THE IMPACT OF CONFLICT AND DISPLACEMENT ON THE HEALTH OF THE SYRIAN POPULATION IN SYRIA, TURKEY, LEBANON AND GREECE

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The impact of conflict and displacement on the health of the Syrian population in Syria, Turkey, Lebanon and Greece.

A thesis submitted in partial fulfilment of the requirement for the degree of Master in International Health

By

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Declaration:

Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

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Signature:

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Acknowledgements

When working for Médecins Sans Frontières in Syria, I have seen first-hand the devastating and dire situation that the displaced Syrian population is in. Less and less is reported about the displaced Syrian population in the news, while the conflict is ongoing. I have a special interest in the difficulties and challenges that refugees and internally displaced persons are dealing, as a field to work in and to research. That has been my personal motivation to write this dissertation.

I would like to thank my thesis advisor for his support and encouragement throughout this process. I really enjoyed our interesting conversations, often going in very different but evenly interesting directions. I would like to thank the KIT course coordinators and facilitators for their advice and for the interesting and educational courses during my master.

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Abbreviations

BCG	Vaccination against tuberculosis: Bacillus Calmette-Guérin
CL	Cutaneous Leishmaniasis
COPD	Chronic obstructive pulmonary disease
CVD	Cardiovascular diseases
DALY	Disability-Adjusted Life Years
DTP	Vaccination against Diphtheria, Tetanus and Polio
EU	European Union
GDP	Gross Domestic Product
HeRAMS	Health Resource Availability Mapping System
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Person
IMU	Information Management Unit
iNGO	international Non-Governmental Organisation
ISIL	Islamic State of Iraq and the Levant
MdM	Médecins du Monde
MEB	Minimum Expenditure Basket
MMR	Vaccination against Measles, Mumps and Rubella
MoH	Ministry of Health
MSF	Médecins Sans Frontières
NCDs	Non-Communicable Diseases
NGO	non-governmental organisation
NOS	Newcastle-Ottawa scale
PHC	Primary Health Care Centre
PTSD	Post Traumatic Stress Disorder
SMEB	Survival Minimum Expenditure Basket
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USD	United States Dollar
WASH	Water and Sanitation and Hygiene
WHO	World Health Organization
WFP	World Food Program

Glossary

Conflict: "As a situation where parties pursue opposing goals, conflict may entail but need not equal violence." (1)

Disability-Adjusted Life Years: Value that measures life years lost both to premature deaths (years of life lost) as well as ill-health (years lived with disability) (2)

Determinants of health: Factors that combined together affect the health of individuals and communities (3)

Health: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (4)

Health system: "All the activities whose primary purpose is to promote, restore or maintain health." (5)

Internally displaced persons (IDPs): "persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized state border." (6)

Refugee: "someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion." (7)

Vulnerability: "The characteristics of a person or group and their situation that influence their capacities to anticipate, cope with, resist and recover from the impact of a natural hazard (an extreme event or process). It involves a combination of factors that determine the degree to which someone's life, livelihood, property and other assets are put at risk by a discrete and identifiable event (or series or cascade of such events) in nature and in society." (8)

Violence: "The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development or deprivation."(9)

“Sometimes they flee across national frontiers. Sometimes not. To them it makes little difference. They may not even know which country they are in, when they first arrive in a place of refuge. Those who are still in their own country are in just as desperate need of protection and relief as those who are not.”

Kofi Annan, 2000, Address by United Nations Secretary General Kofi Annan to the fifty-first session of the Executive Committee of the High Commissioner for Refugees, Palais des Nations on 2 October 2000.

Abstract

Problem:
The ongoing conflict in Syria has led to the displacement of 12 million people, the largest number since the Second World War. To identify the needs of the displaced Syrian population it is necessary to understand the impact that the conflict and displacement has had on them.

Objective and Methods:
This thesis focuses on the direct and indirect impacts of conflict and displacement on the Syrian population, looking at the health determinants, and factors impacting health, inside Syria, Turkey, Lebanon and Greece. An adapted framework, based on the conceptual framework of Guha-Sapir on the impact of armed conflict on health was used to assess the impact of displacement on the health of the Syrian population. A literature study was conducted of quantitative and qualitative studies on the health status of displaced Syrian populations in Syria, Lebanon, Turkey and Greece.

Main findings
The data from the different countries illustrates the difficult situation that the displaced Syrian population is in. Lack of adequate shelter, food shortages and low income, together with difficulties in access to health care are impacting on the health of the Syrian population.
This results in higher levels of non-communicable diseases, infectious diseases and lower immunisation coverage, attributed by overstretched health care centres due to the refugee influx. As a result of conflict and displacement increased mental health problems are seen.

Conclusion and Recommendations:
To improve the situation of the Syrian population collaboration between (i)NGOs and governments is necessary, utilising the knowledge within the Syrian population, with special focus on the treatment of non-communicable diseases, and mental health issues.

Keywords: Syria, Turkey, Lebanon, Greece, IDP, refugee, conflict, health determinants, displacement

Word count: 13000

1 Background

Throughout history the world has seen several major refugee crises. The greatest displacement of people in history occurred during and after World War II, when 40 million Europeans were forced from their homes. The current conflict in Syria has led to the displacement of 12 million people, which makes this the largest refugee crisis since World War II (10).

Syria is a low-to-middle income country in the Middle East. Since its independence from France in 1946, the history of Syria has shown several periods of political instability due to conflict driven by various ethnic groups. After its independence the country formed a short union with Egypt (1958-1961). Soon after this the Baath party took control after a coup d'état in 1964. The Baathist Hafez Al-Assad came into power in 1970. In 2000 the current president Bashar Al-Assad, succeeded his father (11). During the Baath rule the country knew Arab nationalism, secular rule and the application of social politics, including the establishment of free public services, subsidies for food and energy, and boosting infrastructure to provide houses, water and electricity. Since the Al-Assad regime Syria has been strictly controlled and knows a repressive political structure which started with the dictate of Hafez al-Assad. With the Alawite-minority in control of the army, and it's extensive network of security services, human rights abuses, disappearances and torture were commonly reported (12).

In 2011 the Arab spring, inspired by the revolutions in Tunisia and Egypt, started a civil conflict in Syria between the government, opposition and Jihadist groups which due to excessive use of force by the government turned into a civil war involving regional and international powers that triggered a refugee and Internally Displaced Person (IDP) crisis (12–14). The current political unrest in Syria has several dimensions as the instability allowed terrorist groups Al-Qaeda and ISIL to flourish. At the same time the Kurdish population is trying to gain self-governance in northern Syria (13). This conflict beginning on the 11th of March 2011 continues up to the present day.

The current population of the Syrian Arab Republic is 18.285.675 based on the latest UN estimates (this was 21 million in 2008), of which 78.2% lives in the urban areas (13,15). According to the latest data in 2007 87% of the population was Muslim (74% Sunni and 13% Shia). There are approximately 2 million Alawi (Shia) in Syria today. Around 10 % is Christian and 3 % are Druze. 90% of the population is Arab, and another major group are the Kurds (2 million) (11)

2 Introduction

This thesis will explore the health impact of conflict and displacement on the Syrian population, looking at possible differences between the IDPs, and Syrians who have fled to Turkey, Lebanon and Greece.

2.1 Problem statement

The latest records of displacement in the world recorded by United High Commissioner for Refugees (UNHCR) are the highest ever recorded. Currently there are 68.5 million displaced people in the world, of which 25.4 million are refugees. 6.1 million of these refugees are Syrian. The conflict in Syria has led to the displacement of 12 million people, 6 million IDPs. Turkey is hosting 3.5 million Syrian refugees and Lebanon has 1 million Syrian refugees (10,16). The enormousness of these numbers shows the importance of the health care needs of these people. These large population movements have important public health implications, and require an adequate response from the health and humanitarian sector.

For the comparison of IDPs, the refugees in Lebanon, Turkey and Greece was chosen as they have all different circumstances that might affect the displaced Syrian population in different ways. In neighbour country Lebanon they can speak their own language and culture is more similar than in the other countries. Turkey is a neighbouring country as well but has a different language and culture. As many refugees decide to flee to Europe as they hope for better circumstances, however a lot of them strand in Greece.

In order to develop effective medical strategies in different displacement settings it is necessary to understand the consequences of conflict and displacement on the determinants of health and the impact on the health status of the displaced Syrian population.

2.2 Justification

2.2.1 Impact of armed conflict

The impact of an armed conflict is often measured by the direct impact, the fatalities and consequences of violent injuries such as disability. More victims, however are affected by the indirect consequences of a conflict. These result in disruption to the social networks, collapse of health systems and infrastructure. This can lead to an increase in infectious diseases, malnutrition and complications of chronic diseases. The patterns of these direct and indirect consequences on the morbidity and mortality of the population will be different in every conflict and context (17).

2.2.2 Displacement

Displacement and forced migration can lead to specific health consequences besides the ones mentioned for armed conflict. Some morbidities specifically arise from displacement such as environmental exposure, injuries, health burdens from the journey, and resettlement issues. Displacement leads to situations of poor hygiene, vulnerability and temporary shelter. The most vulnerable groups are those who live in poverty and have experienced violence on a personal or collective level, with poor access to health care services, and with exposure to communicable diseases. Displaced populations might have experienced torture, trauma and persecution, before and during their flight. They experience the loss of social networks and cultural institutions. Health risks increase due to the health impacts of forced migration, possibilities of falling victim to pirates and people smugglers, abuse and exploitation (18).

2.2.3 Resettlement

Displaced populations that are resettling in other countries are encountering difficulties that can impact their health status such as lack of familiarity with the health services, lack of fluency in the local language, cultural differences, poverty and marginalisation. These issues are combined with

their already existing health issues in their home country, and health issues that may have arisen while fleeing. Adding on to this are the normal stressors of migrating to another country, such as searching for food, shelter, education and employment (19–21). Forced displacement can have even more negative health outcomes due to lack of health services, poverty, decreased coping mechanisms, and an increased population density (22).

In the current era with a lot of conflict and economic hardship in certain parts of the world, together with the general globalisation there are many movements of peoples due to conflict, economic or environmental factors. To be able to treat IDPs and refugees according to their health needs, it is important to understand what they have encountered, and the impact that the conflict has had on their health status. To understand the consequences of armed conflict and displacement on the Syrian population an analysis should be done to describe the impact of conflict and displacement on the Syrian population.

2.3 Study objectives

2.3.1 Main Objective

To describe the direct and indirect impact of conflict on the health status of the displaced population of Syria, to identify the barriers to adequate health care and specific problems they are encountering in order to inform health actors working with Syrian IDPs and refugees .

2.3.2 Specific Objectives

- Describe the pre-conflict determinants of health in the Syrian population
- Describe the impact of the conflict on the health determinants in Syria (focusing on IDPs)
- Identify the influence of conflict and displacement on the health status of the displaced Syrian population
- Identify the differences in Health impact according to the location of the displaced population (Syria (IDPS), Turkey, Lebanon and Greece)

3 Methodology

3.1 Frameworks:

For this thesis two frameworks are used. The first is the framework of Dahlgren and Whitehead (1991) (see Figure 1), to identify the determinants of health within Syria in the pre-conflict situation, and during the ongoing conflict. This will help to identify the direct and indirect effects of conflict and displacement on the health status of the Syrian population.

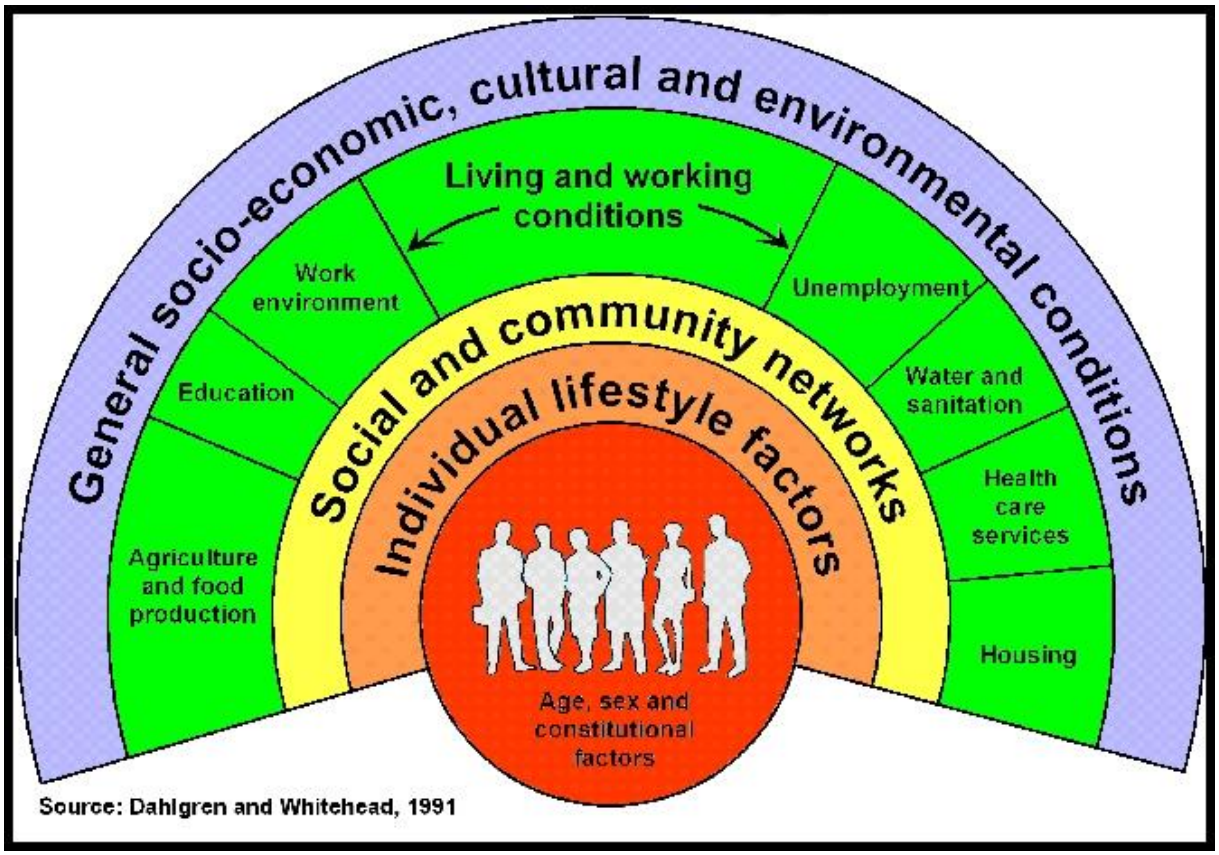


Figure 1 Framework of Dahlgren and Whitehead Source: (23)

As not all of the determinants of health have an impact once the refugees have crossed the border a second framework is used to analyse the situation in Lebanon, Turkey and Greece. For these countries an adapted framework of Guha-Sapir and van Panhuis on the impact of armed conflict on health is used (24,25) (see Annex 1). The original analytical framework does not include morbidities such as non-communicable diseases (NCDs) that are a major part of the morbidities in Syria. Decreased resilience and increased vulnerability in the displaced population are seen due to disruption of social networks (26,27). Therefore this framework has been adapted to enable it to more specifically assess the impact of displacement on health for the Syrian population.
The two frameworks will help to identify specific pathways which influence the health situation of the Syrian population in different settings namely inside Syria (IDPs), Turkey, Lebanon and Greece.

