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

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

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Abbreviations

BMI	Body Mass Index
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
FHH	Female headed household
GAM	Global Acute Malnutrition
GDP	Gross Domestic Product
HC	Health care
HeRAMS	Health Resource Availability Mapping System
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Person
iNGO	international Non-Governmental Organisation
ISIL	Islamic State of Iraq and the Levant
MdM	Médecins du Monde
MH	Mental health
MMR	Vaccination against Measles, Mumps and Rubella
MoH	Ministry of Health
MSF	Médecins Sans Frontières
NA	not applicable
NCDs	Non-Communicable Diseases
NGO	non-governmental organisation
PHC	Primary Health Care Centre
PTSD	Post Traumatic Stress Disorder
PWD	Persons with disabilities
SAM	Sever Acute Malnutrition
TB	Tuberculosis
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
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)

Under-immunized: "A level of immunization which is suboptimal for a person or population" (8)

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." (9)

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."(10)

“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. To identify the needs of the displaced Syrian population it is necessary to understand the effects of conflict and displacement on their health.

Objective and Methods:
This thesis focuses on the direct and indirect influences of conflict and displacement on the Syrian population, identifying factors influencing health, inside Syria, Turkey, Lebanon and Greece. An adapted framework based on the conceptual framework of Guha-Sapir on the influences of armed conflict on health was used to assess the effects 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
Data from the different countries illustrate the difficult situation of the displaced Syrian population. Lack of adequate shelter, food shortages, low income, and reduced access to health care 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: 12875

1 Introduction

All of the Médecins Sans Frontières missions in which I have worked have always had a focus on displaced populations. Displaced populations are vulnerable because the loss of their social networks, income and shelter. When working for Médecins Sans Frontières in Syria, I saw the devastating and dire situation of the displaced Syrian population first hand. Even though the conflict is still ongoing, less and less is reported about the situation of the Syrian population. Through my work with this population, I know some of the difficulties and challenges that refugees and internally displaced persons are dealing with.

The latest records of worldwide displacement reported by the United High Commissioner for Refugees (UNHCR) are the highest ever recorded. Currently there are 68.5 million displaced people worldwide, of which 25.4 million are refugees.

Throughout history there were 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 (11).

The consequences of armed conflict are often measured by the direct consequences, such as fatalities, violent injuries and disability. More people are, however, affected by the conflict indirectly as a result of disruption of social networks, the collapse of health systems and destroyed infrastructure. This can lead to an increase in infectious diseases and other health problems such as malnutrition.

The patterns of these indirect consequences depend on the health status of the population prior to the conflict and the living circumstances of the population during the conflict. Patterns of morbidity and mortality will therefore be different in every conflict and context (12).

Displacement leads to situations of poor hygiene, vulnerability and temporary shelter and environmental exposure. The most vulnerable groups are those who live in poverty and have experienced violence, with poor access to health care (HC) services. Health risks increase due to forced migration, possibilities of falling victim to pirates and people smugglers, abuse and exploitation (13).

Displaced populations that are resettling in other countries encounter difficulties that can influence 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. In addition, there are the normal stressors of migrating to another country, such as searching for food, shelter, education and employment(14–16). Forced displacement can have even more negative health outcomes due to lack of health services, poverty, decreased coping mechanisms, and an increased population density (17).

In the current era with many conflicts and economic hardship in certain parts of the world, in addition to general globalisation there are many movements of peoples due to conflict, economic or environmental factors. To be able to treat internally displaced persons and refugees according to their health needs, it is important to understand what they have experienced and the consequences of the conflict on their health status.

With this study I will try to understand and analyse the consequences of armed conflict and displacement on the Syrian population living in Syria, Turkey, Lebanon and Greece.

2 Background

This chapter starts with a brief description of the Syrian demographics, history and the current conflict. It will continue with the primary consequences of the conflict on Syria. Some cultural differences between Syria, Turkey, Lebanon and Greece will be discussed, followed by the approach of Turkey, Lebanon and Greece on receiving refugees, in line with the focus of this thesis.

2.1 Demographics of Syria

In 2008, before the Syrian conflict, the population size was 21 million. Based on the United Nations (UN) estimates in 2017, the population of the Syrian Arab Republic is now approximately 18 million. Six million Syrians have fled the country and an estimated 570,000 died (2018) as a result of the conflict (18–21).
Approximately 90% of the population is Arab and 10% are Kurds. Data from 2007 show that 87% of the population is Muslim (74% Sunni and 13% Shia), 10% is Christian and 3% are Druze (22).

2.2 History of Syria

Syria is a low-to-middle income country in the Middle East. Since its independence from France in 1946, have been several periods of political instability due to conflict between different ethnic groups. After its independence the country formed a short union with Egypt (1958-1961). Soon after, the Baath party took control after a coup d'état in 1964. The Al-Assad family, part of a minority group of Alawites, came into power in 1970. In 2000 Hafez Al-Assad was replaced by his son Bashhar Al-Assad, who remains as head of state today (22). 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 the boosting infrastructure to provide housing, water and electricity. However, under the Al-Assad regime there has been tight control and a repressive political structure. Human rights abuses, disappearances and torture were commonly reported during this regime (23).

2.3 The Current conflict

The Arab spring, inspired by the revolutions in Tunisia and Egypt, triggered pro-democracy and anti-government protests in Syria (beginning on the 11th of March 2011). Protesters demanded President Assad's resignation, after the arrest and torture of teenagers who painted revolutionary slogans on a school wall (24). This excessive use of force by the government fuelled the civil conflict between the government, opposition and Jihadist groups which turned into a civil war involving regional and international powers. Trying to escape from the conflict, millions of people became refugees (18,23,25).
AS of the beginning of 2019 the Syrian government forces control the largest part of the country including the main cities. The free Syrian Army controls Idlib province. Raqqa, Qamishli and Hasakah are under Kurdish control. The Islamic State of Iraq and the Levant (ISIL) is in control of an area near Labu Kamal, surrounded by government and Kurdish forces. Other groups that are fighting in Syria are Jabhat Fateh al-Sham, Hezbollah and the Syrian democratic forces (26). See figure 1 for the different governorates in Syria.

Figure 1: Map of Syrian Governorates Source: (27)

2.4 Primary consequences of the conflict influencing the health status of the population.
Eight years if conflict has resulted 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 (28).

2.4.1 Damage to agriculture
The cultivation of crops and the domestication of livestock in Syria started 8000 years ago. In 1946, agriculture was the most important sector of the economy. In 2001 agriculture made up 27% of the Gross Domestic Product (GDP), and this declined to 19% in 2011 (29).
Between 2006 and 2010 there was a devastating drought leading to 800,000 farmers losing their livelihood, and 200,000 abandoning their lands. Seventy-five percent of the crops failed and 85% of livestock died. A large proportion of the farmers decided to find other employment (30).
Despite the conflict, agriculture remains the second largest contributor to the GDP. It is estimated that it accounted for 26% of the GDP in 2017 (29). The agriculture sector has been severely affected by the crisis. The wheat production in 2013 was 40% less than before the crisis. Decreased availability of food for the population is due to insecurity, fragmentation and closure of markets, disruption of production, shortages of goods, and lack of income (29,31).

2.4.2 Mass population displacement
Forty percent of the Syrian population is currently displaced, inside the country and in neighbouring countries. In 2015 more than half of the Syrian refugees were hosted in the eastern Mediterranean

region, as well as Turkey, Lebanon, Jordan and Iraq (32). In total there are 6.1 million internally displaced people (IDPs) inside Syria (28,31).
Figure 2 shows the percentages of IDPs per governorate in 2017. The highest percentages are seen in Quneitra, Hama and Aleppo (33).
Table 1 shows the different destinations of Syrian refugees and the reception of the hosting countries.

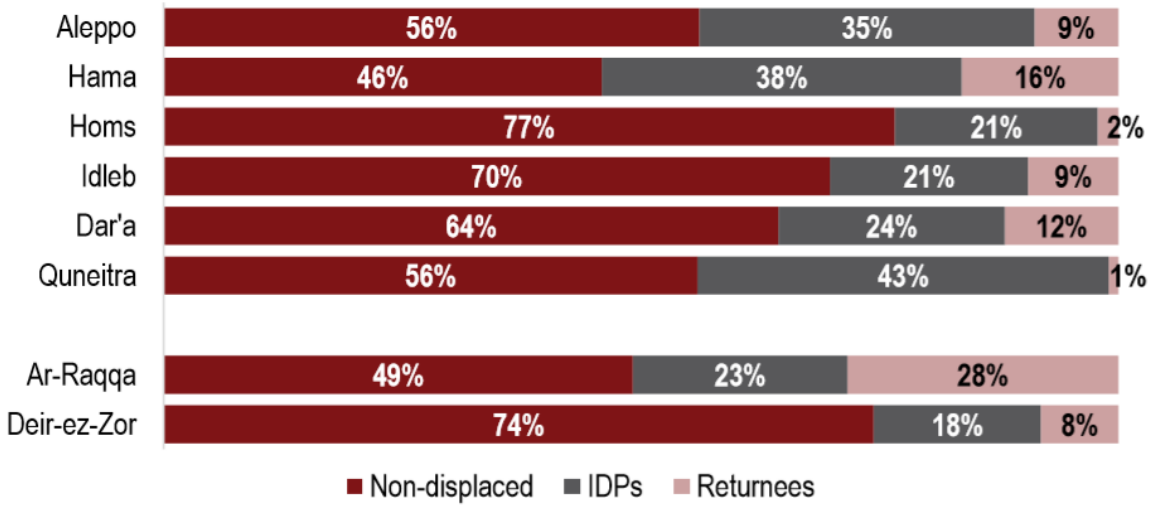


Figure 2: Population by displacement status, per governorate(33)

