIVE MEN AND  
**18.9%** HYPERTENSIVE WOMEN ARE  
NOT ON MEDICATION

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### ►► OVERWEIGHT and OBESITY

Among the risk factors for NCDs, overweight and obesity are recognized as intermediate risk factors. WHO STEPS methodology uses standardized indicators to measure overweight and obesity. According to WHO<sup>3</sup>, worldwide obesity has more than doubled since 1980. Moreover, more than 1.9 billion adults, 18 years and older, were overweight in 2014. Of these over 600 million were obese. In this section, we summarize the overweight and obesity results of the STEPS survey for Syrian refugees.

In the STEPS survey implementation for SRTPs, trained AFAD staff performed anthropological measurements of weight, height, and waist circumference for

5760 survey participants aged 18-69 years. In line with the WHO-STEPS approach, anthropometric measurements (weight and height) were used to calculate Body Mass Index (BMI) by sex and age group. STEPS methodology uses mean waist circumference and prevalence of central obesity in order to estimate risk for developing cardiovascular diseases in the study population, by sex and age group.

### Height and Weight

The survey team staff measured the height and weight of each participant using standardized STEPS protocol. We compute the body mass index (BMI) of each participant by dividing the weight (kilograms) by the square of the height (metres<sup>2</sup>). Using the WHO STEP approach, the BMI risk categories are defined as follows:

- Underweight: BMI < 18.5 kg/m<sup>2</sup>
- Normal Weight: 18.5 ≤ BMI ≤ 24.9 kg/m<sup>2</sup>
- Overweight: BMI ≥ 25.0 kg/m<sup>2</sup>
- Obese: BMI ≥ 30.0 kg/m<sup>2</sup>

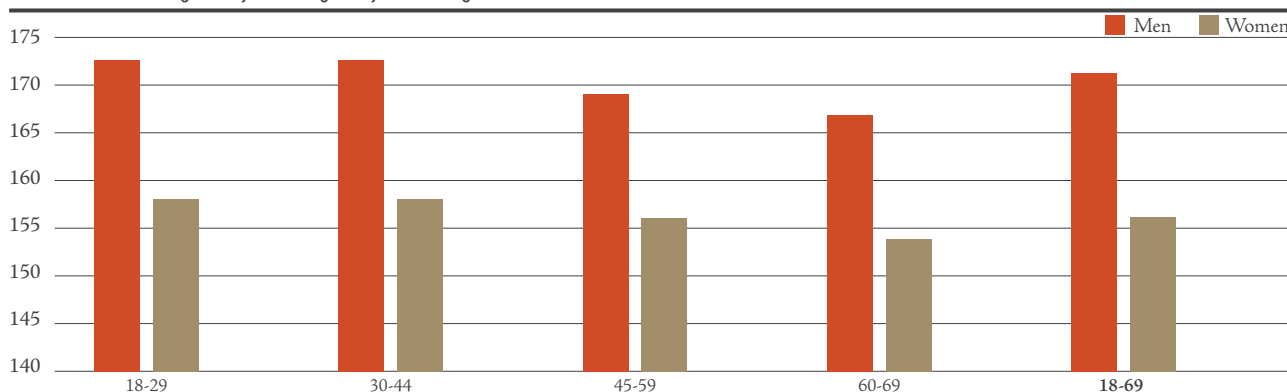
Figure 18 and Table 49 presents mean height and weight of all participants by sex and age group, while Figure 19 and Table 50 gives the average weights of the participants for the sex and age categories. The figures in these tables and figures show that the mean height and weight of all men participants are 171.6 cm and 77.9 kg, respectively, while for the women respondents the mean height and weight are 157.5 cm and 70.5 kg, respectively. In terms of sex specific differences, there is a statistical significant difference at 5% significance level in both the weight and height of male and female respondents. The sex specific overall differences in average height and weight also exist across all age groups of the both sexes.