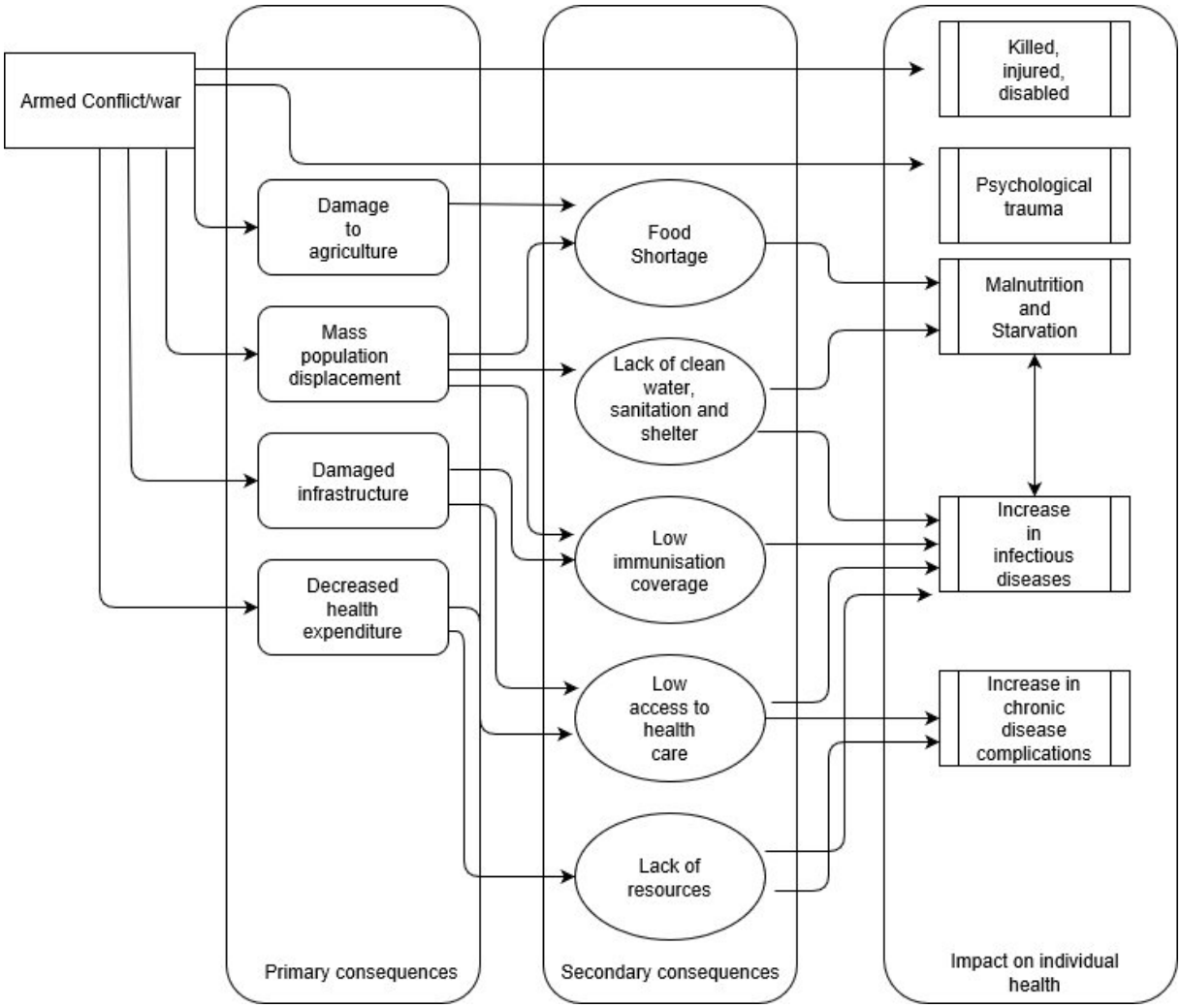


Figure 2: Adapted Framework of Guha-Sapir and Panhuis

The two frameworks show the pathways which influence health status. War and conflict have direct and indirect effects on the health status of households through their impact on the physical, social and socioeconomic environment. This is due the destroyed infrastructure and agriculture, disruption to public health programs (such as immunisation), psychological trauma due to the conflict and the effects of displacement, social dislocation, and migration itself. The destroyed infrastructure in Syria has already affected the public health programs, and displacement is decreasing the access to these programs even further. Often displaced populations are exposed to environmental hazards en route (24,25).

3.2 Literature review

This literature review will analyse the different components of the two frameworks regarding the situation of the Syrian population, and look for their influences on the impact on the health of the Syrian population in 4 different settings (Syria (IDPs), Lebanon, Turkey and Greece).

- **Inclusion criteria**

The studies included in this literature review are studies including Syrian nationals, affected by the conflict, who are displaced, either internally (IDPs), in neighbouring countries (e.g. Turkey, Lebanon) or in Europe (Greece).

Outcomes will include health determinants, pre- and post-conflict, the impact of the conflict on health determinants and health status, as well as the determinants of the adapted framework of Guha-Sapir and Panhuis.
Primary research including quantitative and qualitative studies, and grey literature in English are eligible. The time-period is limited to between January 2011 and December 2018.

- **Search strategy and data extraction**

In the development of this thesis, selected bibliographic databases (Pubmed, Medline, Google Scholar, Sciencedirect, Embase, Catalogus universiteit van Amsterdam) were searched. The search terms included a combination of the following keywords: health, Syria, displacement, refugees, internally displaced persons, refugee crisis, health issues, health impact, health problems, and mental health, as well as the health determinants and influences like damaged infrastructure and agriculture, immunisation coverage, food shortage etc. Additional literature was found by snowballing.
Grey literature was examined by consulting online databases, website of international organisations and (international) Non-Governmental Organisations ((i)NGOs) active in Syria or working with Syrian refugees, as well as factbooks from organisations such as the World Bank.

Following the criteria for eligibility, article titles and abstracts were screened. Articles not meeting the criteria were excluded. This was followed by a full-text review to assess the articles to be included in the final literature review. A data extraction sheet listing articles and grey literature was created. Key extraction variables included: author, date of publication, geographic setting, study design, study period, results (health impact, determinants of health), and quality appraisal criteria. Estimates from humanitarian and international organisations such as ICRC, UNHCR, and WHO were used to illustrate the impact of conflict and displacement on the Syrian population.

- **Quality appraisal**

The Newcastle- Ottowa scale (NOS) was used to assess the quality of quantitative studies (28). For cross-sectional and case-control studies the respective NOS scales were used. The NOS assesses the quality by checking studies for participant selection, comparability and ascertainment of exposures and outcomes. Each study was given a score after assessment.
For assessment of qualitative studies the Critical Appraisal Skills Programme Checklist was used. This checklist assesses the appropriateness of study design, the recruitment strategy, data collection and analysis.
In mixed-method studies both tools were used to assess the quality of the research done.
The reports of international organisations were assessed for their methods on assessments, looking at inclusion criteria, sampling and methodology to identify whether the conclusions made can be extrapolated to the whole community.

3.3 Ethical considerations

This thesis concerns the analysis of existing literature and therefore did not require any ethical approval.

4 Results

This thesis has made use of qualitative and quantitative research regarding the IDP and refugee situation of the Syrian population, as well as a lot of assessment and reports from (i)NGOs.
For this thesis all of the available reports and information in English that could be found were used, There might be other information that is not online, not published or in other languages that was not included in this thesis.

4.1 Quality appraisal of literature

All the Quantitative studies were rated as of good or fair quality according to the NOS scale. No studies of poor quality were used in this review. One study received full marks (20). All studies were checked to be representative and have an adequate sample size.
This was also checked for the assessments done by international organizations and NGOs. None of the assessment done compared different groups or had control groups.
The qualitative studies included in this literature review were appraised according to the Critical Appraisal Skills Programme Checklist. They clearly defined the aims of the research, and had an appropriate methodology. They adequately specified the methods of data collection and analysis. All studies considered ethical issues and provided value to the field. The sampling strategy was defined and justified for the studies.
For mental health disorders different validated tools were used in different countries and different settings, leading to difficult comparison between the outcomes however these outcomes do show a trends in mental health problems.
This thesis has made use of the reports and findings of NGOs and iNGOs. For these data triangulation has not always been possible to obtain. Therefore this thesis focuses more on general trends and where possible uses triangulation to increase the validity of the findings.

4.2 Thesis Structure

The background and introduction described the general refugee crisis and specifically how it is in Syria. Chapter 3 discussed the methods used in this literature review.
In Chapter 4 the results of the review start with the quality appraisal of the literature used. The results section continues in chapter 5, 6 and 7.
Chapter 5 aims to describe the health determinants in Syria prior to the conflict, as well as an epidemiological profile of the Syrian population before the conflict.
Chapter 6 will describe the impact of the conflict on the health determinants, changes in the epidemiological profile since the start of the conflict, and possible health risk factors that are increased, and compare the situation of the Syrian population that has fled to Turkey, Lebanon and Greece, looking for clear pathways of influence on their health status.
Chapter 7 will compare the refugee situation in the 4 countries.
Chapter 8, 9 and 10 discuss the findings of the literature review, the limitations, and recommendations.

5 Pre-conflict situation regarding health determinants in Syria

5.1 Living and working conditions

5.1.1 Agriculture and food production

8000 years ago the cultivation of crops and the domestication of livestock started in Syria. Since then agriculture has played a central role in the livelihoods of the population. In 1946, after becoming a republic, agriculture was the most important sector of the economy. In 2001 agriculture made up 27% of the GDP. In 2011 this was 19%. In 2011 50% of the population lived in rural areas of which 26% was employed in agriculture (29).
Between 2006 and 2010 there was a devastating drought in Syria leading to 800,000 farmers losing their livelihood, and 200,000 framers abandoning their lands. 75% of the crops failed and 85% of livestock died of thirst and hunger. A large proportion of the Syrian framers decided to flee to larger towns to find other employment (30).

5.1.2 Education

Prior to the crisis, 97% of primary-school age children were attending school and 67% of the secondary-school age children. Literacy rates throughout the country were over 90% for males and females. The literacy rates were similar to Turkey and Lebanon and higher than Iraq and Egypt. The national investment in education was rising, with the government increasing their investment from 15 to 19% of GDP between 2004 and 2009 (31,32).

5.1.3 Work environment

The labour force participation in Syria was 43.5% prior to the conflict, one of the lowest in the world. This was due to an extremely low and decreasing participation of women in the economy, with the highest female unemployment in the region of 25.2%. Syria had low ratings on measures of freedom of association and assembly, and freedom of expression. Another important factor in the Syrian's lack of trust in the government was the high level of corruption and low trust in public institutions. The level of control of corruption and economic monopolies has declined since 2005 (33).

5.1.4 Unemployment

Syrian economy improved; the Gross Domestic Product (GDP) grew by an average of 4.3% per year from 2000 to 2010, driven by growth in non-oil sectors. This growth however was not seen in economic and political inclusion or civil liberties. The poverty rate was 5.5% with an income inequality Gini index of 32.7 (conforming to regional averages). The economy in Syria was based on agriculture, industry, oil, trade and tourism. The economy faced challenges in the years before 2011 due to drought, rapid population growth, corruption and decreasing oil production. The subsequent economic hardship for the population was seen as an underlying factor in the uprisings in March 2011 (34). Gross National Income per capita decreased to USD 1,573 in 2013, a reduction from USD 2,745 in 2010 (35). In 2011, at the beginning of the conflict the unemployment rate was 11.9% (CIA World Factbook 2015).