Syrian Refugee destinations and reception of hosting countries			
	Estimated number of Syrian IDPs/refugees	Living situation	Reception of IDPs and Refugees
Internally displaced Population (within Syria)	6.1 million ((28,31)	Mixed living in camps and among host population	- 30% of the IDPs are hosted by local communities. - 48% of the IDPs are renting houses. - 7.2% of the IDPs are living in official shelters, - 6.3% of the IDPs are living in non-registered shelters (34,35).
Turkey	3.5 million (2018) (36–38).	Mixed living in camps and among host population	- largest host of Syrian refugees (36–38) - temporary protection status for Syrians - EU-Turkey deal - working towards naturalisation and integration of refugees into the society. - access to basic medical services - the right to attend education
Lebanon	1 million registered and 765.000 unregistered (2017) (32,39).	No-camp policy Living in informal settlements among host population in	- Largest per capita host of refugees - increased poverty among host community due to refugee influx (32,39) - Syrians have no refugee rights

		the poorest areas (32,39)	- stricter visa and work requirements since refugee influx
Jordan	1.27 million (2016) (40)	Mixed living in camps and among the host population	- did not sign the 1951 Geneva convention to the status of refugees - government has not forced any Syrian or Iraq refugees to return to their country of origin - Refugees mobility is constrained (need of sponsorship) - no access to labour market (41)
MENA region	5 million (42) Of which 250.000 in Iraq 150.000 in Egypt (43)	Iraq: mainly in camps (44) Egypt: mainly among host-community (45)	- Iraq: no legal framework for refugees (44) - Egypt: Syrians need to get a 3-month tourist visa prior to arrival, after expiry they need to register with the government. Public health and education accessible to Syrians (45).
Greece	50.000 (2016) (46)	Mixed living in camps and among the host community(47) (48).	- Geographical restrictions leading to overcrowded reception facilities - Again an increase in 2017 of arrival of refugees despite EU-Turkey deal(49).
European region	1 million (42) Germany: 500.000 Sweden 110.000 Austria 50.000 (43)	na	- no Syrian nationals are brought back to Syria - Ensure that Syrian nationals have the possibility to apply for asylum - receive a protection status (50)
Other parts of the world	100.000 (42) Canada: 52.000 United States: 21.000 (43)	na	na

Table 1: *Syrian Refugee destinations and reception of hosting countries*

2.4.3 Damaged infrastructure

Buildings

Thirty-seven percent of the structures in eight of Syria's largest cities (Aleppo, Damascus, Daraa, Deir ez Zor, Hama, Homs, Idlib and Raqqa) have been moderately damaged, 35.3% have been severely damaged and 27.7 have been destroyed. The highest density of damaged structures is seen in Raqqa. Aleppo accounts for 32.7% of the total number of damaged structures. The highest density of destroyed structures is seen in Hama (51).

Education

Before the conflict, 97% of primary-school age children were attending school and 67% of the secondary-school age children. Literacy rates were over 90%, similar to Turkey and Lebanon. The national investment in education increased from 15 to 19% of the GDP between 2004 and 2009 (52,53).

In 2017, a quarter of all schools in Syria were closed, damaged, destroyed or used for other purposes. Over two million children were out of school. The proportion was 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 (54–56). Around 59% of the IDP-children attend some form of education, 25% of the children get basic education, and 16 % do not attend school at all (34).

Water and sanitation
In 2009, 93% of the population had access to improved water sources (57). Public drinking water pipelines covered most of the country. Ninety percent of the population had access to improved sanitation facilities in 2009 (57).
In 2017, over one-third of the Syrian population was relying on unsafe water(31). The infrastructure for water, sanitation and hygiene (WASH) has decreased and at the same time demand has increased due to IDP influxes (58).

Health care
Before the crisis, the Ministry of Health ran 90 hospitals and 1919 health facilities. The health care system had a sufficient number of health professionals. The private sector covered 60% of all health care services.
There were advances in the epidemiological transition, the burden of disease for the general population was switching from communicable diseases to non-communicable diseases. The fertility rates was decreased from 5.31 births per women in 1990 to 3.16 in 2011 (19). Under-5 child mortality rates decreased, from 30.4 deaths per 1000 live-births in 1990 to 14 in 2001 (19). There was an increase in overall life expectancy to 76 years in 2013, 2 years above the global average (19,59).
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 (34), to 2.2 in 2016 (60). Among IDPs the crude birth rate was 27.6 per 1000, while for the non-displaced population 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 since 2014 (34).

2.4.4 Decreased health expenditure
Before the conflict the total government expenditure on health was 3.7% of the GDP in 2011 which was lower compared to neighbouring countries such as Lebanon (7.5%) and Turkey (5.4%) (19,61). The Health expenditure of the government decreased to 3.2% in 2014 (62). No data about the health expenditure are available after 2014.

WHO Health expenditure of the Syrian Arab Republic	**2007**
Total expenditure on health as % of gross domestic product	3.6%
Per capita total expenditure on health	$154
General government expenditure on health as % of total expenditure on health	6%
Private expenditure on health as % of total expenditure on health	61.2%
Out of pocket expenditure as % of private expenditure on	100%

Table 2: WHO World Health Statistics report 2010, source: (63)

Prior to the conflict the World Health Organisation (WHO) assessed the health expenditure in Syria, showing a high private expenditure (see table 2). Because of physicians working in both the public and the private sectors, and the perceived low quality of care in the public health care facilities, patients often preferred to pay for private services (64,65). No information was found of the current

situation of out-of-pocket payments or the influence of humanitarian organisations providing aid to the Syrian population.

2.5 Cultural differences and similarities between Syria, Turkey, Lebanon and Greece

Syria

The Syrian society is a multicultural society, based on social relationships established through cultural, religious, social and ethical connections. Internal conflict, has occurred throughout history, either due to external interference, hegemonic control, religious minorities or cultural diversity (66). IDPs specifically struggle with disruption to social cohesion and integration at the local level and differences in culture in their new residing area (66).

Turkey

Turkey, once the centre of the Ottoman Empire, now a modern secular republic was established in 1920s by Kemal Ataturk. Progress towards democracy stopped after his death in 1928. Turkey has a longstanding ambition to be part of the European Union (EU), currently halted due to violations of human rights. The official language is Turkish. The other major language is Kurdish (one fifth of the population is Kurdish). The major religion is Islam (90%) (67,68).

Turkey has signed the 1951 convention relating to the status of refugees. However, the government only accepts legal responsibility for European refugees. For Syrians this means that they can obtain a temporary protection status for a limited period. This restricts their livelihood, especially for those living outside camps, and access to regular employment, education, and social and economic support (38,69).

The EU-Turkey deal, signed on the 20th of March 2016 aims to improve the asylum process, reducing human trafficking, and decreasing the influx of refugees into Europe. Under this agreement the Turkish government is to take back all refugees including Syrians, thereby progressing its EU-membership negotiations (38,69,70). Currently Turkey is working towards naturalisation and integration of refugees. Syrian refugees are thereby allowed to work without work permits. They have access to basic medical services all over the country, and the right to attend education (71).

Lebanon

Lebanon has many of the cultural characteristics of the Arab world, with some differences from neighbouring countries. Lebanon is one of the most densely populated countries in the area. It has little natural resources of its own. The society is composed of various ethnic religious and kinship groups. Lebanon has a varied religious composition, with the largest group being Muslim, followed by Christians. The official language is Arabic (72,73)**.**

Lebanon has not signed the 1951 refugee convention. The government does not class the displaced Syrians as refugees, they are called displaced persons or de facto refugees. These categories do not offer the Syrian refugees any legal protection (74–76).

After 1 million Syrian refugees were registered, the government decided to restrict the visa and work requirements in 2014. To renew a residency status, refugees need a sponsor inside Lebanon and payment of $200 per person. As a result, poorer Syrians did not to renew their status and live illegally in Lebanon (77). The lack of legal protection and status increases marginalisation. The Lebanese government does not allow the establishment of formal refugee camps by humanitarian organisations, resulting in informal settlements arising across private lands (76–78).

Greece

After World-War II there was rapid economic and social change in Greece. The global financial crisis in 2000 had a devastating effect on the economy. The high public spending and widespread tax evasion together with the recession led to a large debt (79,80). The population of Greece has a large

ethnic diversity (80). The major religion in Greece is Christianity. The official language is Greek (79,80).

Greece is seen as the gateway to Europe, because of its geographical proximity to Turkey (81–83). As part of the EU-Turkey deal, refugees waiting on the Greek mainland were supposed to be relocated within the EU. Of the 98,000 people that the EU agreed to relocate only 31,503 were relocated between October 2015 and October 2017. The process stopped in September 2017 (82).
Part of the EU-Turkey deal involved geographical restrictions for those arriving on the Greek islands. Refugees need to remain in the islands for the full registration of their asylum claim. The slow asylum procedures, and the constant stream of new arrivals, has led to overcrowding in tents or small containers (82).

3 Problem Statement, Justification and Objectives

3.1 Problem statement

In 2015, 97,000 people were killed in 50 different armed conflicts (84). These are only the combat-related deaths. Health impacts of war extend far beyond the battlefield, into lives and communities with devastating results. Estimates of the 20th century's annual conflict related death toll are between 1 and 1.5 million per year (85), similar to tuberculosis (1.190.000-1.360.000) and HIV/AIDS (between 670.000-1300.000) (86) and more than malaria (401.000-470.000) in 2017 (87).

The collapse of health systems due to conflict results in worsening maternal and new born health indicators, often used as overall health system performance indicators. In South Sudan, a region with decades of violent conflict, a girl is more likely to die in childbirth than to finish primary school (88). In 2013 in Gaza a rise in neonatal and infant mortality was seen among Palestine Refugees for the first time in 53 years, probably due to Israel's blockade of the strip, leading to limited access and resources for the health facilities in Gaza (89).