Table 49 and Table 50 show that men, on average, were significantly taller than and heavier than women across all age groups. For both sexes, height does vary across age groups and younger generations tend to be longer than the older generations. For instance, average height of the men aged 18-29 is 172.6 cm while that of

the men 60-69 years is 167.4 cm, a statistically insignificant but noticeable difference. For the women participants the difference in height between age groups 18-29 and 60-69 is 3.9 cm. In terms of the weight, there is a general tendency to increase with age, except the 60-69 years age group for which the average heights is less than that of the 45-59 years age group for both sexes. Thus, among both men and women, weight peak in the 45-59 years age group, 81.8 kg for men and 80.4 kg for women, respectively.

<sup>3</sup> <http://www.who.int/mediacentre/factsheets/fs311/en/>, accessed on May 14, 2016.

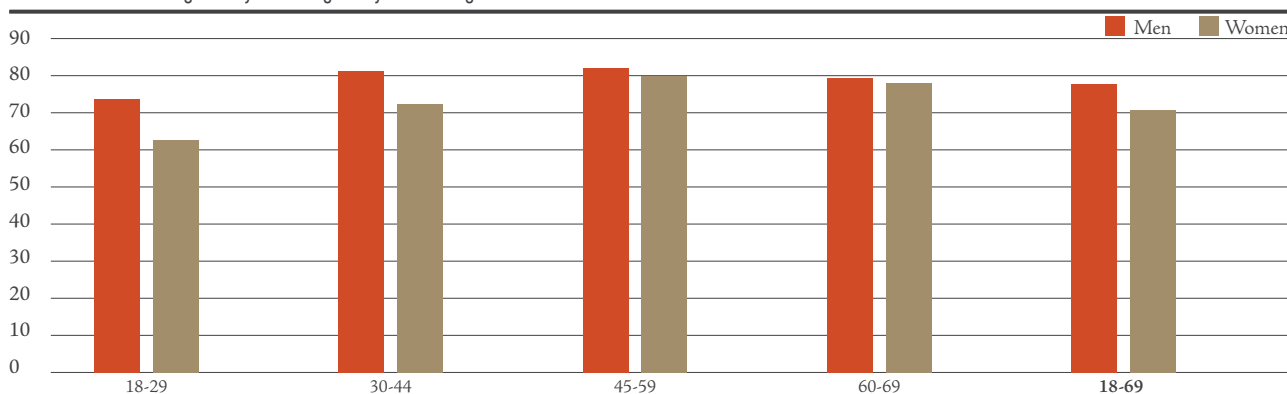
**FIGURE 18:** Mean Height of Syrian Refugees by Sex and Age



**TABLE 49:** Mean Height by Sex and Age Group

Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
Mean height (cm)						
18-29	863	172.6	172.1-173.1	1,090	157.8	157.4-158.2
30-44	815	172.1	171.5-172.7	1,147	158.1	157.7-158.5
45-59	538	169.2	168.4-170.0	632	156.1	155.6-156.6
60-69	199	167.4	166.4-168.3	142	153.9	152.8-155.1
18-69	2,415	171.6	171.2-171.9	3,011	157.5	157.2-157.7

**FIGURE 19:** Mean Weight of Syrian Refugees by Sex and Age



**TABLE 50:** Mean Weight by Sex and Age Group

Age Group (years)	Men			Women		
	n	Mean	95% CI	n	Mean	95% CI
Mean weight (kg)						
18-29	864	73.2	72.2-74.2	1,090	63.2	62.4-64.0
30-44	815	81.1	79.9-82.2	1,148	73.1	72.2-74.0
45-59	538	81.8	80.5-83.1	632	80.4	79.1-81.7
60-69	199	79.3	77.2-81.3	142	77.6	75.1-80.1
18-69	2,416	77.9	77.2-78.5	3,012	70.5	69.9-71.1