5.1.5 Water and sanitation

90% of all water that was extracted was being used for agricultural purposes. 8% was used for households and 2% for the industrial sector (36).
In 2009 93% of the population had access to improved water sources (37). Public drinking water pipelines cover most of the country, however the quality of water is lower in rural areas. 90% of the population had access to improved sanitation in 2009, however less developed in rural areas (37).

5.1.6 Health care services

Syria has a public health care system that is free of charge for all Syrian citizens (38) Prior to the conflict, the health care services in Syria were well regarded in the region. Syria was able to produce over 90% of its own drug needs, and exported drugs to other countries (13,39). The life expectancy of the Syrian peoples was 76 years (40). Improvements in the general health of the population were seen due to improving access to maternal and child health, health promotion, health subsidies and educational support. This led to improvements of health indicators (38).

The total government expenditure on health, as a percentage of the GDP, was 3.7% in 2011 which is low compared to neighbouring countries such as Lebanon (7.5%) and Turkey (5.4%) (15,41). Even so, the access to health care in Syria improved. The developments in human resources for health show that the relative number for medical doctors in Syria was 1.5 per 1000 people in 2010 (42).

Pre-crisis the Ministry of Health ran 90 hospitals and 1919 health facilities. The health care system used to have sufficient numbers of health professionals, but there was an imbalance between urban and rural areas. The private sector covered 60% of all health care services. Out-of-pocket payments accounted for 51% of the health expenditure (43). Due to physicians working in both the public and the private sectors, and the perceived low quality of care and long waiting times in the public health care facilities, patients often preferred to pay for private services. This increased the inequity between poor and rich and limited the access of the poor to quality health care (44,45).

5.1.7 Housing

Before the conflict over 50% of the population lived in urban and peri-urban areas. One-third of the urban population lived in informal settlements. In rural areas, land rights were acquired through a form of prescription. Sharecropping, renting and purchase of land were common, usually through extended family and lineage relationships (46). 91% of Syrians owned their houses (47).

5.2 Social and community networks

The Syrian society is a multicultural society, which is based on social relationships established through cultural, religious, social and ethical connections. The Syrian history however shows internal conflict, either due to external interference, hegemonic control, religious minorities and cultural diversity (48).

Under the Syrian constitution all citizens have equal rights. Gender equality, equal access to employment and education for men and women were promoted under the Baath party rule. However women have an inferior status regarding personal status laws and several rules and regulation concerning marriage, divorce and child custody. The traditional role of a woman in the Syrian society is to take care of the family. In a lot of families there are still unwritten social codes regarding female behaviour, marriage and mobility (49–51).

During the economic growth period in 1970, the amount of women in the workforce increased. To enable the entry of women in the workforce the labour laws on maternity leave and childcare were added. In the last decade due to unemployment, and the increasing role of the Islamic religion on the social norms, the percentage of women in work decreased (51). The female labour force participation declined from 21.3% in 2001 to 12.9 in 2014 (47).

5.3 Lifestyle

The Syrian population shows a high risk regarding behavioural health factors such as diet, tobacco use and physical inactivity (27,52,53). Physical inactivity is mainly seen among women, while smoking is mainly seen in the male population (tobacco use >1 years was 38% for men and 4% for women (53).

5.4 Pre-conflict epidemiological profile

Prior to the conflict Syria showed advances in the epidemiological transition, the burden of disease for the general population was switching from communicable diseases to non-communicable

diseases. Reduction in fertility rates was seen, from 5.31 births per women in 1990 to 3.16 in 2011 (15). Under-5 child mortality rates decreased, from 30.4 deaths per 1000 live-births in 1990 to 14 deaths per 1000 live-births in 2001 (15). There was also an increase in overall life expectancy, to 76 years in 2013, 2 years above global average (15,40).

5.4.1 Mortality data

Mortality data of 2011 (see Figure 3) show that in 44% of the cases death was caused by cardiovascular diseases (CVD), in 18% of the cases it was due to other NCDs, and 13% of the deaths were due to communicable, maternal, perinatal and nutritional causes (54).

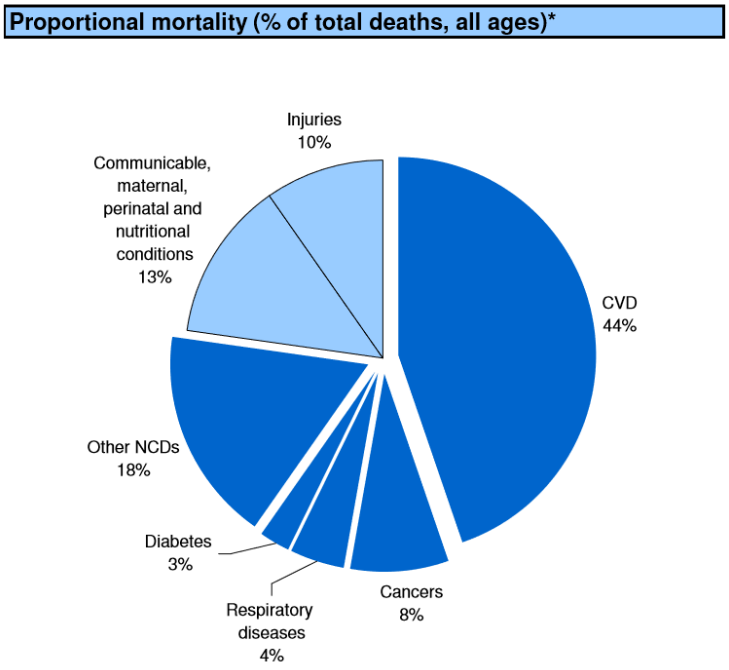


Figure 3: Proportional mortality for all-cause deaths in Syria 2011, Source: (54)

5.4.2 Disability-adjusted life years

The leading causes for disability-adjusted life years (DALYs) lost in 2010 in Syria were ischemic heart disease, cerebrovascular disease and depressive disorders. Different leading causes that were seen in 2010, which were not seen in 1990 were road injuries, chronic obstructive pulmonary disease (COPD) and diabetes mellitus.

Figure 4 ranks the top 25 causes of DALYs lost in Syria in 2010. This illustrates the epidemiological transition that Syria was undergoing prior to the conflict with a decrease in the past decades regarding lower respiratory tract infections and diarrheal diseases, and an increase in ischemic diseases and diabetes mellitus (52).

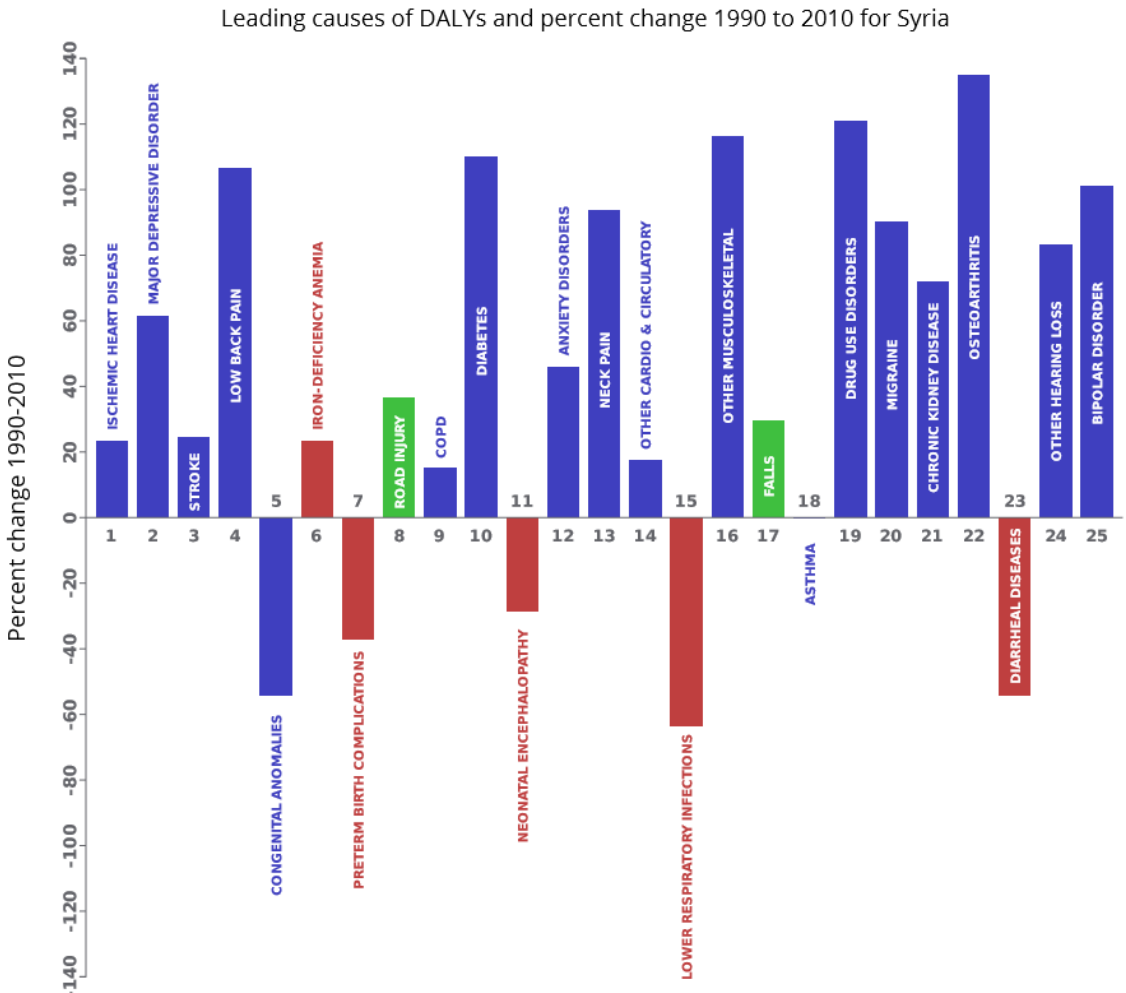


Figure 4: Leading Causes of DALYs in Syria from 1990 to 2010. Bars going up show an increase since 1990, and bars going down show a decrease in percentage since 1990. Source: (52)

5.4.3 Morbidities

Morbidity	%
Digestive diseases	15.7
Respiratory diseases	13.2
Cardiovascular diseases	11.3
Infectious and parasitic diseases	6.9
The eye and adnexa	4.0
Genitourinary diseases	3.5
Musculoskeletal system and connective tissue	3.4
Blood diseases	3.2
Accidents	2.9
Tumours	2.8

Table 1: Morbidities of Syrian population 2010 Source (55)

Table 1 shows the main causes of morbidities for which healthcare was sought in 2010. It shows that digestive (15.7%) and respiratory (13.2%) diseases were the two leading causes. These data are from the Ministry of Health (MoH) in Syria (55).

5.4.4 Non-communicable diseases

A rise in NCDs was seen in pre-conflict Syria due to urbanization and changes in lifestyle.
NCDs are estimated to account for 77% of all deaths (44,54). The main NCDs that are contributing to the mortality and morbidity are CVD, cancer, COPD and diabetes (44,52,54).

5.4.5 Communicable diseases

Infectious disease was declining in pre-crisis Syria due to improved living conditions and prevention measures (56).

Tuberculosis (TB) was one of the major infectious diseases in Syria. The prevalence pre-crisis was 23 per 100,000 people. 6% of all cases were multi-drug resistant (57).

Syria has seen several small outbreaks of mumps and measles in the country (58).

In 2010 a total of 42,165 cases of Cutaneous Leishmaniasis (CL) were reported. The incidence of CL increased significantly in 2008, due to urbanisation, and therefore increased density of population. The main burden of CL was seen in Aleppo (59).

5.4.6 Child Health

Child mortality rates dropped from 38 per 1000 live-births in 1990, to 14 per 1000 live-births in 2011 (15). The main causes for neonatal deaths were prematurity (50%), congenital anomalies 27%, infections (8%) and asphyxia (8%). The main causes for death <5 years of age, were 'other' (31%), pneumonia 8%), injuries 7%) and diarrhoeal diseases 5% (60).
The vaccination status prior of the conflict showed a coverage of >90% (including: BCG, DTP, polio, measles, hepatitis B and tetanus) (61).

5.4.7 Nutrition

Stunting was seen in 27.5% of all children < 5 years of age in 2009 in Syria. 9.7% of the children were reported to have been underweight for their age in 2006 (62,63). The increase is probably due to the drought.

5.4.8 Maternal Health

Pre-crisis, around 96% of all births were attended by skilled birth attendants (64). In 1990 the Maternal mortality ratio was 123/100,000 livebirths, which decreased to 49/100,000 livebirths in 2010 (65). The caesarean-section rate in Syria was 26.4% pre-conflict (66).

5.4.9 Mental Health

The DALYs table of Syria show that depressive and anxiety disorders are an important burden of disease in Syria (52).

6 Direct and indirect impact of conflict and displacement on the Syrian population in Syria, Turkey, Lebanon and Europe

Forty percent of the Syrian population is currently displaced, both inside the country and in neighbouring countries. In 2015 more than half of the Syrian refugees were hosted in 4 countries in the eastern Mediterranean region, including Lebanon and Turkey (67). In this chapter the 4 countries situation will be analysed per country.