Armed conflict poses a threat to life due to the effects infrastructure and the health system. In Yemen, a country afflicted by war for years, the disruption of the tap-water supplies resulted in outbreaks of malaria and dengue in 2015, as the water collecting in containers created breeding grounds for mosquitoes. The distribution of preventative measures, like bed nets and insecticide sprays, are hampered due to insecurity (90).
Since 2016 there is an ongoing cholera outbreak in Yemen. At the peak of the outbreak in 2017 more than 150 patients were admitted to hospital daily with severe watery diarrhoea. Twenty percent of them had Cholera (91). Damaged sewage systems, disrupted water supplies, displacement and crowded living conditions, create environments in which waterborne disease can thrive (92).

The degradation of health services leads to disrupted vaccination programmes, leaving children susceptible to preventable diseases. In Pakistan insecurity is hampering the battle against the polio outbreak, with 80% of new cases in the unstable regions of Karachi and the Federally Administered Tribal Areas (93).

The recent increase in conflict worldwide has led to mass displacement. Presently 60 million people worldwide are displaced, the vast majority of whom are IDPs (36). Nowadays the majority of the displaced people are no longer living in refugee camps, but among the host community's poor, in overcrowded and unsanitary conditions. Their relative anonymity in the cities makes it difficult to reach them (94).
Displacement has a risk of spreading infectious diseases. In Darfur an outbreak of the hepatitis E virus in 2004 had over 2500 cases in 6 months within the displaced population. This outbreak subsequently spread to neighbouring Chad with the fleeing Sudanese people (95).
The average length of displacement worldwide is estimated at 26 years on average (96). This shows that mitigating the health impacts of displacement is an important priority.

After the wars end, mental health (MH) problems such as post-traumatic stress disorder (PTSD) continue to have a toll on the communities. The 20-year war in Northern Uganda between the Lord's resistance army and the Ugandan government has led to the displacement of 2 million people. Research done among these IDPs showed that 54% of them had PTSD and 67% had depression, due to exposure to traumatic events and displacement (97).

Syria has been torn apart by war for 8 years. The conflict in Syria has led to the displacement of 12 million people, of whom 6 million are IDPs (11,36). The remainder flee to Turkey, Lebanon, Jordan and Europe.

The international focus is on the number of deaths and the refugee crisis that the Syrian conflict has caused. The indirect consequences of displaced populations, the breakdown of health and social services, and the heightened risk of disease transmission due to the civil war, however are much greater than the direct fatalities. The magnitude of the health consequences due to this conflict deserves attention from a public health point of view, as much as many other causes of illness and death (12,98–100). The number of indirect victims of the conflict and displacement will continue to grow even after the conflict has ended, due to the impacts of disrupted education, social support and mental health consequences (98,101).
It is complicated to quantify the direct and indirect effects of the conflict (98,101,102). Research to estimate numbers of additional deaths is generally absent. Most information can be found in reports from international organisations. Carrying out specific studies on the displaced Syrian population is challenging due to the dispersion of this population being displaced to various locations, their high mobility, and the overwhelmed health information systems in Syria, Turkey, Lebanon and Greece due to the refugee influx (48,103–109).

The influx of displaced people creates significant humanitarian and medical needs inside Syria as well as in other countries that Syrian refugees have fled to. In order to develop effective medial strategies adapted to different cultural settings it is necessary to establish an understanding of how the conflict and displacement has influenced the health status of displaced populations, and what consequences have resulted from this. This will enable an adequate response to the refugee crisis from the health and the humanitarian sector.

Different types and degrees of difficulty are expected for Syrian refugees depending on their place of refuge. Lebanon and Jordan have a relatively similar culture to Syria and the same language, therefore only one of them will be discussed in this thesis; Lebanon. Turkey which hosts the largest number of Syrian refugees outside Syria, has a different culture and language. Greece plays an important role in this refugee crisis as it is the gateway to Europe, even though there is a relatively low number of Syrian refugees.

3.2 Justification

Studies regarding the displaced Syrian population have focused on specific health problems in specific settings, leading to fragmentation of the information. A more comprehensive overview is necessary to address the health needs of this vulnerable population. The aim of this thesis is to provide an overview of the consequences of conflict and displacement on the displaced Syrian population in four different geographical and cultural settings.
In order to develop effective medical strategies in displacement settings it is necessary to understand the consequences of conflict and displacement on the health status of the displaced Syrian population.
To compare the different situations that the displaced Syrians are in, this thesis will focus on IDPs, and the refugees in Lebanon, Turkey and Greece.

3.3 Study objectives

This thesis will explore factors influencing the health status and health consequences of conflict and displacement on IDPs, and Syrians who have fled to Turkey, Lebanon and Greece.

3.3.1 Main Objective

To describe the consequences of conflict on the health status of IDPs and Syrians who fled to Turkey, Lebanon and Greece in order to inform health actors working with Syrian IDPs and refugees, as well as help host-countries and international agencies working with these populations.

3.3.2 Specific Objectives

- To describe the main factors resulting from the conflict influencing the health status of IDPs, and Syrians who have fled to Turkey, Lebanon and Greece.
- To describe the consequences of conflict and displacement on the health status of the IDPs and Syrians who have fled to Turkey, Lebanon and Greece.
- To formulate recommendations for hosting countries and international organisations to help them address barriers to adequate health care and specific health problems of the displaced Syrian population

4 Methodology

4.1 Framework

An framework adapted from the work of Guha-Sapir and van Panhuis on the impact of armed conflict on health is used for this thesis (101,110) (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 (111,112). Therefore this framework has been adapted to enable a more specific assessment of the consequences of conflict and displacement on the health of the Syrian population. This framework will help to identify specific pathways which influence the health situation of the Syrian population in different settings.

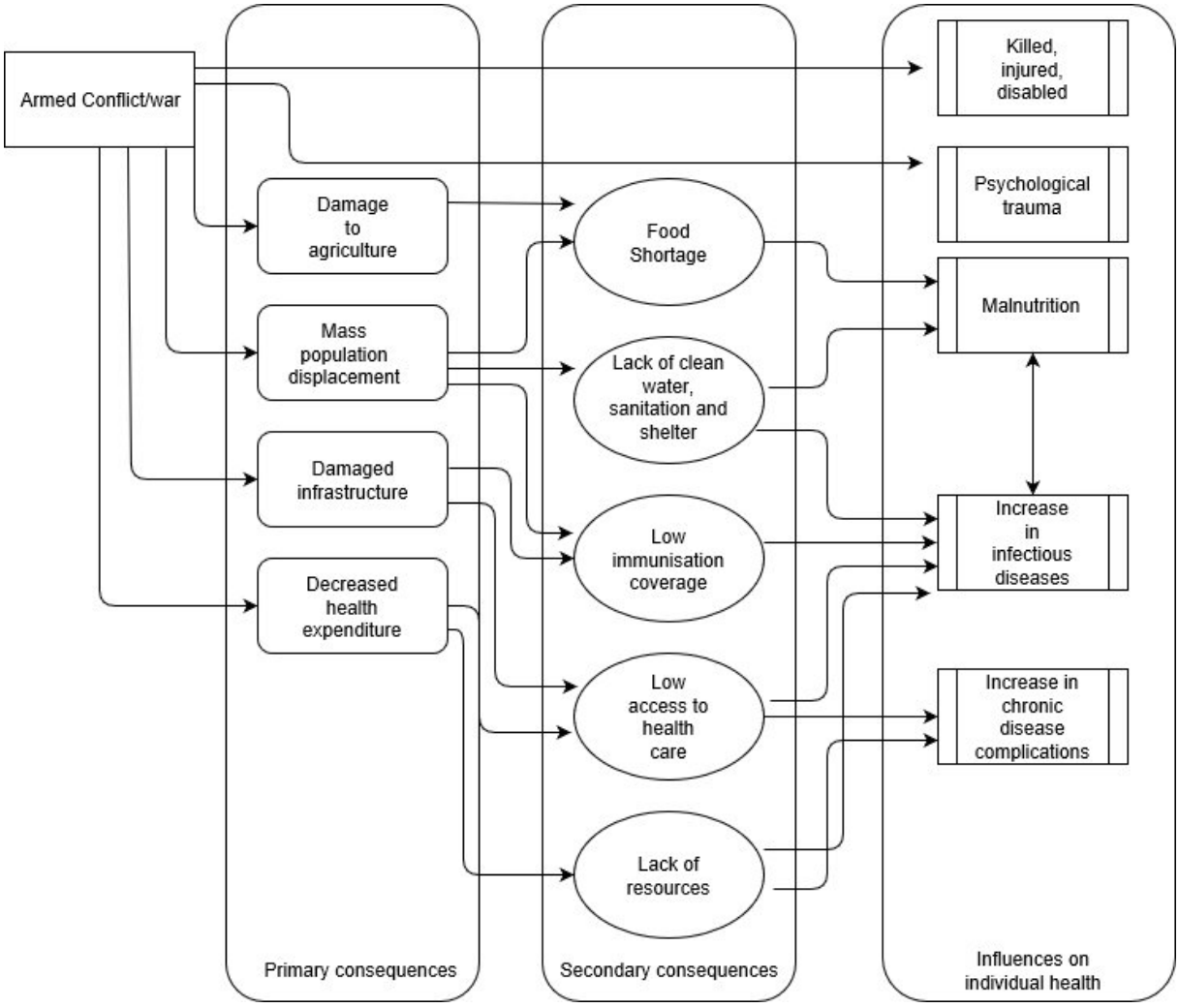


Figure 3: Consequences of armed conflict and displacement on health, an adapted Framework of Guha-Sapir and Panhuis (101)

The adapted framework shows the pathways, which influence health status (Figure 3). War and conflict have direct and indirect effects on the health status of households through their effect on the physical, social and socioeconomic environment, due to 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 (101,110).