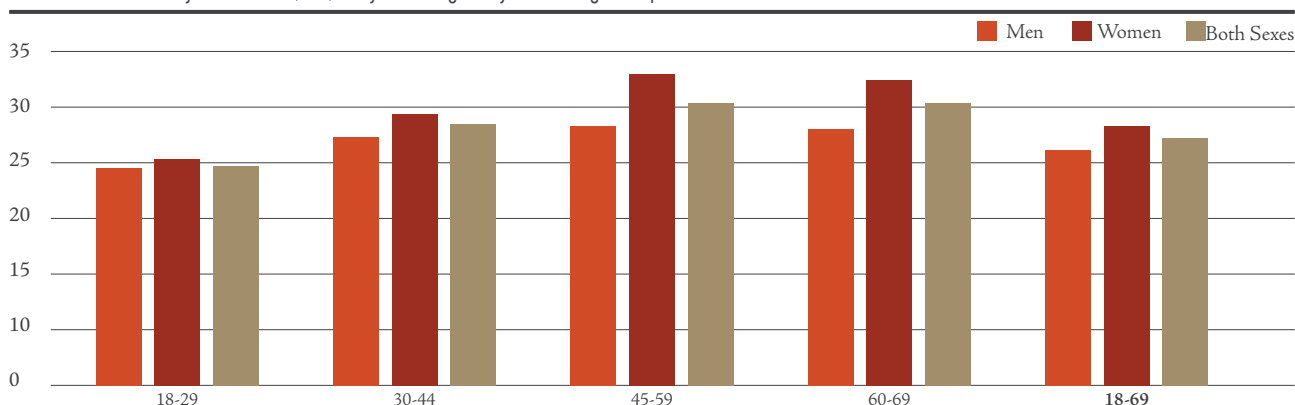
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Figure 20 and Table 51 present the mean BMI scores for both sexes, and also for both sexes combined. The overall mean BMI for Syrian refugees is obtained as 27.3 kg/m<sup>2</sup>. When we compare the mean BMI across sexes for all age groups, i.e., 18-69 years age group, we see that women have higher mean BMI (28.4 kg/m<sup>2</sup>) than men (26.4 kg/m<sup>2</sup>) overall, i.e., 18-69 years age group, moreover the difference is statistical significant at 5% significance

level. The tendency of higher BMI for women than men holds for all age groups, with statistically significant differences for all groups at 5% significance level. The mean BMI for men is highest equally for the 45-59 and 60-69 ages groups while for women highest BMI is also observed equally in the 45-59 and 60-69 years age group, i.e., 45-69 years age group.

**FIGURE 20:** Mean Body Mass Index (BMI) of Syrian Refugees by Sex and Age Group



**TABLE 51:** Mean Body Mass Index (BMI) by Sex and Age Group

Age Group (years)	Men			Women			Both Sexes		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
Mean BMI (kg/m <sup>2</sup> )									
18-29	863	24.6	24.3-24.9	1,090	25.4	25.1-25.7	1,953	24.9	24.7-25.2
30-44	811	27.3	26.9-27.7	1,141	29.2	28.8-29.5	1,952	28.2	27.9-28.4
45-59	532	28.3	27.9-28.7	630	32.9	32.4-33.5	1,162	30.3	30.0-30.7
60-69	199	28.3	27.6-29.0	141	32.7	31.6-33.7	340	30.3	29.7-31.0
18-69	2,405	26.4	26.2-26.6	3,002	28.4	28.2-28.7	5,407	27.3	27.1-27.5

Table 52, Table 53, and Table 54 present the percentage of the survey population by the BMI classifications of the WHO for men, women, and both sexes combined; underweight, normal, overweight, and obese.

We observe from Table 52 that 1.3% of men are classified as underweight, 42.4% as normal, and 35.6% as overweight, and 20.7% as obese. Respondents with BMI of 30 or more are classified as obese and from Table 52 we see that 27.7% (95% CI: 26.5%-28.9%) of all respondents were obese with a significant proportion being females, 36.2% of obese women against 20.7% that of men. The figures reported in

Table 53 shows that 1.5% of women are classified as underweight, 33.2% as normal weight, 29.0% as overweight, and 36.2% as obese. Table 54 shows that 1.4%

(95% CI: 1.1%-1.8%) of both sexes combined classified as being underweight, 38.3% (95% CI: 36.9%-39.7%) as normal, 32.6% (95% CI: 31.3%-33.9%) as overweight, and 27.7% (95% CI: 26.5%-28.9%) as obese. As these figures show, 36.2%, 20.7%, and 27.7% of women, men, and both sexes, respectively, were classified as obese (BMI ≥ 30). For both sexes, we observe a general tendency of prevalence of overweight and obesity to increase with age, except the 60-69 years age group for which the rates are lower than the 45-59 years age group, particularly for women with 66.3% versus 61.8%. Almost all of the age-group specific differences for overweight or obese classifications are significant at 5% significance level (see Table 52, Table 53, and Table 54).