6.1 The changes in social determinants of health following the conflict in Syria

Seven years into the Syrian conflict, the crisis continues, resulting in deaths, injuries, destruction of public infrastructure, declining public services and internal displacement. This has an important impact on the livelihoods of the Syrian population in general, but especially on the people that are internally displaced. In the past year 1,626,029 displacements were recorded by the Camp Coordination and Camp Management cluster in northern and southern Syria. In total there are 6.1 million internally displaced people inside Syria (68).

6.1.1 Living and working conditions

6.1.1.1 Agriculture and food production

During the conflict agriculture has remained the second largest contributor to GDP after government services. It is estimated that it accounts for 26% of the GDP (29). However agriculture has been severely affected by the crisis. The wheat production in 2013 was 40% less than before the crisis, due to lack of resources (29).

As per 2018 the food security sector estimated that 6.5 million Syrians are food insecure, and another 4 million are at risk of becoming it. These numbers account for the whole Syrian population. Population groups that are more affected by the food insecurity are people living in hard-to-reach- and besieged areas and IDPs (61).

6.1.1.2 Education

A quarter of all schools in Syria are closed, damaged, destroyed or used for other purposes. Over two million school-aged children are out of school. These numbers were higher in conflict areas (60-75%) than in the rest of the country 48%) in 2014. The most common reason for withdrawal from school is child labour (69–71).

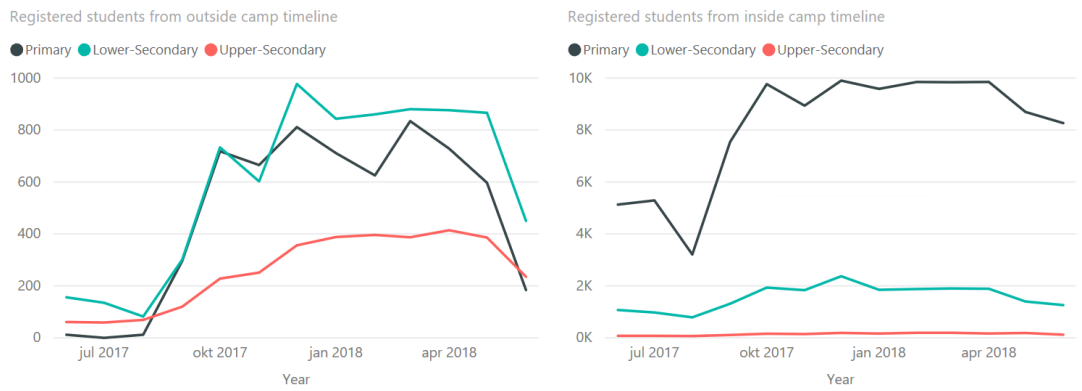


Figure 5 Registered students in and outside the camps in Syria July 2017 till April 2018 Source (72)

The Information Management Unit (IMU) of the Assistance Coordination Unit covers 226 camps within 12 districts in Aleppo and Idleb governorate. Figure 5 show the registered students from outside and inside the IDP camps who are attending schools.
Around 59% of the IDP-children attend some form of education, 25% of the children get basic education, and 16 % do not attend school (72).

6.1.1.3 Work environment and unemployment

Over 60% of the labour force in 2014 was unemployed. Three million of those lost their jobs due to the conflict (71). The overall poverty rate in 2014 was 83% in 2014, compared to 12.4% in 2007. The decrease in job opportunities within the formal sector has led to an increase in informal activities such as street markets and small workshops. A large part of the Syrian labour force is now involved in unskilled activities, thereby diminishing the accumulation of human capital. There has also been an increase in involvement in illegal activities. The forced dispersion of the population creates economic tensions, due to changes in the labour market, consumption and social relations. The influx of IDPs in certain areas is creating an economic burden on the host communities (71). Over 50% of the IDPs are in a bad financial situation, unable to meet their basic needs (72).
No data of GDP per capita is available after 2010. Health expenditure is 3.2% of the GDP in 2014 (53).

6.1.1.4 Water and sanitation

Over one-third of the population is relying on unsafe water to meet their needs. The costs increased with in some areas family's spending 15-20% of their income to secure access to enough water (61). The infrastructure for water, sanitation and hygiene (WASH) has decreased and at the same time demands increased due to IDP influxes. In opposition-controlled areas, IDPs have reported a lack of drinking water. Newly established IDP sites, and congested IDP site have insufficient WASH services. Some IDP sites are operating at 400% of their planned capacity, leading to severe shortages of latrines and showers for these IDPs (35).

6.1.1.5 Health care services

Seven years of conflict have set the health care system in Syria back several decades. By September 2017, according to WHO's Health Resource Availability Mapping System (HeRAMS), only 51% of Syria's 111 public hospitals was fully functioning, and half of the 1806 public health centres were closed or partially functioning, with devastating consequences for seriously ill patients, and the wounded (73,74). The few remaining facilities are struggling to cope with the large numbers of patients and lack of resources, such as human resource capacity, electricity cuts, shortages of medicines and non-functioning equipment. Local production of medicine has decreased by 50% (75).

Besides the overall impact that the conflict and displacement have had on the health care provision, the targeted attacks on health care facilities and workers are leading to even less availability of health care services. In total 123 attacks against health care facilities and ambulances were verified in 2017, and a total of 88 health care workers were killed or injured. The attacks on health care services are not only depriving patients in need of services, but also influences the health-seeking-behaviour of the population. Patients are postponing elective surgeries. Women prefer voluntary caesarean sections to reduce the amount of time in the hospital, and patients pre-maturely discharge themselves to minimise time spent in a health facilities out of fear of attack (75,76).
The amount of doctors working in the Syrian health care has decreased. Where in 2010 the doctor: population ratio was 1:661, in 2014 it was 1:4000 (72).
Regarding the IDP population in Syria, only 65% of the IDPs get the minimum of basic health care services. 26% receive sufficient health care services, 9% do not have any access to appropriate health care services (72).

6.1.1.6 Housing

30% of the IDPs are hosted by local communities. This shows the positive role of social relations in the Syrian culture. However the protracted period of displacement puts a high financial burden on the accommodating communities, who are themselves dealing with the economic decline of the country.

48% of the IDPs are renting houses, which increases the financial burden for families who have already lost their homes and sources of income. 7.2% of the IDPs are living in official shelters, which reflects the incapability of the IDP camps to provide adequate shelters, and the low confidence in the authorities. 6.3% of the IDPs are living in non-registered shelters (72,77). Of the IDPs that are taking refuge in official camps 78% are living in a tent (77).

6.1.2 Social and community networks

Since the crisis the social and community networks have suffered. This is due to an overall decline in social trust caused by the war, hostilities and polarisation. Displacement, military operation and economic decline have led to decreased social networks.

Overall the population in Syria is feeling less secure: a decrease of 59% at the national level. The conflict has had an impact on the trust among individuals, especially due to lack of rule of law, difficult living conditions, economic burden, forced displacement and corruption (48).

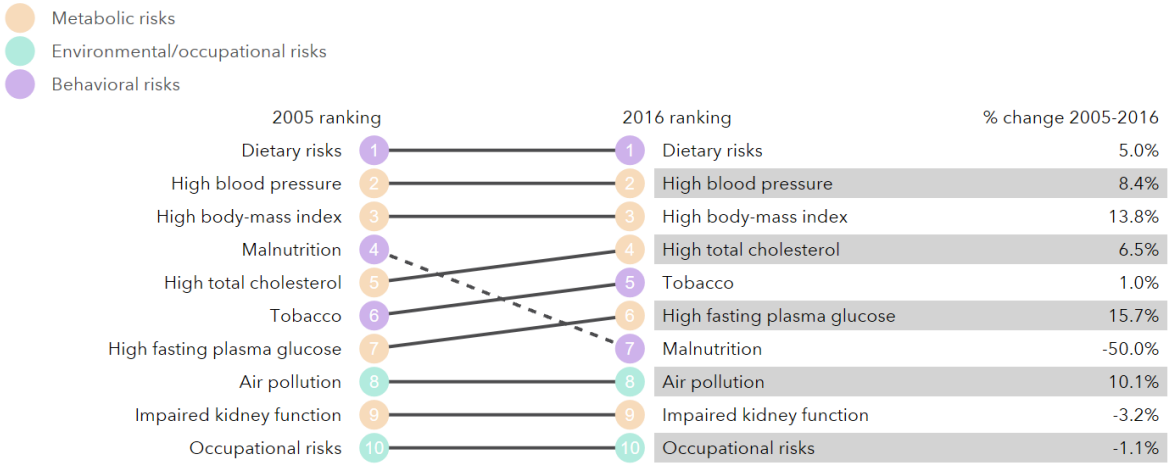
The position of women and their social participation has marginalised due to political reasons, extremist influences and violence. Women have been subject to attacks, rape, labour in dire conditions and increased economic responsibility especially in case of displaced families and widows (48). IDPs specifically struggle with disruption of social cohesion and integration at the local level and differences in culture in the new residing area (48).

6.1.3 Lifestyle

The amount of men smoking in 2016(48%) has increased compared to pre-crisis (78).There was no new data available on the physical activity level of the population in Syria in recent years.

The amount of Syrian adults that are overweight is 58.5%, and 23.5% of adults are obese. Raised blood glucose is seen in 13.9% of all adults in 2014, and raised blood pressure in 21.3% (78).

Figure 6 showed that dietary risk, high blood pressure and high body mass index still rank among the top 3 risks contributing to the DALYs in 2016.



Top 10 risks contributing to DALYs in 2016 and percent change, 2005-2016, all ages, number

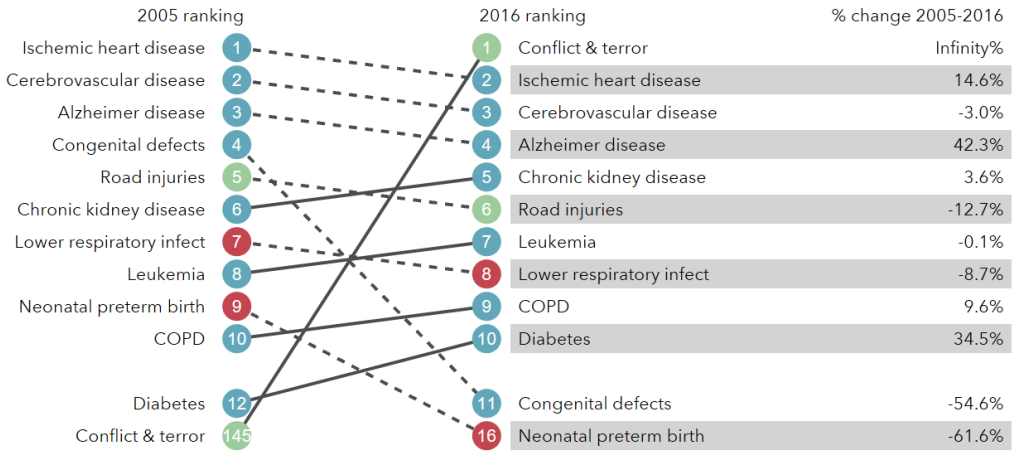
Figure 6 source: (79)

6.1.4. Epidemiological profile

In 2014 there was a decrease in crude birth rate from 38.8 per 1000 in 2010 to 28.5 per 1000 in 2014. This reflects the decrease in fertility rate from 5.2 to 3.7 in 2014 (72), and even to 2.2 in 2016 (52). Among IDPs the crude birth rate was 27.6 per 1000, while for the population that was not displaced the crude birth rate was 28.4 per 1000. This is probably due to the lack of security, deterioration of living conditions and a decline in marriage rates. Health conditions have dramatically worsened. Life expectancy has declined by 20 years in 2014 (72).

6.1.4.1 Mortality data

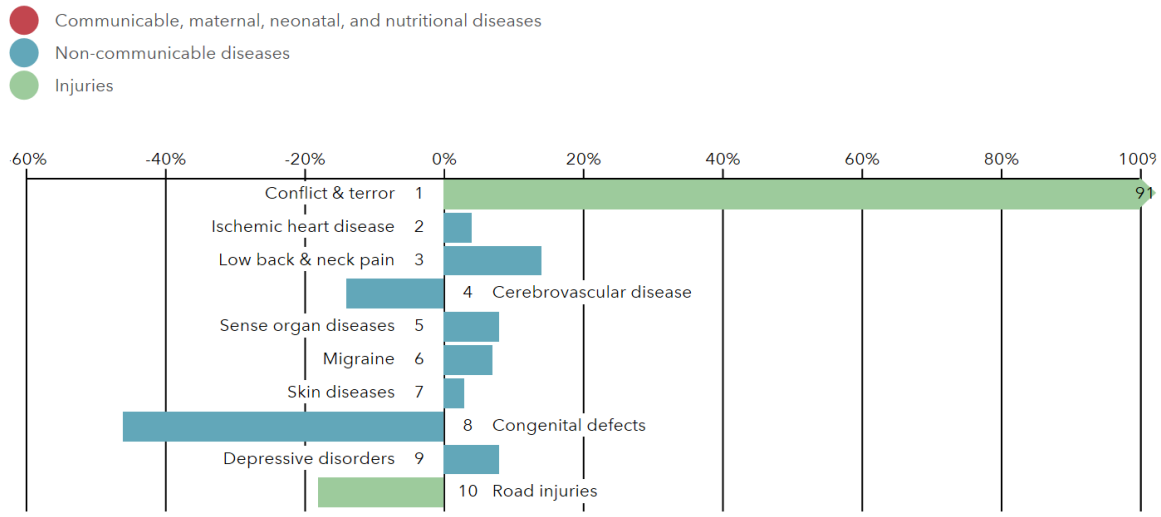
The conflict has led to a dramatic increase in mortality. The crude death rate in 2010 was 4.4 per 1000, in 2014 this increased to 10.9 per 1000. 85% of the deaths were directly due to the conflict. Of these 77% was from the population that had not moved, and 8% among IDPs. 15% of the deaths were indirect, of which 15% among the not moved population, and 2% among the IDPs. Overall the death rates among the IDP population were lower. This can be explained by the IDPs fleeing to safer regions. It is likely that the indirect deaths will increase with the ongoing conflict as the crisis leads to a rise in morbidity and disability (72). Figure 7 shows the number 1 cause of death now to be due to conflict and terror (79).