4.2 Literature review

This literature review analyses the different components of the framework for the situation of the Syrian population and assesses the consequences on the health status of the Syrian population in four 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 the consequences of the conflict on health status and the determinants of the framework adapted from the work of Guha-Sapir and Panhuis.
Primary research including quantitative and qualitative studies, and grey literature in English are eligible. The time-period for inclusion is limited to between January 2011 and July 2019.

Search strategy and data extraction

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, 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, websites 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.
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.
This thesis used reports and findings of NGOs and iNGOs. For these data triangulation was not always possible. Therefore, this thesis focuses more on general trends and where possible uses triangulation to increase the validity of the findings.

4.3 Ethical considerations

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

4.4 Thesis Structure

The introduction explains why this topic was chosen. The background describes the Syrian refugee crisis and the structural environment as well as the primary consequences in the adapted framework.
Chapter 3 states the problem, justification and describes objectives of this thesis. Chapter 4 discusses the methods used in this literature review. Chapter 5 contains the results of the review looking at secondary consequences and the effect of the conflict and displacement on individual health of the Syrian population.
Chapter 6 compares the situation of the Syrian population that has fled to Turkey, Lebanon and Greece, looking for clear pathways of influence on their health status.
Chapters 7, 8 and 9 discuss the findings of the literature review, the limitations, and recommendations.

5 Results

5.1 The secondary consequences and influences of conflict and displacement of the Syrian population inside Syria and effects on individual health

Secondary consequences

5.1.1 Food shortage

The food security sector estimated that, in 2018, 6.5 million Syrians of the general Syrian population were food insecure. Another 4 million people are at risk of becoming food insecure. Population groups most affected are people living in hard-to-reach- and besieged areas and IDPs (29,31,113). In the most touched governorates Aleppo, rural Damascus, Al-Hassakeh, Hama and Dara over 45% of the people are food insecure (113).

The food insecurity is due to the compounding influences of conflict and insecurity, resulting in decreased food production due to loss of production, declining employment and income opportunities. The longstanding conflict has led to the depletion of livestock (29,113,114). High inflation and exchange rate fluctuations, affect household's purchasing power (113–115).

At the end of 2014 only 31 of the 140 grain-collection centres remained. Others were destroyed, damaged or appropriated by opposition forces (114). In 2015 the government introduced increased prices for subsidised items. The prices for bread increased by 40% (113).

The food insecurity in Syria is used by the government as a form of warfare. For example in Homs, Mouadamiya government forces and allies exchange food items for weapons (115).

Shortages of food are continuing in Syria with the ongoing conflict.

5.1.2 Lack of water and sanitation

In 2018 over one-third of the population relied on unsafe water to meet their needs. Due to the conflict, the cost to secure access to drinking water has increased considerably. In some areas 15-20% of family income is spent on water (31,43,116,117). The quantity and quality of infrastructure for water, sanitation and hygiene (WASH) has decreased (58). At the same time, due to the IDPs, demands increased. 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 (58). There is an increased risk of infections among children especially in IDP settings due to unsafe drinking water and poor hygiene practices (118)

Access to safe drinking water and WASH facilities has decreased since the start of the conflict, having the largest effect on the displaced populations and areas where many IDPs are taking refuge.

5.1.3 Shelter and Exposure to environment

Before the conflict, over 50% of the population lived in (peri-)urban areas. One-third of the urban population lived in informal settlements (119). Ninety-one percent of Syrians owned their houses (120).

With the start of the war many had to relocate. An estimated 30% of the IDPs are hosted by local communities (34,35), reflecting the tight social networks in the Syrian culture. Nonetheless the prolonged period of displacement puts a financial burden on the accommodating communities. Approximately half (48%) of the IDP households are living in rental houses, increasing the financial burden on families who have lost homes and income. Only 7.2% of the IDPs are living in official shelters. 6.3% are in non-registered ones (Figure 4). The low proportion of households living in shelters reflects the incapability of the IDP camps to accommodate enough people, and can also suggest low confidence in the authorities (34,35). Of the IDPs in official camps, 78% are living in tent (35).

Shelter adequacy issues were commonly reported by the household assessment in 2018. Issues that raised included exposure to the elements, broken windows, doors being unable to shut and cracked walls. The highest percentage of households living in damaged shelters were in Hama and Quneitra

as a result of escalating conflict. Female-headed and IDP households tend to live in more precarious situations (figure 5) (33). Female-headed households (FHHs) have more shelter adequacy issues (figure 6), since they often live in informal shelters (33).

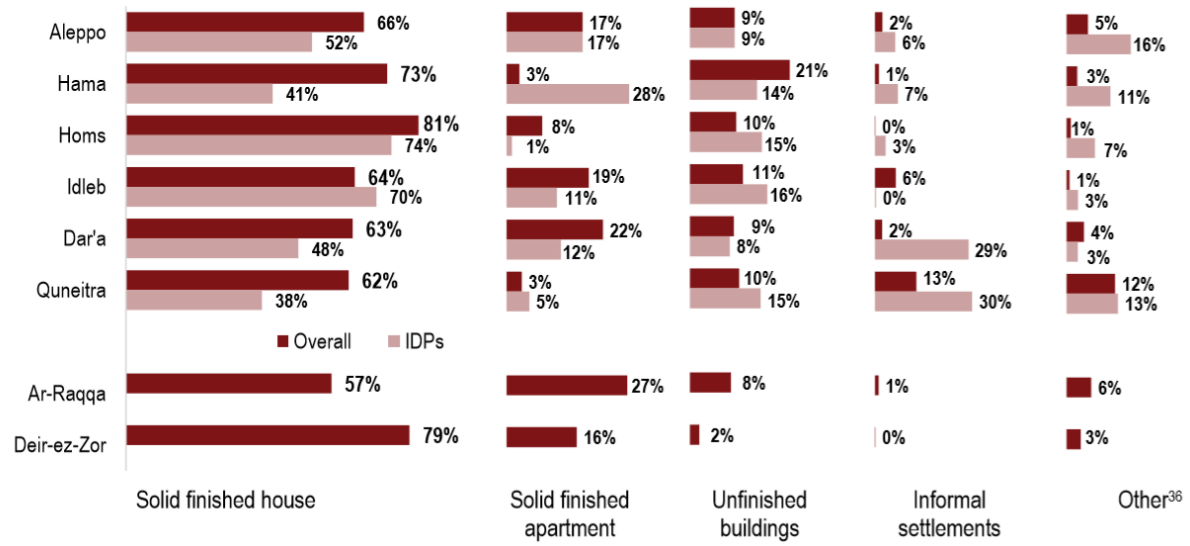


Figure 4: Overall population and IDP households in different shelter types, per governorate in 2017(33)

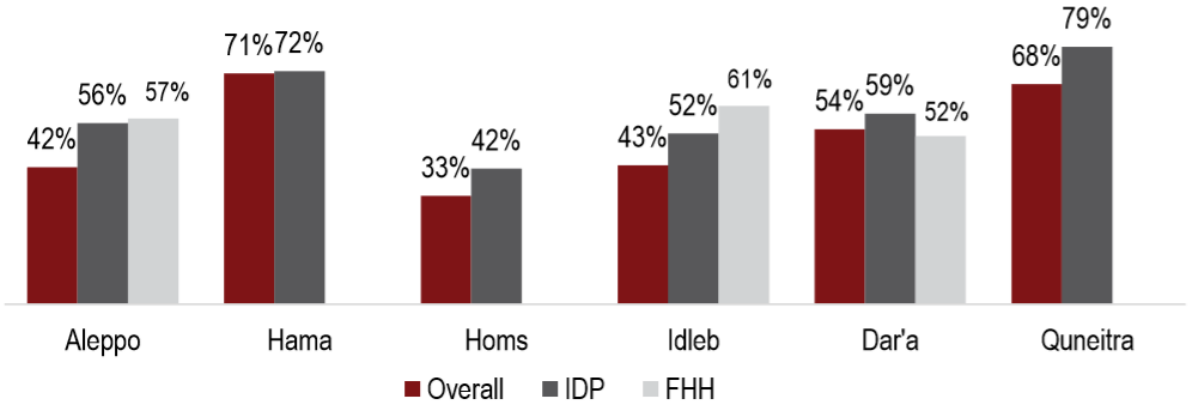


Figure 5: Percentage of households facing shelter adequacy issues, for governorates assessed through household surveys in 2017. source:(33)

	Lack of insulation from cold	Roof leaking during rain	Limited ventilation	Lack of space inside shelter	Lack of privacy inside shelter	Unable to lock home securely	Lack of access to cooking facilities	Lack of access to latrines	Lack of access to bathing facilities	Lack of access to safe drinking water	Lack of lighting	Lack of heating
Aleppo	21%	23%	7%	10%	11%	16%	3%	2%	4%	13%	9%	13%
Hama	45%	44%	8%	26%	16%	24%	7%	3%	12%	11%	9%	7%
Homs	20%	21%	3%	2%	2%	3%	0%	1%	0%	8%	7%	9%
Idleb	23%	24%	7%	12%	12%	12%	1%	1%	2%	8%	11%	9%
Dar'a	27%	32%	5%	15%	12%	21%	4%	3%	5%	11%	19%	8%
Quneitra	39%	41%	13%	27%	22%	26%	13%	14%	16%	3%	20%	15%

Figure 6: Frequency of specific shelter adequacy issues, for governorates assessed through household surveys in 2017 (33)

5.1.4 Low immunisation coverage

In 2001, 82.4% of all children completed their vaccinations, 76.3% in 2009. Vaccination rates dropped to 50-70%, in 2016. The deterioration is due to lack of access and resources, increased by displacement (58,118,121). In 2013 there was a polio outbreak in Syria, starting in Deir Al Zour province. All cases were below 2 years of age and un- or under-immunized (122,123). In 2017 a vaccine-derived poliovirus circulated but was detected and rapidly contained (55). The risk of polio remains high as a result of the destruction of the health care system and decreased vaccination numbers. With the decrease in herd immunity the chances of an outbreak increase (122).
Through the conflict, Syria has seen the re-emergence of infectious diseases such as measles, polio (2013) and cholera (2015), spread from Iraq. In 2014, 549 children were diagnosed with measles, an increase compared to 2010 (36 cases) (32,124).
The accuracy of the vaccination coverage is difficult to assess with the access difficulties and insecurity. The re-emergence of vaccine-preventable diseases is an indication, however, that this is becoming a risk.