**TABLE 52:** BMI Classification by Age Group For Men

Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
18-29	863	2.1	1.2-3.1	59.4	56.0-62.7	28.9	25.8-32.0	9.6	7.6-11.6
30-44	811	0.9	0.2-1.6	34.1	30.7-37.4	38.8	35.3-42.2	26.3	23.1-29.4
45-59	532	0.6	-0.1-1.3	24.1	20.4-27.8	43.2	38.9-47.5	32.1	28.0-36.2
60-69	199	0.6	-0.5-1.6	24.1	18.2-30.1	41.8	34.8-48.8	33.5	26.8-40.3
18-69	2,405	1.3	0.9-1.8	42.4	40.3-44.5	35.6	33.6-37.5	20.7	19.0-22.4

**TABLE 53:** BMI Classification by Age Group For Women

Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
18-29	1,090	3.1	2.0-4.2	52.8	49.7-55.8	27.4	24.7-30.1	16.7	14.4-19.0
30-44	1,141	0.7	0.2-1.1	25.3	22.6-27.9	33.0	30.3-35.8	41.0	38.1-44.0
45-59	630	—	—	10.7	8.2-13.2	23.0	19.7-26.3	66.3	62.5-70.0
60-69	141	0.5	-0.5-1.4	6.8	2.7-11.0	30.9	23.1-38.8	61.8	53.6-70.0
18-69	3,002	1.5	1.1-2.0	33.2	31.4-35.0	29.0	27.4-30.7	36.2	34.5-38.0

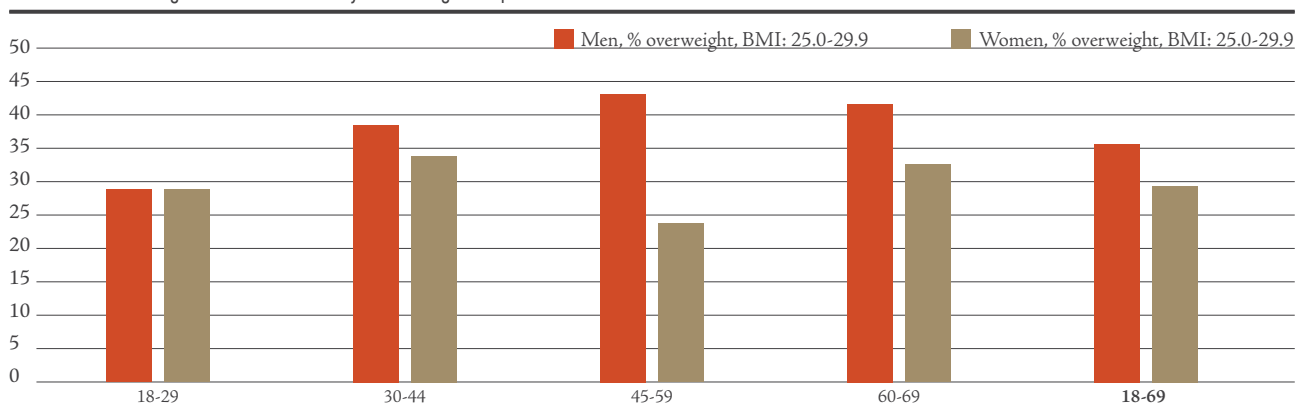
**TABLE 54:** BMI Classification by Age Group For Both Sexes Combined

Age Group (years)	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% BMI 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
18-29	1,953	2.6	1.8-3.3	56.4	54.1-58.7	28.2	26.1-30.3	12.8	11.3-14.3
30-44	1,952	0.8	0.4-1.2	30.0	27.8-32.2	36.1	33.9-38.4	33.1	30.9-35.3
45-59	1,162	0.4	0.0-0.8	18.2	15.9-20.6	34.4	31.5-37.3	47.0	44.0-50.0
60-69	340	0.5	-0.2-1.3	16.2	12.3-20.0	36.8	31.5-42.0	46.6	41.1-52.0
18-69	5,407	1.4	1.1-1.8	38.3	36.9-39.7	32.6	31.3-33.9	27.7	26.5-28.9