Top 10 causes of death in 2016 and percent change, 2005-2016, all ages, number

Figure 7 Source: (79)

6.1.4.2 DALYs



Top 10 causes of disability-adjusted life years (DALYs) in 2016 and percent change, 2005-2016, all ages, number

Figure 8 Source (79)

Figure 8 shows that conflict and terror are the number 1 cause of DALYs lost in 2016. The other DALYs were similar to before the conflict.

6.1.4.3 Morbidities

Besides the morbidities that were seen before the conflict, the crisis has brought increases in casualties and injuries. In Syria more than 25,000 people are injured in relation to conflict every months (67).

6.1.4.4 Non-Communicable diseases

The conflict and displacement has led to an increasing risk of deteriorating health status. Data of Primary Health Care centres (PHCs) in the displaced population show that around 8% of the patients frequented the services because of NCD-related issues, most frequently for chronic pulmonary diseases, diabetes, hypertension and CVD (67). Figure 9 shows the increase seen especially in chronic respiratory disease among IDPs in the camps (79).

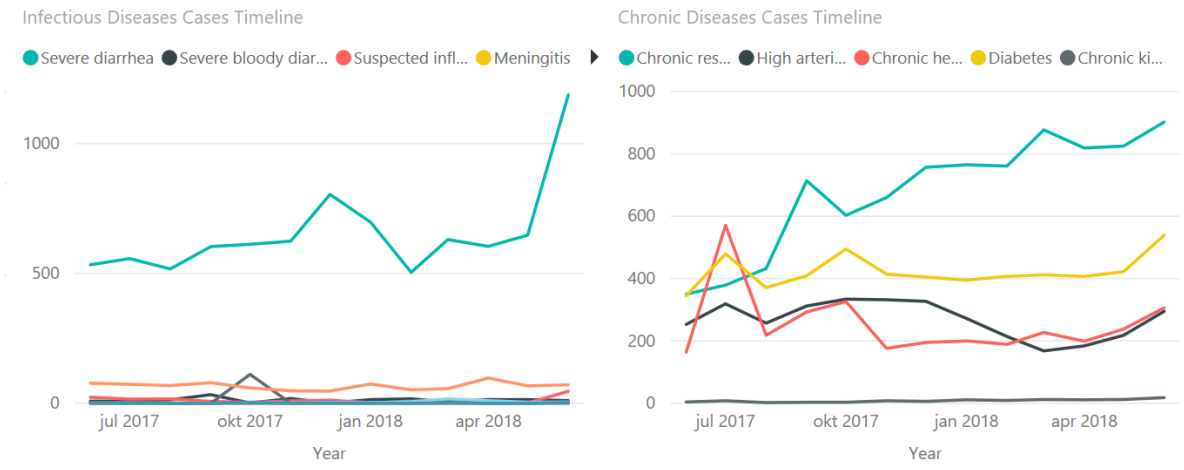


Figure 9 Infectious and chronic disease cases reported in Syria from July 2017 till April 2018 Source (79)

6.1.4.5 Communicable diseases

Through the conflict, Syria has seen the re-emergence of infectious diseases such as measles, polio and cholera.

In 2013 a polio outbreak was seen in Syria (57). In 2017 a vaccine-derived poliovirus circulated but was detected and rapidly contained (70). The risk of polio remains high due to destruction of the health care system and decreased vaccination numbers (57).

No large increase has been seen in the incidence of tuberculosis, 93 new cases were identified in 2016 (78).

In 2014, 549 children were diagnosed with measles, an increase compared to 2010 when only 36 cases were reported (34,67).

Cutaneous Leishmaniasis is a growing health problem, especially within the displaced population, The overcrowded IDP camps with basic living conditions and poor WASH facilities are ideal conditions for the sand-flies, which cause the disease, to breed and prey on humans (70).

6.1.4.6 Child Health

In 2016 the child mortality rate reached 11.4% (72). The infant mortality rate in Syria has increased to almost 50% of total deaths of children. These increases in childhood mortality already started in 2009 showing a longer standing trend of recession in health indicators due to an increase in inequality in the country. The child mortality rate in conflict-related deaths is 11.4% of the total. 77% of the conflict-related child deaths were direct victims of the conflict. 87% of the child mortality occurred among not-displaced populations compared to 13% among the IDPs (72).

In 2001, 82.4% of all children completed their vaccinations. This decreased to 76.3% in 2009. Vaccination rates for children have dropped in 2016 to 50-70%. The deterioration in vaccination coverage is due to the lack of access in certain areas, and lack of resources. The displacement of the population also has an impact on the vaccination status (35,80).

There is an increased risk of infections among children especially in IDP settings due to unsafe drinking water and poor hygiene practices (80).

6.1.4.7 Nutrition

Malnutrition in Syria was 23% in 2009 (medium and severely malnutrition). The medium/severe wasting among children under five increased from 8.0% in 2001 to 9.3% in 2009. The food insecurity due to the conflict is reflected in the rise in malnutrition seen among children and infants. In 2017 19,0000 of 743,000 (2.56%) children screened in 586 WHO-supported nutrition centres were found to have severe acute malnutrition. Over 1000 children were in need of referral to an in-patient facility for stabilisation; that was a 30% increase compared to 2016 (70).

6.1.4.8 Maternal health

The maternal mortality rate in 2015 was 68 per 100,000, an indicator of the quality of health care provision during the conflict (65). The challenges that are being faced in maternal health among IDPs are the low use of antenatal care, and high incidences of caesarean sections (67).

6.1.4.9 Mental health

Mental illness has always been stigmatised in the Syrian society. Syrians may be reluctant to acknowledge mental health problems, as they are viewed as personal flaws and might bring shame on the family. Therefore they are also reluctant to seek mental health care. There is an increase seen in psychological trauma related to the war and displacement, and some Syrians have become more open in accepting mental health problems (81).

An estimated 190,000 IDPs are suffering from severe mental health problems and require specialised services. Over 900,000 IDPs are experiencing mild to moderate psychological problems as a result of their experiences during the conflict and its aftermath. The most common feelings are anxiety, anger, fear and hopelessness, which can result in domestic violence, self-inflicted harm and violence towards others (69,82).

6.2 The direct and indirect effects of conflict and displacement on the Syrian population in Turkey

Turkey has signed the 1951 convention relating to the status of refugees. However, the Turkish government will only accept legal responsibility to protect European refugees. For Syrians this means that they can obtain a temporary protection status for a limited period. This results in restrictions in their livelihood, especially for those living outside the camps, and gives them limited access to regular employment, education, and social and economic support (83,84).
The EU-Turkey deal, established on the 20th of March 2016 has the aim of improving the asylum process, reducing human trafficking, and decreasing the mass movement of refugees into Europe. The last part entailed the returning of those refugees who arrived in Greece from Turkey. Under this agreement the Turkish government is to take back all refugees including Syrians, thereby progressing its European Union (EU) membership negotiations. This agreement has coerced refugees to relocate from Greece to Turkey, has given them insecurity and unpredictability regarding their lives and status (83–85). Currently Turkey is working towards naturalisation and integration of refugees into the society. Syrian refugees are thereby allowed to work in all Turkish cities without obtaining work permits. They have access to basic medical services all over the country, and the right to attend education (86).

6.2.1 Mass population displacement

Since the beginning of the conflict in Syria in 2011 Turkey has become host to the largest number of Syrian refugees in the world. Currently there are 3,559,262 registered Syrian refugees (16,83,87).

6.2.2. Food shortage

The continuous influx of Syrians had an impact on the agriculture and food-sector in Turkey. This is the main income for a large proportion of the population hosting Syrian refugees, who are among the poorest of the rural areas and vulnerable communities. Food shortage is increasingly becoming a problem in these areas (88).
A Vulnerability Analysis and Mapping of the World Food Program (WFP) on off-camp Syrian refugees showed that one-third of the household were food insecure. Key drivers for food insecurity were poverty and irregular access to employment. Over 90% of the interviewed households were qualified as poor compared to the National living standard (89).
More than 80% outside the camp Syrian refugees were not able to cook at least one meal a due to insufficient income (90).

6.2.3 Lack of water and sanitation

An assessment done among households in Turkey identified the main source of water for cooking and drinking to be private taps. Refugee households were most likely to report water supply shortages (65%). In 22% of the cases water was insufficiently available. Water insufficiency was mostly reported by families in transit (22%) (91).
In the same assessment it was found that an average of 6 people shared toilet facilities. Among refugee households 18% of toilet facilities were shared. Of the refugee population 10% were using their living spaces for bathing. In the rural areas 33% of the refugees did not have any bathing facilities (91).

6.2.4 Shelter and Exposure to environment

Of the refugees 87% are living in rented apartments. 7% own their homes. 2% live in commercial buildings. A large number of the refugees are residing in houses that were abandoned by the host community, due to poor hygiene and protection from environmental hazards. 65% of the refugees stayed in damaged houses.

Refugee and transit households were three times more likely to be evicted from their houses, due to inability to pay rent (90,91).

Of the over 2 million Syrian refugees in Turkey only 10% lived in the government-established refugee camps. Approximately 250,000 Syrian are staying in the camps, where they are provided with accommodation, education, health care, psychosocial services. There have been reports of insufficient access to food, bureaucratic processes, not being able to find legal work when living in the camps, being subject to mobility controls and security checks (83).

The majority of the refugees are living in urban areas in the country, and have therefore limited access to humanitarian assistance (83).

6.2.5 Low Immunisation coverage

Turkey was declared polio free in 1998, the partially vaccinated children from Syria have prompted a supplementary polio immunisation to prevent polio from resurfacing. Since 2011 nine rounds of oral polio vaccine were given to Turkish and Syrian children, in the areas where 90% of the Syrian population in Turkey is located.

All childhood vaccinations are provided to refugees, in accordance with the national vaccination program. In 2017, 121,600 children received their missing pentavalent vaccine and more than 142,000 received missing vaccinations for measles, mumps and rubella (92).

6.2.6 Low access to health care

Although officially there are equal rights to health care in Turkey for citizens and refugees, this does not necessarily entail identical treatment. One of the main barriers to access to healthcare is the language. In hospitals and primary health care services there are no interpretation services, this can lead to increased health problems due to misunderstandings of the medical issues as well as of the treatment (93). For provision of mental health care language is even more important (94).

Another barrier to health care services are registration and travel rights of refugees. (93)

The Turkish government together with the WHO is developing a curriculum to train Syrian medical staff, which will allow them to provide health care services to Syrian refugees, which will help to address the language barriers, and support the congested health care facilities (94).

6.2.7 Lack of resources

Overall data for Turkey show that the GDP per capita is 14,933$ in 2018. The unemployment rate is 11.1% youth unemployment is higher (20.8%) (95). The health expenditure per capita is 5.4% of the GDP. The doctor: population ratio was 1:559 in 2015 (96).

The Turkish government passed a new regulation in January 2016 allowing Syrian refugees to obtain formal work permits, to make Syrian refugees economically independent. Syrian refugees have difficulties with finding a job, as they are less educated and do not speak the language. For Syrian refugees therefore the unemployment rates are higher than the national average (90,97).

6.2.8 Mental Health problems

The fleeing Syrians have experienced the death, physical harm and violence. This together with the ongoing stressors related to displacement has an important impact on their psychosocial wellbeing. Displaced populations are not only dealing with the acute stressors of the war, but are also faced with challenges due to the migration, such as acculturation problems, socioeconomic disadvantages and marginalisation. This leads to a sense of hopelessness, psychological distress, increased family violence and negative coping strategies (98).

Research done in a refugee camp showed a prevalence of 83.4% for Post-Traumatic Stress Disorder (PTSD) and a prevalence of 37.4% for depression (99). This was higher than the numbers seen in other settings where 55% of the refugees residing in Turkey were suffering from PTSD. Overall a higher psychiatric co-morbidity is seen in refugees residing in Turkey (100)

6.2.9 Malnutrition

A survey done by the Disaster and Emergency Management Presidency of the Turkish government in 2014 among 1214 household of Syrian refugees showed a prevalence of stunting of 23.9% among Syrian children aged 6-60months. Of these 9.3% was severely stunted. 4.3% of the children in these households were wasted. In total 9.2% of the children were underweight. 5.7% of the children were overweight (90).

6.2.10 Increase in infectious diseases

An increase in communicable and vaccine-preventable diseases is seen in the overcrowded refugee camps (94).

The last polio case in Turkey was in 1998. Turkey vaccinated all Syrian children entering the camps, and Turkish children under 5 in the seven provinces near Syria where revaccinated. In Turkey there is almost 90% vaccination coverage. No polio cases have been reported (92,101,102).