5.1.5 Low access to health care

Eight years of conflict have set the health care system in Syria back several decades (see chapter 2.4.3). By September 2017, according to the WHO's Health Resource Availability Mapping System (HeRAMS), only 51% of Syria's 111 public hospitals were fully functioning, and half of the 1806 public health centres were closed or partially functioning, with devastating consequences for seriously ill patients and wounded. As well as the discontinuation of chronic illness follow-up and loss of records (125,126).
The targeted attacks on health care facilities result in even less availability of 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. This is not only depriving patients in need of services, but also influences the health-seeking-behaviour. Patients are postponing elective surgeries. Women prefer voluntary caesarean sections and patients pre-maturely discharge themselves to minimise time spent in health facilities (103,104).
Only 65% of the IDPs get the minimum of basic health care. 26% receive sufficient health care services, 9% do not have any access to appropriate health care services (34). This deterioration of access of health care was concentrated in the governorates that witnessed severe fighting and in besieged areas (34).
In 2013, there were 16 NGOs working in areas of Ablou, Aleppo, Al Waer, Damascus, Deir-ez-Zor, Idlib, Hamam, Homs and Tartous. They have improved the access to health care by providing essential medicines and medical supplies. Difficulties in accessing besieged and insecure areas has

hampered the humanitarian aid response and attempts to increase the overall access to health care (127).

5.1.6 Lack of resources

As mentioned in chapter 2.4.4 the health expenditure of the government as a percentage of the GDP showed a decrease to 3.2% in 2014 (19,62). No data on health expenditure was found after 2014. No data of GDP per capita is available after 2010 (128).

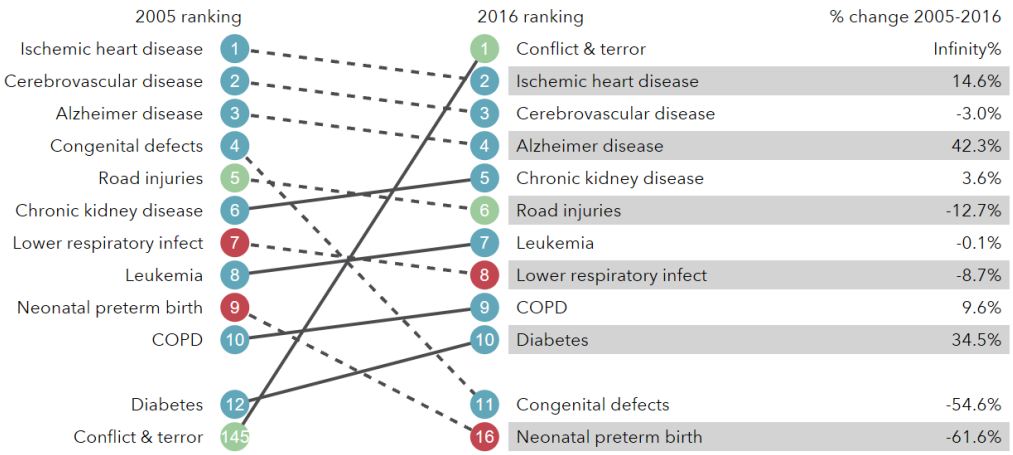
The number of doctors working in the Syrian health care has decreased. Where in 2010 the doctor: population ratio was 1:661, in 2014 it was 1:4000, as a result of medical staff fleeing the country (34). As mentioned before around 50% of the health care facilities are still functioning. These remaining facilities are struggling to cope with the large numbers of patients and lack of resources, such as human resources, electricity cuts, shortages of medicines and non-functioning equipment (103). Local production of medicine has decreased by 50% (103).

Influences on individual health

5.1.7 Killed, injured, disabled

Since the conflict began the life expectancy in Syria has decreased by 20 years. From March 2011 to December 2016, 145,849 direct violent were deaths recorded, of which 70% were civilians (129). The crude death rate in 2010 was 4.4 per 1,000, whereas in 2014 this increased to 10.9 per 1000. Of the deaths, 85% 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 (34). Figure 7 shows that the main cause of death is due to conflict and terror (130).

From 2011 to 2016, 1.5 million people were injured. 30% of the trauma cases are estimated to become permanent disabilities (131). A study by Handicap International among IDPs and Syrian refugees in neighbouring countries found 25.000 persons with injuries of which 67% was caused by the conflict, 36% led to disability (132).



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

Figure 7 Source: (130)

5.1.8 Psychological Trauma

Mental illness is stigmatised in the Syrian society. Mental health problems are viewed as personal flaws and bring shame on the family, explaining the reluctance of people in seeking MH-care. As the

war and displacement results in an increase in psychological trauma, Syrians have become more open in accepting mental health problems (133).
The Disability-Adjusted Life Years (DALYs) table (figure 8) shows that depressive and anxiety disorders where already an important burden of disease before the conflict (60).
An estimated 190,000 IDPs suffer from severe mental health problems and require specialised services. Over 900,000 IDPs experience mild to moderate psychological problems as a result of their experiences linked to the conflict. The most common feelings are anxiety, anger, fear and hopelessness (54,134). In 2018, a study among Syrian school children showed that 60.5% of the children had a least one psychological disorder. The most common disorder was PTSD (35.1%), followed by depression (32%) and anxiety (29.5%) (135).

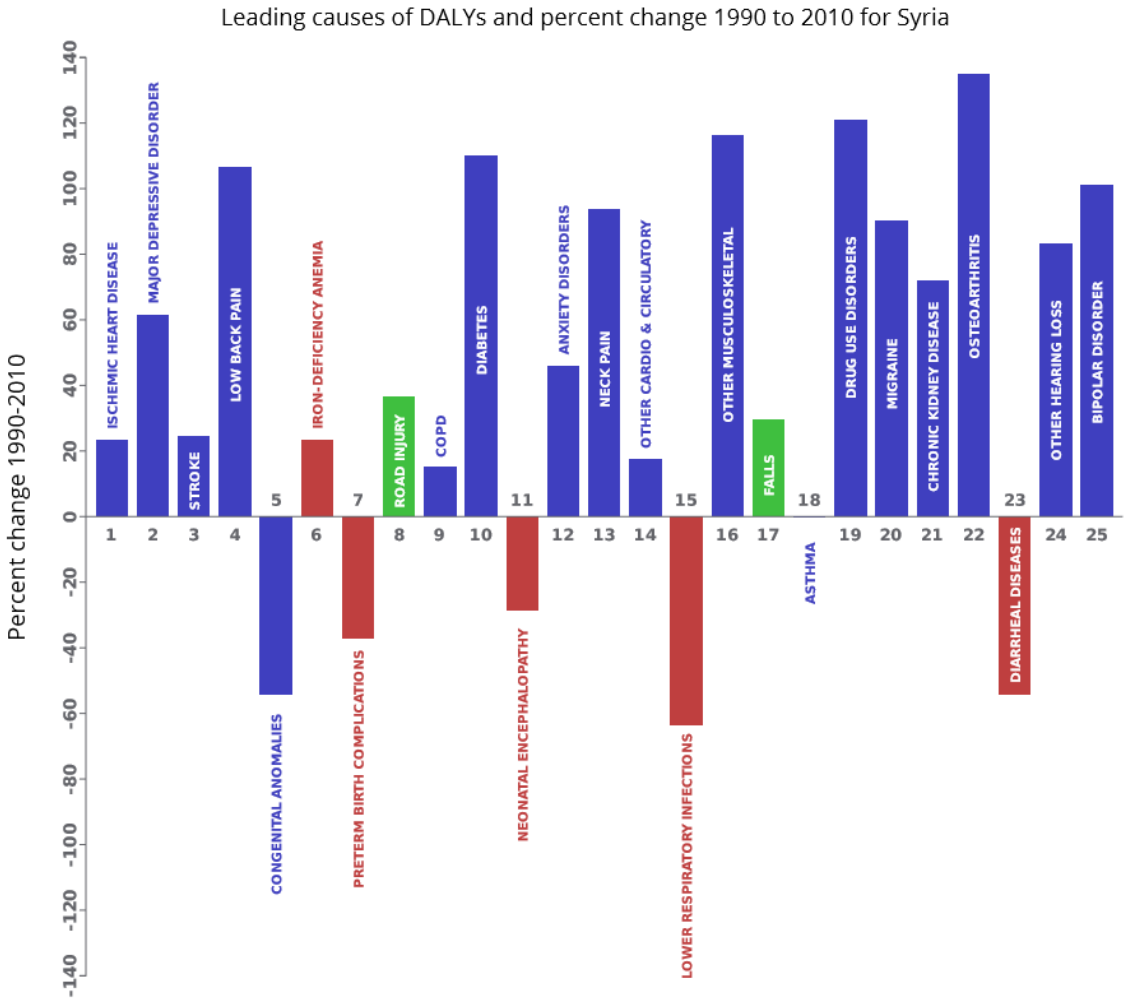


Figure 8: Leading Causes of DALYs in Syria from 1990 to 2010. Bars going up show an increase since 1990, and bars going down show a decrease in percentage since 1990. Source: (60)