Figure 21 compares the rates of overweight (BMI ≥ (25.0 kg/m<sup>2</sup>, 29.9 kg/m<sup>2</sup>)) for both women and men across the age groups. The overall rates of prevalence of overweight are significantly higher for men than women for all age groups. Moreover, the difference between the men and women overweight prevalence rates is statistically significant at the 5% significance level across all age

groups. On the contrary, Figure 22 shows that the obesity (BMI ≥30 kg/m<sup>2</sup>) rates are significantly higher among women than among men over all age groups, particularly much significant differences exist for 45-59 and 60-69 age groups. We observe the highest prevalence of obese women (66.3%) for the 45-59 age group and men (33.5%) for the 60-69 age group.

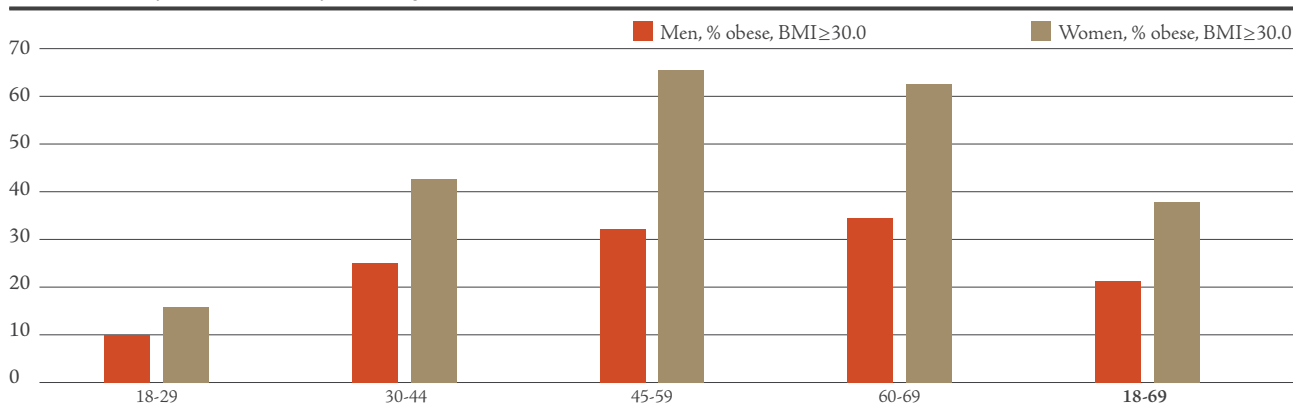
**FIGURE 21:** Overweight Prevalence Rates by Sex and Age Group



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**FIGURE 22:** Obesity Prevalence Rates by Sex and Age Group



Overall, the survey results on BMI risk categories for the Syrian refugees living in Turkey showed that 1.4% (95% CI: 1.1%-1.8%) of 18-69 years old refugee population found to be as underweight, 38.3% (95% CI: 36.9%-39.7%) as normal, 32.6% (95% CI: 31.3%-33.9%) as overweight, and that of the remaining 27.7% (95% CI: 26.5%-28.9%) as obese. More importantly, the survey findings on the BMI risk categories showed that 35.6% (95% CI: 33.6%-37.5%) of

men are overweight and 20.7% (95% CI: 19.0%-22.4%) are obese. Strikingly, the survey results show that 29.0% (95% CI: 27.4%-30.7%) of women refugee population are overweight and 36.2% (95% CI: 34.5%-38.0%) are obese. The findings show that the prevalence of overweight and obesity across sexes and age groups are statistically significant.

### Prevalence of Overweight

**Table 55** reports the prevalence of overweight (BMI ≥ 25) by sex and age group. Over all ages and both sexes, 60.3% (95% CI: 58.9%-61.7%) of the Syrian refugee participants are overweight. The results reported in **Table 55** show that women are significantly more likely to suffer from overweight obesity than men (60.3% compared with 56.2%). The 95% CI for the women and men

are 63.5% to 67.0% and 54.2% to 58.3%, respectively. Thus, the overweight difference between women and men is statistically significant. The prevalence of overweight has a significant increasing trend with age reaching from 41.0% in 18-29 age groups to 83.3% in 18-69 age group when both sexes are considered.