The prevalence of tuberculosis in 10,689 screened Syrian refugees in the camps was 18.7 per 100,000. Outside the camps the tuberculosis rates may be higher due to poorer living conditions (101).

Measles cases have been reported among Syrian refugees since 2012 (18 cases). In 2013, 656 cases were reported, in 2014 88 cases, in 2015 102 cases, and 8 in 2015. Vaccination campaigns against measles have started in the refugee camps in Turkey. Vaccination coverage is 97% (92,101).

In the refugee camps 109 CL cases were reported in 2012, 2835 cases in 2013, and 1843 in 2014. An increase in CL cases was also seen in domestic areas (101,102).

6.2.11 Increase in chronic disease complications

The diseases with which the Syrian population presents are similar to the host population, with a high prevalence of NCDs (94).

Of the Syrian population, 34% is smoking tobacco. 55% of the men are currently smoking compared to 11.8% of the women. 40% of the Syrians do not eat any fruit and vegetables in a day.

6.4% of the Syrian refugees have a history of CVD. 4.1% of the Syrian refugees are diagnosed with high blood sugar. Hypertension is present in 25.6% of the Syrian refugees.

The Body Mass Index (BMI) for Syrians living in Turkey show that 32.6% are overweight and 27.7% are obese (90).

6.3 The direct and indirect effects of conflict and displacement on the Syrian population in Lebanon

Lebanon has a population of 4 million people. Currently it is the highest per capita host of refugees in the world. Lebanese nationals are affected by the refugee crisis, and sometimes even in need humanitarian assistance. The Syrian refugees in Lebanon live among the host-communities in the poorest areas. Due to the Syrian crisis an additional 170,000 Lebanese people have been driven into poverty (67,103).

6.3.1 Mass population displacement

The population in Lebanon has increased by 25% due to the influx of 1,070,189 registered and 765,651 unregistered Syrian refugees. This huge influx of refugees has also had an impact on the host community (67,103).

6.3.2 Food shortage

Poverty has persisted among the Syrian refugees in Lebanon, which is inextricably linked to food security. 91% of the Syrian households in Lebanon are food insecure to some degree, and 38% of the household are moderately to severely food insecure. The main constraint for the Syrian households' access to food is their limited access to economic resources (104).

6.3.3 Lack of clean water and sanitation

In 2017, 36% of the Lebanese population had access to safe water. Annually 18.3 deaths are due to inadequate water, sanitation and hygiene provision.

Water availability is influenced by losses in public water distribution networks and high levels of water pollution. All households are connected to a water network, however 80% suffer delivery failure. In rural areas there is limited access to the public sewage networks. The influx of Syrian refugees put an additional strain on the water availability (105).

78% of the Syrian refugees report access to improved drinking water sources. The main issues regarding access to water were the affordability and quality of water. Of the Syrian households 86%had access to improved sanitation facilities such as flushable toilets (56%) and improved pit latrines (30%). Of the 253,000 Syrian refugees living in informal settlements 170,000 had access to temporary WASH services (104).

6.3.4 Shelter and exposure to environment

73% of the Syrian households in Lebanon lived in residential buildings, 9% lived in non-residential structures such as worksites, garages and shops. 17% were living in improvised shelters in informal settlements. 53% of the refugees resided in places that do not meet the minimum humanitarian standards. One-third of the Syrian population lived in overcrowded houses. This was more common in informal settlements and non-residential structures (104).

6.3.5 Low immunisation coverage

Sub-optimal levels of vaccination coverage were seen at the end of 2014 in the regions with a large Syrian displaced population (103).

Of the Syrian children in Lebanon 20.1% were fully immunised (106). Of the Syrian refugees 59.1% had difficulties in obtaining vaccines for their children. Obstacles mentioned were: unknown location (10%), distance to facility (7.8%), and no vaccines available (4.9%) (106).

68.2% of the Syrian children in Lebanon received measles vaccinations (106).

6.3.6 Low access the health care

The health care system is overstretched in terms of finances and human resources, especially in areas with a large displaced Syrian population. Health services are available but costly (94,103). Most refugees (89%) were able to access primary health care services. 80% also had access to secondary and tertiary care when needed. 2.5% of the households reported requiring mental health care, and of those 60% were able to access services. Reasons for no access to health care were cost of drugs (33%), consultation fees (33%), uncertainty about where to go (17%), and not being accepted in the facility (14%) (104).

6.3.7 Lack of resources

The refugee influx was accompanied by a decline in socio-economic indicators in Lebanon. GDP growth decreased from 10% in 2010 to 1% in 2014 (67). GDP per capita was 7,198$ in 2017.

Unemployment was 6.3% (107). Health expenditure per capita was 7.5% of the GDP. The doctor: population ratio decreased in 2018 to is 1:319 (108).
Among male Syrian refugees unemployment of 12.7% is seen. 38% of the refugee households are depending on WFP assistance as their primary source of income (104).
Three-quarters of the Syrian households had expenditures that were below the Minimum Expenditure Basket (MEB), unable to meet basic needs of food, health, shelter and education. 58% were even below the Survival Minimum Expenditure Basket (SMEB), living in extreme poverty, unable to meet survival needs. The proportion of households living below the poverty line has increased to 76% of the refugee households in 2017 (104).

6.3.8 Mental health problems

The number of mental health conditions has increased since the Syrian crisis, especially an increased incidence of PTSD is seen (103,109). A survey in 2017 showed that 2.5% of the Syrian refugees were in need of mental health care. 38% gained access to mental health care. Barriers to access of mental health care were: not being accepted to the facility (37%), consultation fees (29%), cost of medicine/treatment (25%), and not knowing where to go (15%) (104,109).
The largest psychiatric hospital in Lebanon has seen an increase in admissions of displaced Syrians with severe psychopathology and suicidality since the onset of the conflict (81).
In a recent survey of Syrians in camp 35.4% of the 452 respondents were found to have lifetime prevalence of PTSD, the point prevalence was 27.2% (100,110).

6.3.9 Malnutrition

The Global Acute Malnutrition seen among Syrian children aged 6-59months was 2.2% (111)

6.3.10 Increase in infectious diseases

At the beginning of 2015 a mumps outbreak was reported with in total 193 cases, mainly among displaced Syrians (94).

Among refugees an increasing incidence of tuberculosis was reported. Since 2011 an increase of 27% of tuberculosis cases was seen. This increase was attributed to Syrians, as 48% was in non-Lebanese people (101,112).

Since 2012, 9 cases of measles were reported in Lebanon. In 2013 an increase was seen to 1,760 cases, of which 13.2% occurred in Syrian refugees. A national immunisation program was initiated in April 2014 for polio, measles, and rubella. As a result, in 2014, a decrease in measles cases was seen: 235 cases (101–103).

In 2013 Lebanon reported 1,033 new cases of CL, previously there were 0-6 cases annually in Lebanon. 97% of the cases occurred in Syrian refugees. In 2014, 663 cases of CL were reported. (101,102,113).

6.3.11 Increases in chronic disease complications

NCDs are an important health risk for the displaced population as they face an increased risk of deteriorating health status. Data of the Primary health care service usage by the Syrian displaced population show that around 8% of the patients have NCD-related complaints. The most observed NCDs were asthma, COPD, diabetes, hypertension and CVD (67).

6.4 The direct and indirect effects of conflict and displacement on the Syrian population in Greece

Greece is the main entry for eastern Mediterranean asylum seekers. The peak influx was in 2016. (114,115).

6.4.1 Mass population displacement

In 2016 a total 171,496 refugees arrived in Greece, 47% of these were Syrian (114,115). Currently there are around 50,000 Refugees in Greece (116).

From January to July 2018 5,750 Syrians arrived in Greece by sea, which was 44% of all arrivals by Sea in that period. At the beginning of the EU-Turkey agreement the amount of arrivals of refugees in Greece seemed to decrease, however since 2017 an increase is seen again (117).

6.4.2 Food shortage

In the informal camps there is some food distribution, however these have been described as inconsistent and poorly organised. This results in the fitter population having access to food, while the more vulnerable groups are going without. The formal detention and reception centre sites have more structured food distributions. The police employ a catering services that distributes food three times a day, although this lacks consistency (118).

6.4.3 Lack of clean water and sanitation

WASH are of poor quality in the informal and formal camps in Greece. Open defecation practices are common due to poor hygiene. In the informal camps there is restricted or no access to running water for drinking and washing. There are limited sanitation facilities, which are filthy and often dysfunctional. In formal camps there is access to clean water and sanitation facilities, but these are limited in number (118). Recent articles in the international press demonstrate the conditions that refugees are living under at Moria and Lesvos (119).

6.4.4 Shelter and exposure to environment

In the informal camps on Lesvos 90% of the refugees do not have access to adequate shelter (118). The overcrowding results in people sleeping in tents exposed to the environment, with limited food and water supply (119).

The UNHCR has launched the accommodation scheme with a total capacity of 22,595 places to reside (119). The accommodation scheme provides rented houses to vulnerable refugees, to restore normality and provide better access to services. Of the occupants using the accommodation scheme, 47% is Syrian (119,120).

There are some differences in occupancy depending on the location of the accommodation. In Lesvos and Chios both the Reception and Identification Centres (RIC) and the UNHCR accommodation facilities are overcrowded. In Samos the RIC is overstretched. In Leros and Kos the quantity of accommodation is sufficient (see table 2).

Island	RIC		UNHCR scheme	
	Nominal Capacity	Occupancy	Nominal Capacity	Occupancy
Lesvos	3,000	4,952	534	447
Chios	894	1,380	251	231
Samos	700	2,383	170	125
Leros	880	569	116	87
Kos	772	618	130	98
Others	-/-	95/74	95	74
Total	6,245	9,902	1,296	1,062

Table 2 Refugee accommodation capacity and occupancy on the Greek Islands Source: (119)

6.4.5 Low immunisation coverage

A study done at the Greek-Turkish border showed that of the migrant-children, 52.5% needed vaccinating against DTP, and 13.2% needed MMR vaccination (121).
Vaccine-preventable diseases, are seen in reception and holding centres. Greece is now offering vaccination according to the national guidelines for pentavalent and MMR (122).

6.4.6 Low access the health care

Overall in Greece there is a problem with access to health care, following the economic crisis as well as issues regarding inequity. NGOs have stepped in to help the already not well functioning health care system in Greece (123).
There is limited primary health care coverage in camps in Greece. Refugees do not get health screening on arrival. Health care is mainly provided by Médecins du Monde (MdM) and Médecins Sans Frontières (MSF).

Registered refugees are entitled to necessary health care free of charge according to national legislation. Emergency care should be provided to all free of charge. However the economic crisis results in less resources, and there are administrative (obtaining a social security number) and language barriers (119,123–125).

6.4.7 Lack of resources

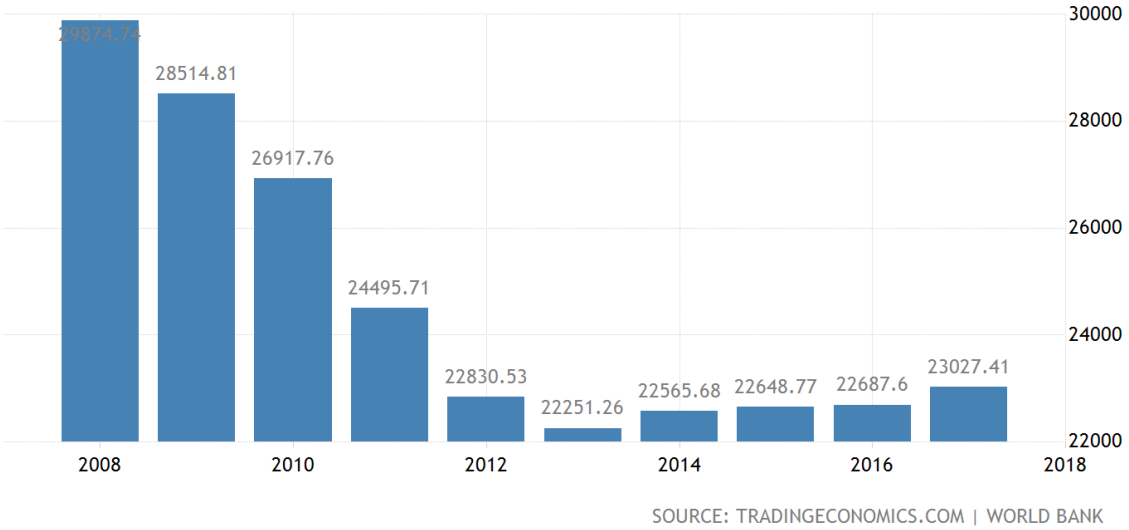


Figure 10 GDP per capita in Greece from 2008 till 2017 Source: (126)

The GDP per capita in Greece has seen a decrease during the economic crisis but is slowing increasing again since 2014 (see Figure 10) (126). Currently the GDP per capita is 23,027$. Unemployment in Greece is 18.9% in 2018, for young people this is 36.8% (127). Greece spends 1,650 Euro per capita on health care. This is 8.4% of the GDP. The health spending has declined significantly since the economic crisis in 2009 (128).
Health resources and staff are not evenly distributed across Greece, with a higher concentration in urban areas than in rural areas, where most of the refugees are residing. This results in unmet medical needs in the rural areas.
Greece has the highest doctor to population ratio in Europe (6.3 per 1,000 people). The ratio of nurses to people is 3.2 per 1,000, which is very low especially compared to the doctors.