5.1.9 Malnutrition

In 2009, as a result of severe droughts, the nutritional situation deteriorated. The estimated Global Acute Malnutrition (GAM) prevalence was 9.3%, and the Severe Acute Malnutrition (SAM) prevalence was 2.3%. Stunting was seen in around 25% of the population, reflecting chronic dietary deficits of proteins and energy (136,137). Micronutrient vitamin A and iodine deficiencies where recorded throughout Syria(114) .
A rapid nutrition assessment on IDPs living in shelters in 13 governorates in 2014 showed a GAM rate of 7.2%, and a SAM rate of 2.3 %. In Hama, Hassakeh and Deir Ezzor the GAM rate is estimated to be

above 10% (114). A nutrition survey done in 11 of the 14 governorates in 2015-2016 found a GAM rate of 3% (138,139). Chronic malnutrition was seen in 12.7 % of the children <5(138,140).
In women of child-bearing age, 7.8% were reported to have acute malnutrition in 2015-2016 (138,139). In 2017, a survey in the besieged location of eastern Ghouta revealed a GAM rate of 11.9% in women of child-bearing age (139).
The nutrition situation has not greatly deteriorated since the conflict began, bit with the ongoing conflict and decreased availability of food this is expected to increase. The assessment of the nutritional status is difficult, due to lack of access to besieged areas.

5.1.10 Increase in infectious diseases

Infectious diseases were declining in pre-crisis Syria due to improved living conditions and prevention measures (141). Lower respiratory tract infections decreased by 8.7% between 2005 and 2016 (figure 7) (130)
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 (122). No large increase was seen in the incidence of tuberculosis since the start of the crisis. 93 new cases were identified in 2016. This is influenced by a decreased surveillance (142).
In 2010, a total of 42,165 cases of Cutaneous Leishmaniasis (CL) were reported. Urbanisation led to an increased incidence of CL in 2008. The main burden of CL was seen in Aleppo (143). CL is a growing health problem since the start of the conflict. The overcrowded IDP camps with basic living conditions and poor WASH facilities are ideal conditions for the sand-flies (55).

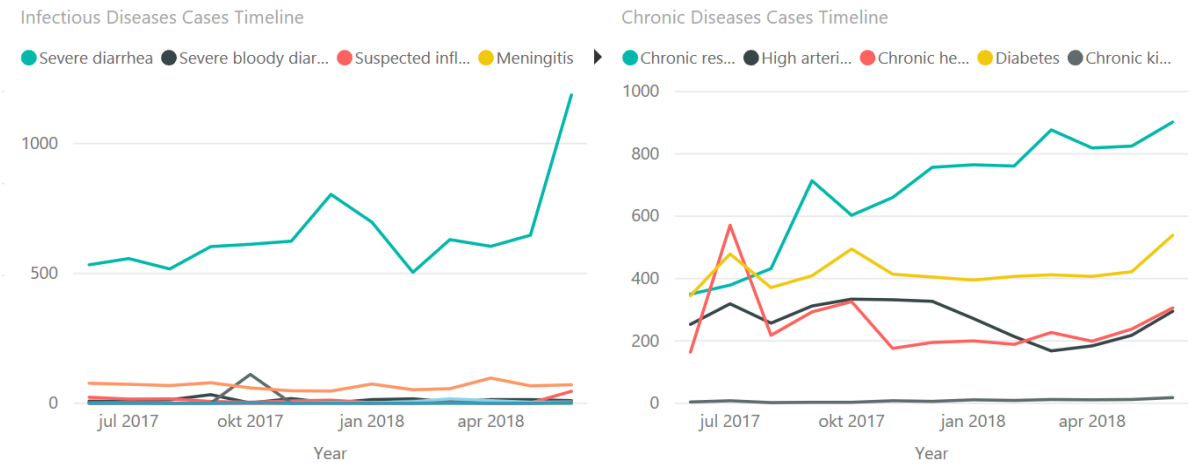
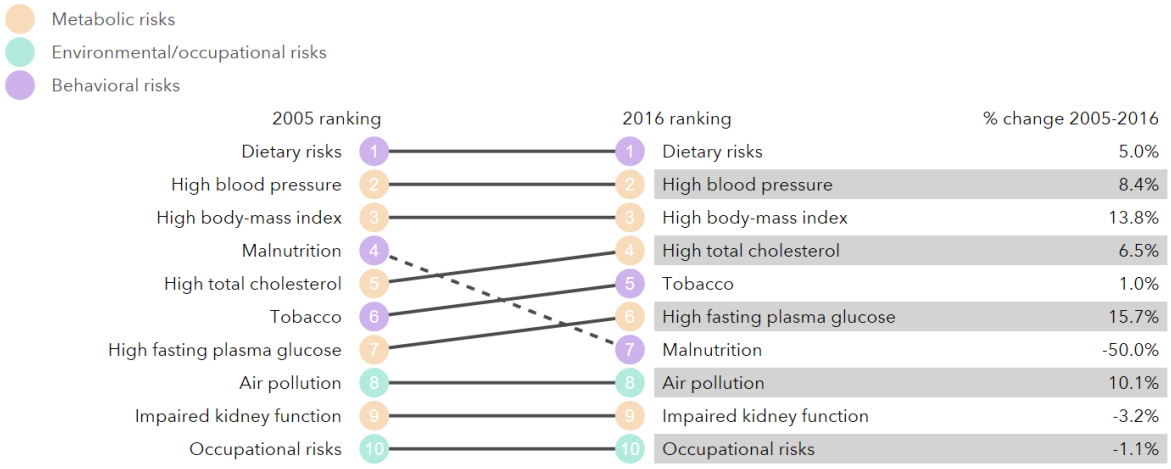


Figure 9 Infectious and chronic disease cases reported in Syria from July 2017 until April 2018. Source: (130)

5.1.11 Increase in chronic disease complications

A rise in NCDs was seen pre-conflict due to urbanisation and changes in lifestyle, accounting for 60% of the overall disease burden(34). NCDs are estimated to account for 77% of all deaths (60,64,144).
The top 3 causes of DALYS in 2010 in Syria were ischemic heart disease, major depressive disorder and cardiovascular disease (CVD). The highest risk factors contributing to these are dietary risks, high blood pressure and high body/mass index (figure 10) (60).
The proportion of overweight Syrian adults was 58.5% in 2014, with 23.5% of adults classed as obese. Elevated blood glucose is seen in 13.9% of adults in 2014, and elevated blood pressure in 21.3% (142).
Figure 10 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.

Data of Primary Health Care centres (PHCs) in IDPs show that around 8% of the patients consulted the services because of NCD-related issues, most frequently for chronic obstructive pulmonary disease (COPD) , diabetes, hypertension and CVD (32). Figure 9 shows the increases seen, especially in COPD, among IDPs in the camps (130).



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

Figure 10 source: (130)

5.2 The secondary consequences and influences of displacement on the Syrian population in Turkey, and the effects on individual health

Secondary consequences

5.2.1 Food shortage

The continuous influx of Syrians has influenced the agriculture and food-sector in Turkey. This is the main income for a large proportion of the host population, who are among the poorest and most vulnerable of the rural areas. Food shortage is increasingly becoming a problem in these areas (145). A vulnerability analysis and mapping of the World Food Program (WFP) on off-camp Syrian refugees showed that one-third of the households were food insecure, due to poverty and irregular access to employment (106). More than 80% of the off-camp Syrian refugees were not able to afford one meal a day (146). In-camp, the WFP supported the Syrian refugees by an e-voucher programme in 2017. The WFP assisted 63% of the individuals across 26 camps in Turkey (147)

5.2.2 Lack of water and sanitation

An assessment done among households in Turkey identified the main source of water to be private taps. Refugee households were most likely to report water shortages (65%). In 22% of the cases water availability was insufficient. This was more common for families in transit (22%) (148).
The same assessment found an average of 6 people for 1 toilet. Among refugee households 18% of toilet facilities were shared. Of the refugees, 10% were using their living spaces for bathing. In the rural areas 33% of the refugees did not have any bathing facilities (148).

5.2.3 Shelter and Exposure to environment

Of the refugees 87% live in apartments, 7% own their homes, and 2% live in commercial buildings. A large number of refugees are residing in abandoned houses, because of poor hygiene and protection from environmental hazards. 65% of the refugees stay in damaged houses (146,148).
Only 10% (250,000) of the Syrian refugees in Turkey live in the government-established refugee camps, where they are provided with accommodation, education, health care, and psychosocial services. There have been reports of insufficient access to food, bureaucratic processes, difficulties with finding work, being subject to mobility controls and security checks when leaving the camps (38).
The majority of refugees live in areas in the country, and therefore have limited access to humanitarian assistance (38).

5.2.4 Low immunisation coverage

Turkey was declared polio free in 1998. The influx of partially vaccinated Syrian children prompted a supplementary immunisation campaign 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 is located. Turkey vaccinated all Syrian children entering the camps. In the whole of Turkey there is almost 90% vaccination coverage. No polio cases have been reported (149–151).
Measles cases have been reported among Syrian refugees since 2012 (see table 3). Vaccination campaigns against measles have started in the refugee camps in Turkey. Vaccination coverage is 97% (149,150).

Measles cases among Syrian refugees in turkey	
2012	18 cases
2013	656 cases
2014	88 cases
2015	102 cases
2016	8 cases

Table 3: measles cases among Syrian refugees in Turkey

All childhood vaccinations are provided to refugees, following 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 (149).
Turkey has taken preventative measures to halt vaccination preventable diseases from rising due to the influx of the Syrian refugees.