**TABLE 55:** Percentage of Respondents Classified As Overweight (BMI ≥ 25) by Sex and Age

Age Group (years)	Men			Women			Both Sexes		
	n	% BMI ≥ 25	95% CI	n	% BMI ≥ 25	95% CI	n	% BMI ≥ 25	95% CI
<b>BMI ≥ 25</b>									
18-29	863	38.5	35.2-41.8	1,090	44.1	41.1-47.1	1,953	41.0	38.7-43.3
30-44	811	65.0	61.6-68.4	1,141	74.1	71.4-76.7	1,952	69.2	67.0-71.4
45-59	532	75.3	71.6-79.0	630	89.3	86.8-91.8	1,162	81.4	79.0-83.8
60-69	199	75.3	69.3-81.3	141	92.7	88.4-96.9	340	83.3	79.4-87.2
18-69	2,405	56.2	54.2-58.3	3,002	65.3	63.5-67.0	5,407	60.3	58.9-61.7



## ►► COMBINED RISK FACTORS

The STEPS survey for the Syrian refugees examined five key risk factors for noncommunicable diseases, classified as:

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

These five risk factors are combined to give the overall risk for noncommunicable diseases as follows:

Low risk:	0 Risk Factors
Moderate risk:	1-2 Risk Factors
High risk:	3-5 Risk Factors

**Table 56** shows that only 0.3% of the Syrian refugees aged 18-69 was at low risk of noncommunicable diseases (i.e., with none of the five risk factors) compared to 41.1% at moderate risk (with 1-2 risk factors) and high 58.7% in high risk (with 3-5 risk factors). The results in **Table 56** show that having 3-5 risk factors were more common among men (61.3%) than women (56.1%). In general, the proportion of high risk (i.e., 3 or more of five risk factors) increases with age for both sexes, the younger cohort are also at high risk for noncommunicable diseases, with 45.7% of men and 46.1% of women in the 18-44 years age group at high risk. **Table 56** shows that a strikingly high percentage of men (81.7%) and women (87.1%) aged 45-69 years have high combined risk (more than 3 risk factors).

**TABLE 56:** Summary of Combined Risk Factors

Age Group (years)	n	% with 0 risk factors	95% CI	% with 1-2 risk factors	95% CI	% with 3-5 risk factors	95% CI
<b>Men</b>							
18-44	273	0.3	-0.2-0.7	45.1	39.0-51.2	45.7	48.6-60.8
45-69	141	0.8	-0.8-2.4	17.5	10.7-24.2	81.7	74.9-88.6
<b>18-69</b>	<b>414</b>	<b>0.4</b>	<b>-0.2-0.9</b>	<b>38.3</b>	<b>33.3-43.3</b>	<b>61.3</b>	<b>56.3-66.3</b>
<b>Women</b>							
18-44	440	0.24	-0.2-0.7	53.7	49.0-58.3	46.1	41.5-50.7
45-69	184	—	—	12.9	7.9-17.8	87.1	82.2-92.1
<b>18-69</b>	<b>624</b>	<b>0.19</b>	<b>-0.2-0.5</b>	<b>43.8</b>	<b>39.8-47.8</b>	<b>56.1</b>	<b>52.1-60.1</b>
<b>Both Sexes</b>							
18-44	713	0.3	-0.1-0.6	49.4	45.6-53.3	50.3	46.5-54.1
45-69	325	0.4	-0.4-1.2	15.13	11.0-19.3	84.5	80.3-88.7
<b>18-69</b>	<b>1,038</b>	<b>0.3</b>	<b>0.0-0.6</b>	<b>41.1</b>	<b>37.9-44.3</b>	<b>58.7</b>	<b>55.5-61.8</b>



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# CHAPTER 4:

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## CONCLUSION

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# CONCLUSION

Refugees who migrated due war conditions in Syria live under extraordinary conditions. How the risk factors affecting NCDs do change under these extraordinary conditions do has not been studied before. This study is the first in applying the well-established WHO-STEPS methodology for measuring the NCD risk factors for refugees. A total of 5,760 Syrian refugees living in-camp and out camp settlements in Turkey have been included in the survey. A stratified survey random sampling plan is used to draw sample households from ten provinces where 80% of the Syrian refugees were living. The survey implemented the first two steps of the STPES methodology. Initial evaluation of NCD risk factor survey revealed significant information on the NCD risks for the Syrian refugees. High rates of tobacco use, low physical activity, and diet that does not meet the recommendations indicate that the NCDs in Syrian refugees is taking hold.