6.4.8 Mental health problems

Syrian refugees experience high levels of violence during their journeys, and even when seeking protection in Greece. Some attacks are even perpetrated by state authorities. Therefore high levels of anxiety and distress are seen within this population. Lack of information on legal procedures and uncertainty about the future increase these symptoms (118,123,129). Major depressive disorders were seen in 44% of the participants living in a refugee camps (130).
92% of the Syrian refugees, were found to have an anxiety disorder. 31-78% of the refugees reported having experienced at least one incident of physical or sexual violence in Syria. 25-58% reported having experienced this during the journey to Greece, and 5-8% reported this happening in the Greece holding centres (129).

6.4.9 Malnutrition

The assessment done by Save the Children in 2014 did not show any visible signs of malnutrition among refugees. MdM has seen a few cases of malnutrition in Chios (118).
A pilot study in 2018 showed that in refugee children aged 1-18yrs, 4.6% of them were wasted and 7.3% were stunted (131).

6.4.10 Increase in infectious diseases

The main morbidities seen in the camps in Greece are diarrhoeal diseases, respiratory tract infections, dermatological diseases, dehydration and chronic diseases (118,123) as well as tuberculosis and skin diseases such as scabies (124,132).

All refugees are screened for (latent)tuberculosis at the reception centres. The prevalence of tuberculosis among refugees in Greece is perceived as low (133). No increases in tuberculosis prevalence were seen since the influx of refugees in Greece (134).

No reports have been found of measles cases in refugee camps in Greece.

32% of the Syrian refugees in Europe were found to have cutaneous leishmaniasis (121).

6.4.11 Increases in chronic disease complications

In the last months of 2015 more elderly people have arrived, increasing more chronic diseases including hypertension, diabetes and renal failure (118)
The most chronic diseases seen within the refugee population in Greece are hypertension, arthritis, diabetes, COPD and CVD (124,132).

7 Comparing health status and health issues according to the location of the displacement of the Syrian population (IDPs, Turkey, Lebanon, Europe)

Based in the data described in the previous chapter a comparison is going to be made of the 4 different situations. The infographic (7.1) highlights some of the findings which illustrate the dire situation of the Syrian displaced population. A table (7.2) is made to facilitate comparison of the data of the different countries, so the differences can be analysed (7.3).

7.1 Infographic

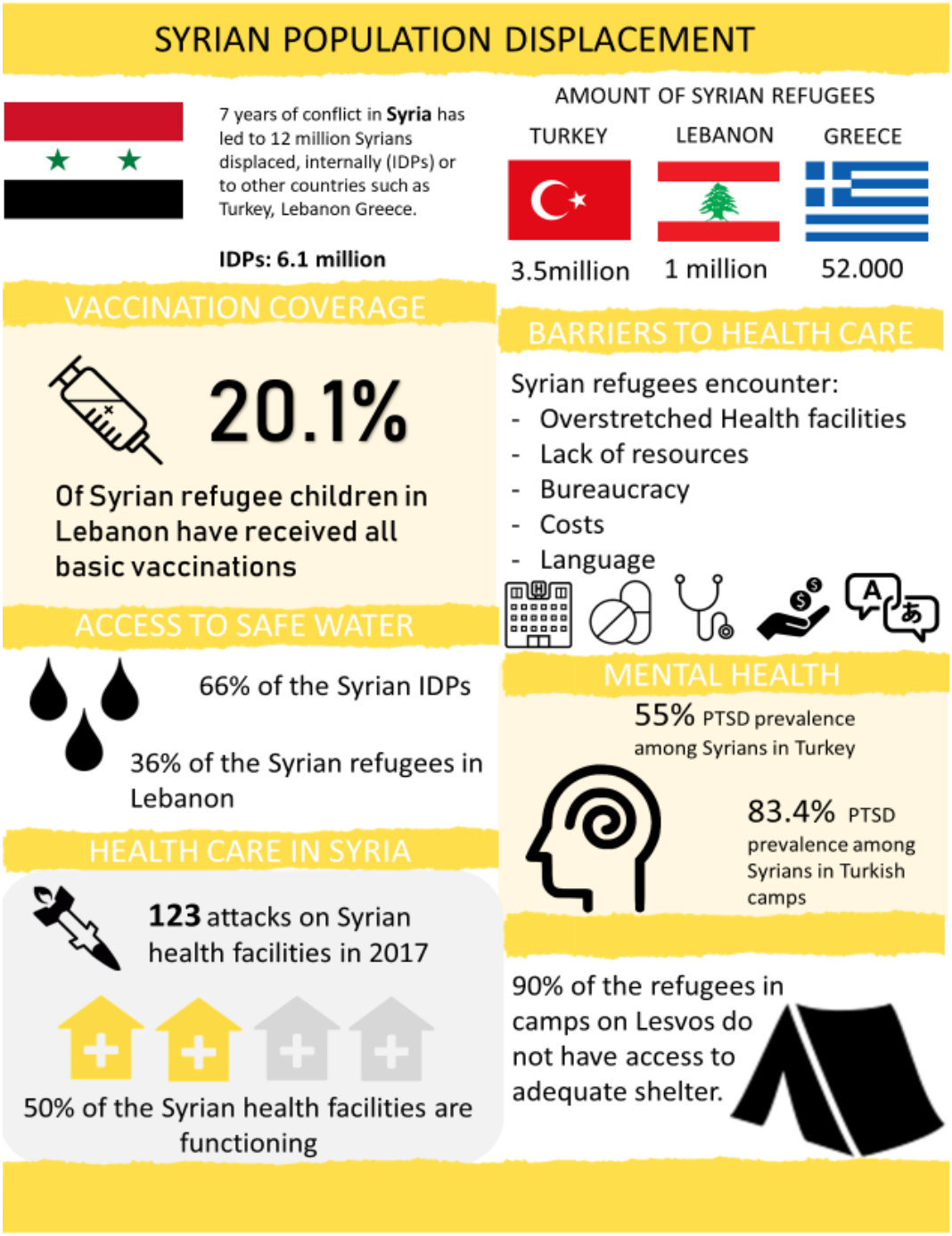


Figure 11: Infographic highlighting the situation the Syrian displace population is in.

7.2 Table for comparison data of the 4 different countries

		IDPs in Syria	Turkey	Lebanon	Greece
Mass population displacement		2017: 1,626,029 6.1 million IDPs	3,559,262 registered	1,070,189 registered 765,651 unregistered	Since EU deal 52,000 refugees, 47% Syrian.
Food shortage		2018 6.5 million food insecure, 4 million at risk More vulnerable groups: people living in hard-to-reach- and besieged areas and IDPs	Over 90% of the interviewed households in this assessment were qualified as poor by the Turkish national living standard.	91% of the Syrian households in Lebanon are food insecure to some degree 38% of the household are moderately and severely food insecure.	Informal camps food distributions are inconsistent and poorly organised. Formal detention and reception centre sites have more structured food distributions.
Lack of water and sanitation		33% relies on unsafe water. IDPs have lack of drinking water Newly established IDP sites, and congested IDP site have insufficient WASH services. IDP sites are operating 400% of their planned capacity, leading severe shortages of latrines and showers for these IDPs.	Refugee households were most likely to report water supply shortages (65%). 22% of the cases water was insufficiently available. Of the refugee population 10% were using their living spaces for bathing. In the rural areas, 33% of the refugees did not have any bathing facilities.	36% of the Lebanese population: access to safe water. 253,000 in informal settlements 170,000 had access to temporary WASH services. 78% of the Syrians access to improved drinking water 86% had access to improved sanitation facilities such as flushable toilets (56%), and improved pit latrines (30%).	Open defecation practices at informal camps restricted or no access to running water for washing limited sanitation facilities which are filthy and often dysfunctional limited supply of drinking water

Shelter and Exposure to environment		30% are hosted by local communities. 48% renting houses 6.3% non-registered shelters 7.2% in official shelter.	7% own their homes 87% rented apartments. 2% commercial buildings. 10% living in the government-established refugee camps = 250.000 Syrians	73% residential buildings. 9% non-residential structures. 17% improvised shelters in informal tented settlements. Low humanitarians standards.	In the informal camps on Lesvos 90% of the refugees do not have access to adequate shelter. Of the occupants using the UNHCR accommodation scheme, 47% is Syrian Overcrowded shelters and camps on the Greek Islands
Low immunisation coverage		Vaccination rates in 2016 to 50-70%. Reappearance of measles polio and typhoid Syrian children had limited to no access to immunisation in the last 5 years.	Supplementary polio immunisation In 2017, 121,600 children received pentavalent vaccine. 142,000 received missing vaccination MMR Measles Vaccination Coverage is 97% (overall).	20.1% of children were fully immunised 59.1% had no difficulties obtaining vaccinations for their children. 68.2% children received measles vaccination.	52.5% of the migrant-children needed vaccinating against DTP 13.2% needed measles and rubella vaccinations
Low access to health care		2017, 51% of 111 public hospitals were fully functioning, and half of the 1806 PHC's functioning partially. 2016 65% of the IDPs get the minimum of basic health care services.	HC facilities are congested due to influx of Syrians increasing the population Health care is free of charge for registered Syrians.	HC-system overstretched, due to displaced Syrians. HC-services are available but costly.	HC facilities are congested due to limited resources . HC provided by NGOs (MSF, MdM). Officially free of charge but limited availability

		26% received sufficient health care services. 9% did not have any access to appropriate health care services 2017: 123 attacks against health care facilities and ambulances, 88 health care workers were killed or injured.	Emergency care for (un) registered Syrians. Barriers: - language - travel rights - registration - fear	89% of refugees have access to PHC. 80% has access to Secondary/Tertiary care. 2.5% in need of MH-care, 60% was able to access it. No access to health care - Cost of drugs (33%) - Consultation fees (33%) - Where to go ? (17%) - Not accepted in facility (14%)	In camps limited PHC coverage (formal and informal). No health screening on arrival. Barriers: - administrative, - language. Problems with access also for non-refugees - Economic crisis - Inequity - No clear division prim and sec HC.
Lack of resources		- GDP per capita: N/A - Health expenditure per capita/GDP: 3.2% (2014) - Unemployment 60% (2014) - Doctor:population ratio: 1:4000 (2014)	- GDP per capita: 14,933 $ - Health expenditure per capita/GDP: 5.4% (2015) - Unemployment 11.1% (2018) - 21% youth unemployment - Higher unemployment among the Syrian population - Doctor:population ratio: 1:558 (2015)	- GDP per capita: 7198 $ - Health expenditure per capita/GDP: 7.5% - Unemployment: 6.3% (2017) - 12.7% unemployment in Syrian refugee men - Doctor:population ratio 1:319 (2017) - Living Below Poverty line 76% of refugee HH	- GDP per capita: 23,027 $ - Health expenditure per capita/GDP: 8.4% - Unemployment: 18,9% (2018) - 37% youth unemployment - No specific numbers for the Syrian refugees - Doctor:population ratio: 1:159 (2017)

		- Local production of medicine decreased by 50%			
Mental Health		Feelings of anxiety, anger, fear hopelessness 190,000 IDPS have severe mental health problems needing care 900,000 have mild to moderate psychological problems	Feelings of hopelessness, psychological distress, increased family violence and negative coping strategies Turkish camp: 83.4% PTSD prevalence 37.4% depression Overall in Turkey 55% PTSD prevalence among Syrians	2.5% of Syrians in need of MH-care Increasing incidences of PTSD, depression and anxiety as well as suicidality among Syrian refugees In Syrian camp: 35.4% PTSD (lifetime prevalence) 27.2% point prevalence	Feelings of anxiety, distress and depression. Lack of information on legal procedures and uncertainty about the future increase these symptoms Depression in 44% of refugees in camp 92% of Syrian refugees anxiety disorder in need of MH-care
Malnutrition		2017 2.56% (SAM) in children screened WHO-supported nutrition centres >1000 children needed referral to ITFC, a 30% increase compared to 2016	Stunting 23.9% in 2014 9.3% Severely stunted 4.3% wasted 9.2% underweight 5.7% overweight	The Global Acute Malnutrition seen among Syrian children aged 6-59months was 2.2%	2014 Save the children assessment no visible signs of malnutrition among the displaced population. 2018 in refugee children aged 1-18yrs, 4.6% of them were wasted and 7.3% were stunted
Increase in infectious diseases	Polio	In 2013 a polio outbreak was seen in Syria. In 2017 a vaccine-derived poliovirus circulates total number of cases was 74 as of December 2017	In Turkey there is almost 90% vaccination coverage of polio in refugee and Turkish children No polio cases have been reported		

	TB	No large increase has been seen in the incidence of tuberculosis In 2016 there were 93 new cases	The prevalence of tuberculosis in 10,689 screened Syrian refugees was 18.7/100,000.	2013 increase of 27% of tuberculosis cases, mainly among refugees, 48% of the tuberculosis cases was among non-Lebanese Before 2011 tuberculosis case rates where decreasing.	Screening of refugees for tuberculosis and latent tuberculosis Prevalence of tuberculosis among refugees in Greece is perceived as low. No increases in tuberculosis was seen since the influx of refugees
	Measles	2010: 36 cases 2014: 549 cases	2012:18 cases 2013: 656 cases 2014: 88 cases 2015 102 cases 2016 8 cases	2012 9 cases of measles. 2013: 1760 cases; 13.2% in Syrian refugees. 2014: 235 cases	No reports have been found of measles cases in refugee camps in Greece.
	CL	Higher rates expected in displaced populations living in camps	In the Syrian refugee camps: 2012: 109 cases 2013: 2835 cases 2014: 1843 cases	Lebanon prior to influx 0-6 cases of CL per year 2013: 1033 Leishmaniasis cases(99.8% cutaneous form) 97% among Syrian refugees 2014 663 cases of CL	32% of the Syrian refugees in Europe were found to have cutaneous leishmaniasis
Increase in chronic disease complications		8% of the patients frequented the services because of NCD-related issues. Increase in COPD among IDPs in the camps. An increase in consultation for chronic disease care.	6.4% of the Syrian refugees have a history of CVD. 4.1% have diabetes 25.6% has Hypertension The Body Mass Index (BMI) for Syrian refugees living in Turkey show that 32.6% are overweight and 27.7% are obese	8% of the patients frequented the services because of NCD-related complaints. The most observed NCDs were asthma, COPD, diabetes, hypertension and CVD	Increases seen in consultations for chronic diseases such as hypertension, diabetes and renal failure, chronic pulmonary diseases, and CVD.