5.2.5 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. The health care services have no interpretation services, leading to increased health problems due to misunderstandings of medical information and treatment (105). For provision of MH care language is even more important (152).
Other barriers include registration and travel rights of refugees (105). In collaboration with the WHO, the Turkish government is developing a curriculum to train Syrian medical staff, to provide health care services to fellow Syrians, to address the language barriers, and support the congested health care facilities (152). The EU and WHO provide support for refugee health care (153).

5.2.6 Lack of resources

The GDP per capita in Turkey was 14,933$ in 2018 (154). The health expenditure per capita is 5.4% of the GDP. The doctor:population ratio was 1:559 in 2015 (155).

The Turkish government passed a new regulation in January 2016 allowing Syrian refugees to obtain work permits, to ensure economic independence. Syrian refugees have difficulties finding employment, as they are less educated and do not speak the language. For Syrian refugees therefore, the unemployment rates are higher than the national average (146,156).

Influences on individual health

5.2.7 Killed, injured, disabled

No reliable data were found on the numbers of disabled Syrian refugees living in Turkey.
The Danish refugee council registered 500 persons with disabilities (PWD) in Turkey in 2016. The IRC registered more than 4000 PWDs including disabilities caused by war injuries (157) .

5.2.8 Psychological Trauma

Research done in a refugee camp showed a prevalence of 83.4% for PTSD and a prevalence of 37.4% for depression (158). This was higher than 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 (159).
A study done among Syrian refugee children in Turkey, showed that 50% of the children were suffering from anxiety and withdrawal (160).

5.2.9 Malnutrition

A survey done in 2014 by the disaster and emergency management presidency of the Turkish government, among 1214 Syrian households, showed a prevalence of stunting in 23.9% of children aged 6-59 months. Of these 9.3% were severely stunted. Wasting was found in 4.3%. In total 9.2% of the children were underweight, while 5.7% were overweight (146).

5.2.10 Increase in infectious diseases

An increase in communicable and vaccine-preventable diseases has been seen in the overcrowded refugee camps (152).
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 (150).
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 (150,151).

5.2.11 Increase in chronic disease complications

The burden of diseases in the Syrian population is similar to the host population, with a high prevalence of NCDs (152).
Of the Syrians living in Turkey, 34% smoke tobacco. Fifty-five percent of the men are smoking compared to 11.8% of the women. Forty percent 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.
In relation to prevalence of risk factors for NCDs, among Syrians living in Turkey 32.6% are overweight, and 27.7% are obese (146).

5.3 The secondary consequences and influences of displacement on the Syrian population in Lebanon, and the effects on the individual health

Secondary consequences

5.3.1 Food shortage

Food insecurity is prevalent among Syrian refugees in Lebanon, inextricably linked to poverty. Ninety-one percent of the Syrian households in Lebanon are food insecure, and 38% of the household are moderately to severely food insecure. The main constraint for the Syrian households' access to food is their limited economic resources (161).

5.3.2 Lack of water and sanitation

Even before the refugee influx, the WASH systems struggled with the demand due to weak governance and an insufficient infrastructure (162).

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 limited 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. There is limited access to the public sewage networks in rural areas (163).

Of the Syrian refugees, 78% report access to improved drinking water sources. The main issues regarding access to water were affordability and quality. Of the Syrian households 86% had access to improved sanitation facilities (56%) and improved pit latrines (30%). Of the 253,000 Syrian refugees living in informal settlements 170,000 had access to temporary WASH services (161).

In some refugee camps Syrians were relying on bottled water (64%). However in other camps they were relying on boreholes (16.3%) (164).

5.3.3 Shelter and Exposure to environment

Seventy-three percent of the Syrian households in Lebanon live in residential buildings, and 9% live in non-residential structures. Seventeen percent live in improvised shelters in informal settlements. Overall, 53% of the refugees reside in places that do not meet the minimum humanitarian standards. One-third of the Syrian population live in overcrowded houses. This is more common in informal settlements and non-residential structures (161).

5.3.4 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 (39). Of the Syrian children in Lebanon, 20.1% are fully immunised (165).

Of the Syrian refugees, 59.1% had difficulties in obtaining vaccines. Obstacles mentioned were: unknown location (10%), distance to facility (7.8%), and no vaccines available (4.9%) (165).

68.2% of the Syrian children in Lebanon received measles vaccinations (165).

5.3.5 Low access to health care

The health care system is overstretched in terms of finances and human resources, especially in areas with a large displaced Syrian population, using the same services as the general population. Health services are available but costly (39,152).

Most refugees (89%) had access to primary health care services. Eighty percent had access to secondary and tertiary care when needed. MH-care was needed for 2.5% of the households. Of those 60% were able to access services.

Obstacles to access were cost of drugs (33%), consultation fees (33%), uncertainty about where to go (17%), and not being accepted by the facility (14%) (161). The UNHCR pays for 85% of the primary health care costs for refugees, supported by NGOs and the World Bank. Overall, the Lebanese health care system is highly dependent on outside funding for the refugee crisis and remains vulnerable (153).

5.3.6 Lack of resources

The refugee influx was accompanied by a decline in socio-economic resources. GDP growth decreased from 10% in 2010 to 1% in 2014 (32). GDP per capita was 7,198$ in 2017. Unemployment was 6.3% (166). Health expenditure per capita was 7.5% of the GDP. The doctor: population ratio decreased to 1:319 in 2018 (167).

Among male Syrian refugees, unemployment is 12.7%. Of the refugee households, 38% are depending on WFP assistance as their primary source of income (161).

Three-quarters of the Syrian households had expenditures below the Minimum Expenditure Basket, unable to meet basic needs of food, health, shelter and education. Fifty-eight percent were even below the Survival Minimum Expenditure Basket, living in extreme poverty, unable to meet survival needs. The proportion of households living below the poverty line had increased to 76% of the refugee households by 2017 (161).

Influences on individual health

5.3.7 Killed, injured, disabled

A study done in 2 camps showed a disability prevalence of 22.9% in Syrians above the age of 2. Disabilities related to injuries were more frequent in males (14.7%) than females (7.1%), due to a higher male exposure to injuries through conflicts (168). These numbers might not be representative of the entire Syrian population in Lebanon as the majority resides outside camps and no data was available for this part of the population.

5.3.8 Psychological Trauma

The number of mental health conditions has increased since the Syrian crisis, especially the PTSD incidence (39,169). A survey in 2017 showed that 2.5% of the Syrian refugees in Lebanon needed MH-care. Thirty-eight percent had access to mental health care. Barriers to access were: not being accepted to the facility (37%), consultation fees (29%), cost of medicine/treatment (25%), and not knowing where to go (15%) (161,169).

The largest psychiatric hospital in Lebanon recorded an increase in admissions of displaced Syrians with severe psychopathology and suicidality (133).

In a recent survey of 452 Syrians in camps the lifetime prevalence of PTSD was 35.4%, and the point prevalence was 27.2% (159,170). This shows a higher prevalence of mental health issues among the Syrians in camps, possibly linked to the living conditions.

5.3.9 Malnutrition

The GAM seen among Syrian children aged 6-59months was 2.2% (171). A cross-sectional survey of Syrian refugees conducted in 2013 showed that the population was slightly overweight. GAM rates ranged from 0.3-4.4% in four different areas in Lebanon. Chronic malnutrition was seen in14.1-21% of the population (global). Severe stunting was found in 1.0% and 4.7%. Among women of child-bearing age, malnutrition ranged from 3.7-6.5% (164)

5.3.10 Increase in infectious diseases

In 2015, a mumps outbreak of 193 cases was reported, mainly among Syrians (152).

Since 2011 an increase of 27% of tuberculosis cases was seen. This increase was attributed to Syrians, as 48% was in non-Lebanese people (150,172).

Since 2012, 9 cases of measles were reported in Lebanon. In 2013 there were 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, measles cases decreased to 235 (39,150,151).

In 2013 1,033 new cases of CL were reported, where 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. (150,151,173).

5.3.11 Increase in chronic disease complications

NCDs are an important health risk for the displaced population. 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 (32).

5.4 The secondary consequences and influences on individual health of displacement on the Syrian population in Greece

Secondary consequences

5.4.1 Food shortage

In the informal camps there is some distribution of food, but this has been described as inconsistent and poorly organised. As a result, the fitter population has access to food, while the more vulnerable groups are going without. The formal detention and reception centre have more structured food distributions. The police employ catering services that distributes food three times a day, although this lacks consistency (47).

5.4.2 Lack of water and sanitation

WASH facilities are of poor quality in the (in)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. 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 (47). Recent articles in the international press describe the dire conditions that refugees are living under at Moria and Lesvos (48).

5.4.3 Shelter and Exposure to environment

In the informal camps on Lesvos 90% of the refugees have inadequate shelter (47). Overcrowding results in people sleeping in tents exposed to the elements, with limited food and water supply (48). The UNHCR has launched an accommodation scheme with a total capacity of 22,595 residential places (48). 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% are Syrian (48,174).

There are differences in occupancy depending on the location of the accommodation. On Lesvos and Chios both the Reception and Identification Centres (RIC) and the UNHCR accommodation facilities are overcrowded. On Samos the RIC is overstretched. On Leros and Kos the quantity is sufficient (see table 4).

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 4 Refugee accommodation capacity and occupancy on the Greek Islands Source: (48)

5.4.4 Low immunisation coverage

A study done at the Greek-Turkish border showed that of the migrant-children, 52.5% needed vaccinating against Diphtheria, Tetanus and Polio (DTP), and 13.2% needed MMR vaccination (175). Vaccine-preventable diseases are seen in reception and holding centres. Greece is now offering vaccination according to the national guidelines for pentavalent and MMR (176).