Findings on tobacco use show that the current Syrian refugees' consumption of such tobacco products as cigarettes, cigars, pipes, etc. shows that 34% of the Syrian refugees currently smoke a tobacco product. 30.8% of individuals aged 18-29 years, a 36.3% of those aged 30-44, a 38.3% of those aged 45-59, and a 29.7% of those aged 60-69 currently smoke a tobacco product. The results show that significant differences exist between men and women in tobacco use. While 55.0% of men stated that they currently smoke a tobacco product, only 11.8% of women refugees currently smoke a tobacco product. In terms of the age groups, 53.8% of men aged 18-29, 57.4% of those aged 30-44, 55.3% of those aged 45-59, and 46.8% of those aged 60-69 currently smoke a tobacco product. In women, 8.2% of those aged 18-29, 14.2% of those aged 30-44, 16.9% of those aged 45-59, and 9.6% of those aged 60-69 currently smoke a tobacco product. The group with the lowest prevalence of tobacco use is women aged 18-29, and the group with the highest is men aged 30-44.

The survey results on alcohol consumption shows that, without disaggregation by sex, 98.6% of the Syrian refugees have never consumed alcohol at all. The proportion of those Syrian refugees who have not consumed alcohol in the past 12 months stands at 99.2%. While 0.3% of individuals have consumed alcohol in the past 12 months, the proportion of the current alcohol users who have consumed alcohol in the past 30 days stands only at three per thousand.

The findings on the diet (vegetable and fruit con-

sumption) for Syrian refugees show that they consume vegetables more than 4 days a week. Average values vary marginally between men and women. While this average is 4.4 days a week for men, it is 4.0 for women. When both sexes are considered, a high 40.0% of Syrian refugees do not eat any fruit/vegetables during the day. A 47.5% of the respondents stated they consumed 1 or 2 servings of fruit/vegetables in a day while 9% stated that they consumed 3 or 4 servings in a day. A 3.6% of the women and men refugee respondent stated that they consume at least 5 servings of fruit/vegetables per day.

The survey results show that 37.2% of Syrian refugees add salt always/often to their meal before eating. That is, more than one third of the respondents add salt always or often to their meals. Although there is not a statistically significant difference (at 5% significance level) between the sexes with respect to adding salt during eating, there are significant differences between age groups. While 40.0% of individuals aged 18-29 stated they always/often add salt to their meal before eating, this proportion drops to 37.9% in those aged 30-44, to 32.0% in those aged 45-59, and to 24.2% in those aged 60-69. A significant decline is visible in salt consumption with age, which is very likely due to health advice. A significant decline is visible in salt consumption with age.

On the cardiovascular disease (CVD), we find that show that 6.4% of all respondents have history of cardiovascular disease (CVD). In terms of the age groups, the highest CVD history is observed for the 60-69 age group with 24.7% of the 342 Syrian refugees in this group reporting positive to CVD history. The 60-69 age group is followed by the 45-59 age group with a 14.7% CVD history. Lastly, for 30-44 and 18-29 age groups a 5.0% and 2.4%, respectively, have CVD history.

The survey also included questions on screening for cervical cancer for women. The results show that, among all adult women aged 18-69 years, 7.2 percent had screening for cervical cancer. When we consider the age groups, percentage of woman having cervical cancer screening does not exceed 12% for all age groups and this maximum is observed for the 45-59 age group for which 11.9% of the women had cervical cancer screening.