Table 3: Table for comparison data of the 4 different countries

7.3 Comparing the situation in Syria, Turkey, Lebanon and Greece

7.3.1 Mass population displacement

Overall Turkey hosts the most Syrian refugees in the world. However, the majority of displaced Syrians are still inside Syria. For Lebanon the impact is largest as the influx has increased the population by 25%, which has a significant effect on the host-community. The refugee influx in Greece came in the middle of their economic crisis, which has had its impact on their response.

7.3.2 Food shortage

Food shortages are seen among the IDPs as well as in Turkey, Lebanon and Greece.
In Syria 6.5 million people are currently food insecure. This shows that food insecurity not only affects IDPs. In Turkey a similar process is seen with increases in food shortages among refugees. 30% of the households are food insecure. In Lebanon the overall poverty is higher than in Turkey encompassing 91% of the Syrian households. In Greece there have been several reports of food insecurity. The degree to which is unknown, no formal assessment has been done to assess the food insecurity in the Greek camps.

7.3.3 Lack of water and sanitation

Lebanon is currently having the most difficulties with access to safe water for the Syrian refugees. Only 36% have access to safe water, while in Syria 33% are relying on unsafe water. Syrians in Lebanon have access to safe drinking water but this is expensive.
Not having enough water has been mentioned in Syria, Lebanon, Turkey and Greece, and this was mainly in the context of bathing.
Sanitation seemed to be the biggest problem in Greece, due to overcrowded campsites, which led to open defecation practices. This leads to a higher risk of outbreaks of infectious diseases.

7.3.4 Shelter and Exposure to environment

In Syria, Turkey and Lebanon the majority of the Syrian population stayed in rented houses. Refugee camps in all countries were overcrowded, had issues with WASH and security. Another reason for more people living outside the camps could be that the population is used to better quality living conditions than are available in the camps, even though the houses they are living in are often in bad condition.

7.3.5 Low Immunisation coverage

Vaccination rates in 2016 decreased to 50-70% in Syria. Syrian children had limited to no access to immunisation in the last 5 years, which resulted in a reappearance of measles, polio and typhoid. The immunisation coverage seemed lowest in Lebanon, and similar in Syria and Greece. Preventative measures were taking in Lebanon, Turkey and Greece for re-emerging vaccine-preventable diseases among the Syrian population. Vaccination coverage among the Syrian population was relatively good, probably due to their high coverage prior to the conflict.

7.3.6 Low access to health care

Increases in health care risks and outbreaks due to poor living circumstances, increased the need for health care.
Health care services are officially free of charge for registered Syrians in Turkey, Syria, and Greece. Emergency care is free for all Syrians (also unregistered in Greece and Turkey).

Barriers to healthcare include lack of resources (in Syria, Lebanon and Greece), language (in Turkey and Greece), cost of consultation and drugs (in Lebanon and Greece), administrative issues (in Turkey and Greece), congested and overstretched health care facilities (in all countries), and limited health care facilities near camps (in Syria, Lebanon and Greece)

7.3.7 Lack of resources

The highest GDP per capita and health expenditure per capita is seen in Greece, the lowest in Syria. The doctor: population ratio was the worst in Syria with 1:4000, due to both the targeted attacks on health care facilities and medical staff fleeing.
Interestingly while the GDP per capita is a lot lower in Lebanon compared to Greece and Turkey, the health expenditure per capita/GDP is quite high.
Unemployment is the biggest issue in Syria, followed by Greece. In all countries more unemployment was seen among the youth and, where data is available, among the Syrian population.
All countries have issues with the distribution of health care resources and staff across the country, with less services in rural areas, where often most of the refugees are residing.

7.3.8 Mental Health problems

In all countries the Syrian populations express feelings of helplessness, anxiety, distress and depression. PTSD prevalence was very high in the Turkish camps. In Lebanon less than half of the prevalence of PTSD in Turkey was seen. Often access to mental health care was limited, decreased even more by language barriers in Greece and Turkey.

Comparing the data for mental health diseases is difficult as different criteria are used in the different settings. In addition different groups of refugees were studied. However the overall conclusion is that there seems to be an increase in mental health problems among the displaced Syrians. A higher prevalence of mental health problems in Turkey is seen, making adequate mental health care even more important here. Often refugees do not know how and where to search for help regarding mental health issues. There is also the issue of the stigma it has in their own culture.

7.3.9 Malnutrition

In Turkey and Greece a similar amount of children were wasted (4.3% and 4.6%). This was lower in Lebanon 2.2%. In Syria similar numbers to Lebanon were found.
In Turkey and Greece, the prevalence of stunted children was higher, suggesting a more chronic nutritional problem, which originated already in Syria. An increase in malnutrition in Syria was seen after the drought between 2006-2010.

7.3.10 Increase in infectious diseases

Polio cases were only reported in Syria, prompted by vaccination campaigns in Lebanon and Turkey.

Since the influx of refugees, only in Lebanon was there an increase in tuberculosis cases. In the other countries there was not a significant increase of tuberculosis.

Measles outbreaks were seen in Syria, Lebanon and Turkey. However all were contained.

Increases in CL were mainly seen in Turkey and Lebanon. Higher rates were expected among the IDPs however no clear data on this was found.

A large population displacement is linked with increases in infectious diseases, and this was seen to some extent in all countries. This might be due to the epidemiological transition that Syria was already in, causing a decrease in infectious diseases among the population prior to the conflict.

7.3.11 Increase in chronic disease complications

Little literature was found on the chronic disease complications, even though this was expected to be relevant for this population. In all countries, there was mention of increased consultations because of chronic diseases.

8 Discussion

The aim of this work was to compare health indicators amongst the displaced Syrian population in Syria, Lebanon, Turkey and Greece, according to the adapted framework of Guha-Sapir and Panhuis. The adapted framework used for analysis in this study has shown the impact that the conflict and displacement has had on the lives of the Syrian displace population, socially, economically, physically and in terms of lifestyle. These factors are interlinked. They have an influence on health outcomes, and play an important role in the health status of the Syrian population.

Looking at the refugee situation in all four countries we see that the lack of adequate shelter, food and economic possibilities impacts the general health and access to health care and that also has an impact on the (mental) health of the refugees.
Improving the situation of IDPs within Syria is even more difficult in a disrupted country. An adequate response to their health care needs is difficult due lack of access and resources. Insecurity is preventing the international community from stepping in. This has an impact on the general Syrian population, but even more so on the IDPs as they have lost their social surroundings, shelter and income.
Syrians who have become displaced to other countries are not necessarily better off. The violence and conflict is reduced, but other new problems arise such as finding shelter, income and food, language barriers, changes in culture and loss of social networks.
The new host country can have additional problems in taking care of their needs. Greece recently suffered from an economic crisis which is reflected in the lack of humanitarian aid delivered to the refugees. The circumstances of the refugees living in Greece are shocking.
Probably due to the EU-Turkey deal, no other international organisations have stepped in, as they do not want to encourage new arrivals of refugees to Europe. However, these people are living in inhumane circumstances in Europe. Despite the EU-Turkey deal arrivals on the Greece islands are increasing again and action needs to be taken to improve the living circumstances of these refugees.

When the refugees do not speak the local language, a worsening of the health situation can be seen including in the access to health care and overall health outcomes. This is especially visible in mental health care. Where, in Turkey, the highest numbers of mental health issues were seen, this could be largely due to the language issues, as well as cultural differences. The numbers of mental health issues were also higher in Greece another country where the Syrians could not voice their issues in their own language.

In Lebanon the humanitarian community is active and helping, and they are in need of this as without the Lebanese economy will probably collapse and make the situation even more dire.

Limitations
Most of the literature used and found were reports of international organisations and (i)NGOs, these however might not be free of bias, as they also need funding for their projects and want to show the good results of their projects to their donors and the government. Interestingly it was possible to find online government information about the refugees from countries like Syria, Turkey and Lebanon in English, whereas there was no open access information about the displaced population in Europe and Greece. This governmental information could be biased as well, as governments want to show what they are doing for the displaced population to their population and international organisations. While more clear numbers and registration were expected for the situation in Greece, there was even less information compared to Turkey, Syria and Lebanon.

A large part of the data was based on data from different organisations with different catchment areas and different definitions. This has given some limitations especially on triangulation options. Most of the assessments done in each of the countries are of camps and among registered refugee households. This means that unregistered refugees and naturalised refugees were not represented in these assignments.

The adapted framework has helped the analysis presented in this thesis as it has focused attention on the different factors that influence the health of the displaced population. It might be that different influences not mentioned in the framework were missed due to the focus on these specific factors. The adaptation made to the framework is based on the hypothesis that there would be increased NCD complications, was not found due to little research done on this topic. This could be due to difficulties in registering and documenting this.

Despite these limitations the literature review and the findings in the data analysis confirmed the existing pathways for the Syrian displaced populations, showing their vulnerabilities which can support humanitarian workers dealing with these specific populations in defining their intervention priorities.

9 Recommendations

In the current situation it is important to improve the living and economic circumstances for the Syrian population, to address acute health consequences, and to prevent the further deterioration of the health status. By identifying patterns in the changes of the health determinants of the Syrian population prior to and during the conflict, we can adequately adapt health response to where the needs are highest in the different contexts. This way the most vulnerable people can be helped, taking into account specific risk factors, the environment and the lifestyle of individuals which can be different according to where they have displaced to.

9.1 Utilising the workforce among Syrians:

Initiatives, such as the development of the curriculum in Turkey to have Syrian medical staff working in the congested health centres, could be implemented in Lebanon and Greece as well. This could help resolve issues in multiple ways as it increases the household income of the working person, and it gives them a purpose in life which will improve their mental health. It will also improve the health care provided, and thereby reduce the health risks of the refugee population

9.2 Focus on mental health care

Due to the conflict, traumatic events and displacement, there are increases in the psychological stressors of the Syrian population, which have led to somatic as well as psychiatric problems. The actual burden of mental health issues is suspected to be higher than reflected in the Syrian data, and might actually be more accurate reflected in the higher numbers in Turkey. This has to do with stigma, and limited research done in the disrupted current situation in Syria. The Syrian population in Turkey might be de-stigmatised due to the difficult situation they are in.

There is a need for a focus on mental health in all four countries, starting with the provision of psychological first aid on arrival in combination with establishing a referral network. For this there might be a need for capacity building (as seen in Lebanon and Greece) (135,136).

9.3 Continuing early warning systems and vaccinations campaigns

Adequate action has been taken in Lebanon, Turkey and Greece to vaccinate children to prevent vaccine-preventable diseases, and limit outbreaks. These initiatives need to continue. Children should be vaccinated on arrival, and follow-up system should be established to ensure catch-up vaccinations. It is important to establish an early warning system to contain outbreaks early. This will have a significant impact on reducing morbidity and mortality.

9.4 Increase research on chronic diseases in displaced and refugee settings

Limited data was available on the increase in NCD-complications, due to limited research on this topic. Often the humanitarian response is not focused on chronic diseases. However with the changing refugee population this is going to be increasingly problematic. More research needs to be done, to increase awareness, and improve outcomes for the population suffering from chronic diseases.

For this to improve the health care workers working in these settings need to be aware of the risk and actively screen for NCDs such as CVD risk assessments. Patient education and a health status that patients take with them to ensure continuous health care and knowledge of treatment history can also improve the health outcomes regarding chronic diseases.

10 Conclusion

The direct and indirect consequences of the Syrian conflict and displacement on the social, economic, physical and lifestyle of the displaced individuals of the Syrian population, plays an important role in determining their health. Their medical needs have increased, while the health care systems inside Syria, and in Lebanon, Turkey and Greece are overstretched and lacking resources. Medical data illustrate an increase in infectious diseases, as well as higher number of consultations regarding NCDs and mental health in all countries.

This thesis contributes to a better understanding of the determinants of health in this specific population in the different settings. This can help us to develop a better qualitative and quantitative health care response, targeting the specific needs of this population.
To improve the health of the displaced Syrian population it is necessary to strengthen, support and expand the available health care services as well as improving their health determinants regarding housing, food security and income. Trained Syrian medical staff can help address the overstretched local health services and the need for health care services in Arabic to improve the quality of care. A special focus needs to be on the diagnosis and treatment of chronic diseases. To achieve this there needs to be a strong collaboration between medical providers, (i)NGOs, international organisations and governments.

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Annex

Annex 1 Framework of Guha-Sapir and Panhuis (25)