Based on results of the question of diabetes, the proportion of individuals who have had their blood sugar measured but have not been diagnosed with high blood sugar 15.9%. Overall 79.1%, i.e., close to four fifths, of

Syrian refugees have never had their blood sugar measured. This proportion is strikingly higher in youth. While 88.6% of individuals aged 18-29 have never had their blood sugar checked, this proportion drops to 78.9% in those aged 30-44, to 61.7% in those aged 45-59, and to 52.4% in those aged 60-69. Overall for both sexes, 4.1% of individuals have been diagnosed with high blood sugar in the past 12 months. This proportion varies significantly between younger and older individuals. While four per thousands of individuals aged 18-29 have been diagnosed with high blood sugar in the past 12 months, this proportion increases to 2.6% in those aged 30-44, to 13.0% in those aged 45-59, and to 18.8% in those aged 60-69.

The survey included physical measurements on hypertension. The findings show that prevalence of hypertension significantly increases with age for both sexes. The hypertension prevalence rate for men is 15.1% for 18-29 years age group, 25.9% for 30-44 years age group, 49.3% for 45-59 years age group, and 63.7% for 60-69 years age group (first panel of **Table 44**). Similarly, we see from **Table 44** that the hypertension prevalence rate for women is 11.8% for 18-29 years age group, 22.5% for 30-44 years age group, 49.3% for 45-59 years age group, and 67.8% for 60-69 years age group. In terms of hypertension control, the findings shows that 23.4% in hypertensive men and 18.9% hypertensive women are not drugs. However, there is a significant increasing trend with age for people with having hypertension and not drugs. For instance, of those who has hypertension (i.e.  $SBP \geq 140$  and/or  $DBP \geq 90$  mmHg), 40.5% and 52.6% are not on any antihypertensive drug for the 45-59 and 60-69 age groups, respectively, while this is only 12.5% for the 18-29 age group. We do not observe any significant difference across sexes for those who have hypertensive women and not on any antihypertensive drug.

In terms of the weight and height measurements, the survey results for Body Mass index (BMI) risk categories for the Syrian refugees living in Turkey showed that the survey results on BMI risk categories for the Syrian refugees living in Turkey showed that 1.4% of 18-69 years old refugee population found to be as underweight, 38.3% as normal, 32.6% as overweight, and that of the remaining 27.7% as obese. More importantly, the survey findings on the BMI risk categories showed that 35.6% of men are overweight and 20.7% are obese. Strikingly, the survey results show that 29.0% of women refugee population

are overweight and 36.2% are obese. The findings show that the prevalence of overweight and obesity across sexes and age groups are statistically significant. The results show that women are significantly more likely to suffer from overweight obesity than men (60.3% compared with 56.2%). The overweight difference between women and men is statistically significant. The prevalence of overweight has a significant increasing trend with age reaching from 41.0% in 18-29 age group to 83.3% in 18-69 age group when both sexes are considered.

When the combined risk factors are considered, the survey finds that 0.3% of the Syrian refugees aged 18-69 was at low risk of noncommunicable diseases (i.e., with none of the five risk factors) compared to 41.1% at moderate risk (with 1-2 risk factors) and high 58.7% in high risk (with 3-5 risk factors). Moreover, we find that having 3-5 risk factors were more common among men (61.3%) than women (56.1%). In general, the proportion of high risk (i.e., 3 or more of five risk factors) increases with age for both sexes, the younger cohort are also at high risk for noncommunicable diseases, with 45.7% of men and 46.1% of women in the 18-44 years age group at high risk. A strikingly a high percentage of men (81.7%) and women (87.1%) aged 45-69 years have high combined risk (more than 3 risk factors).

## CHAPTER 4:

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## CONCLUSION



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# Health Status Survey of Syrian Refugees in Turkey

## Non-communicable Disease Risk Factors Surveillance among Syrian Refugees Living in Turkey

**October 2016**







# HEALTH STATUS SURVEY OF SYRIAN REFUGEES IN TURKEY

## NON-COMMUNICABLE DISEASE RISK FACTORS SURVEILLANCE AMONG SYRIAN REFUGEES LIVING IN TURKEY



REPUBLIC OF TURKEY  
PRIME MINISTRY  
Disaster and Emergency Management Authority



Republic of Turkey  
Ministry of Health



World Health  
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