5.4.5 Low access to health care

Following the economic crisis access to health care is problematic in Greece. NGOs have stepped in to help the dysfunctional health care system (108).

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 is provided to all free of charge. The economic crisis results in fewer resources, in addition to the administrative (obtaining a social security number) and language barriers for the refugees (48,107,108,177).

5.4.6 Lack of resources

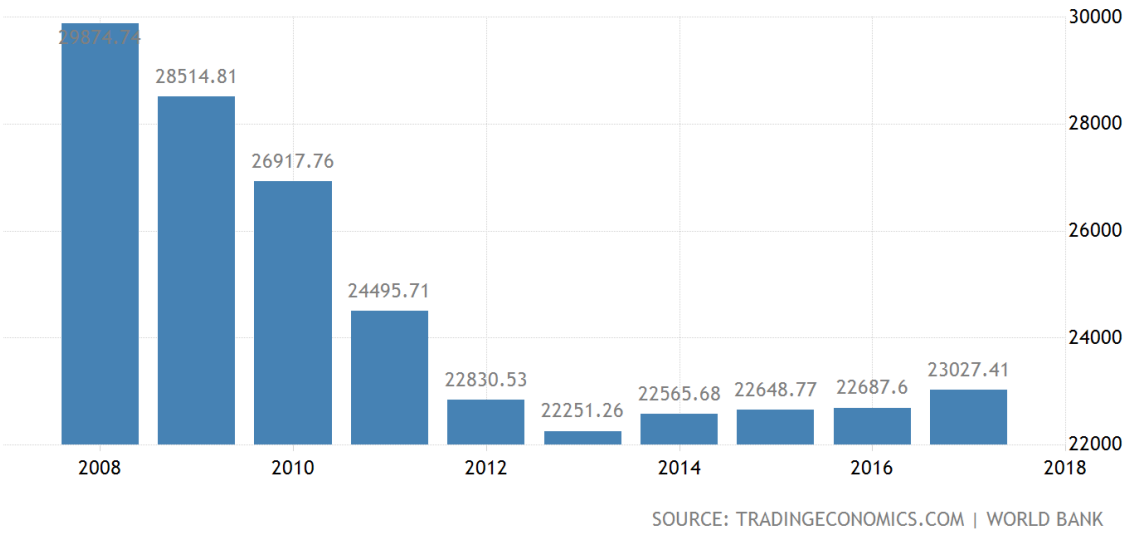


Figure 11 GDP per capita in Greece from 2008 till 2017 Source: (178)

The GDP per capita in Greece, which decreased during the economic crisis, is slowly increasing again since 2014 (see Figure 11) (178). Currently the GDP per capita is $23,027. Unemployment was 18.9% in 2018, and 36.8% among young people (179). Greece spends 1,650 Euro per capita on health care, totalling 8.4% of the GDP. Health care expenditures have strongly declined since the economic crisis (180).

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, resulting in unmet medical needs in the rural areas (109).

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 compared to the doctors (180).

Influences on individual health

5.4.7 Killed, injured, disabled

According to pre-registration data only 1% of the refugees had a disability. UNHCR officials, however, acknowledged that this is probably underestimated. The conflict in Syria has caused physical disabilities in addition to the normal percentage of 15%. Many PWDs remain unidentified (181)

5.4.8 Psychological Trauma

Syrian refugees experience high levels of violence during their journeys, and when seeking protection in Greece. 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 (47,108,182). Major depressive disorders were seen in 44% of people living in refugee camps (183).
Ninety-two percent of the Syrian refugees were found to have an anxiety disorder. A significant proportion (31-78%) of 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 Greek holding centres (182).

5.4.9 Malnutrition

The assessment by Save the Children in 2014 did not show any visible signs of malnutrition among refugees. MdM has seen a few cases of malnutrition on Chios (47).
A pilot study in 2018 showed that 4.6% of refugee children were wasted, and 7.3% were stunted (184).

5.4.10 Increase in infectious diseases

The main morbidities seen in the camps are diarrhoeal diseases, respiratory tract infections, dermatological diseases, dehydration and chronic diseases (47,108) as well as tuberculosis and skin diseases such as scabies (107,185).
All refugees are screened for (latent)tuberculosis at the reception centres. The prevalence of tuberculosis among refugees in Greece is perceived as low (186). No increases in tuberculosis prevalence have been reported since the influx of refugees in Greece (187).
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 (175).

5.4.11 Increase in chronic disease complications

In the last months of 2015 more elderly people arrived in Greece, with more NCDs (47)
The most NCDs seen within the refugee population in Greece are hypertension, arthritis, diabetes, COPD and CVD (107,185).

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

Based in the data described in the previous chapter a comparison is made of the 4 different situations. The infographic (6.1) highlights some of the findings which illustrate the dire situation of the Syrian displaced population. A table (6.2) is made to facilitate comparison of the data of the different countries, so the differences can be analysed (6.3).

6.1 Infographic

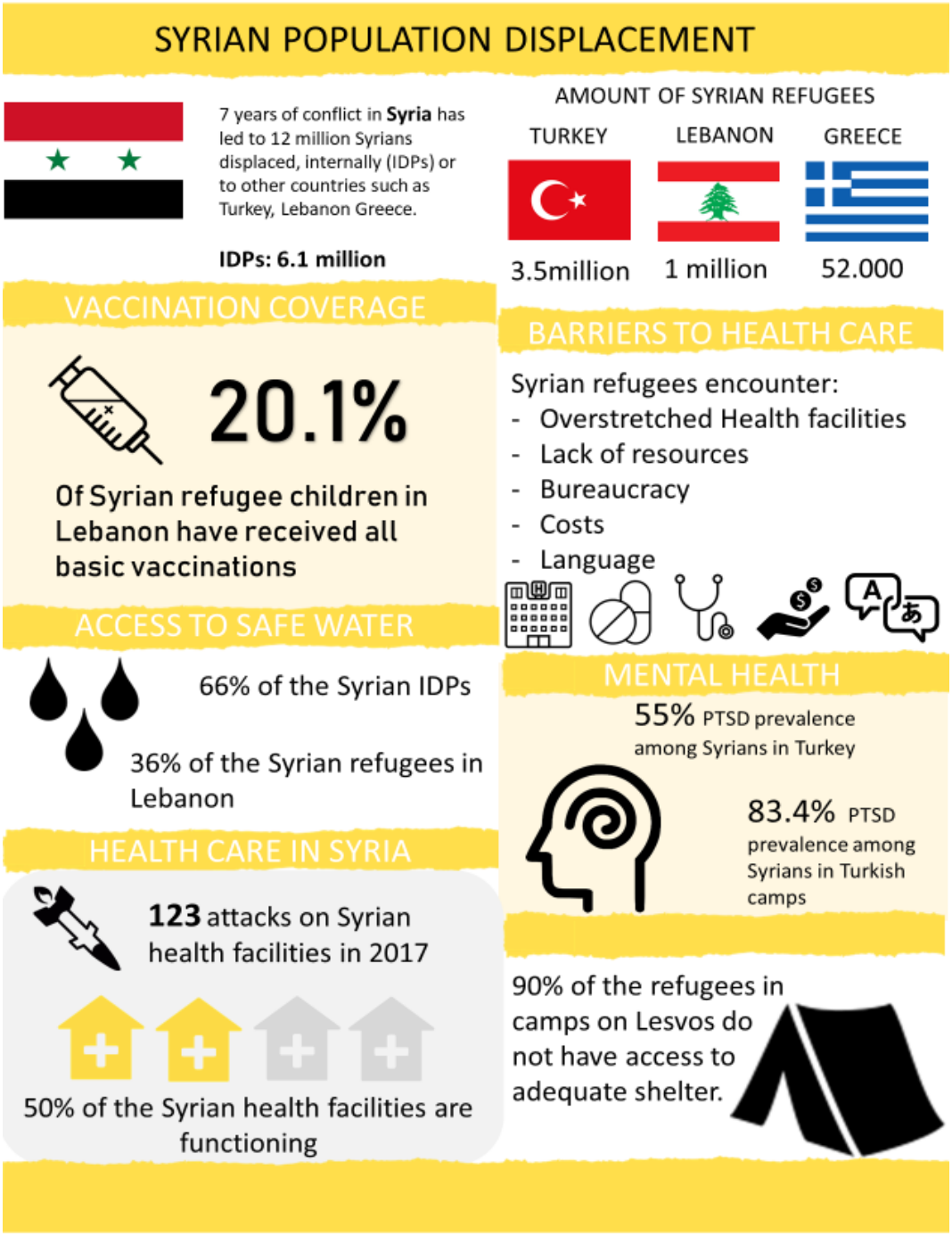


Figure 12: Infographic highlighting the situation the Syrian displace population is in.

6.2 Table for comparison data of the 4 different countries

		IDPs in Syria	**Turkey**	**Lebanon**	**Greece**
Mass population displacement		2017: 1,6 million 6.1 million IDPs	2018: 3,6 million registered	2017: 1 million registered 766,000 unregistered	2016: 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 Used as form of warfare	Over 90% of the interviewed households in this assessment were qualified as poor by the Turkish national living standard. WFP assisted 63% of the population living in camps in 2017	91% of the Syrian households are food insecure 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% rely 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. In the rural areas, 33% of the refugees did not have any bathing facilities.	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

		IDPs in Syria	Turkey	Lebanon	Greece
Shelter and Exposure to environment		30% are hosted by local communities. 48% renting houses 6.3% non-registered shelters 7.2% in official shelter. Shelter adequacy issues more for FHH and IDP HHs	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 humanitarian 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 cases have been reported since 2013 Leading to Measles Vaccination campaigns 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

		IDPs in Syria	**Turkey**	**Lebanon**	**Greece**
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. 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. Humanitarian aid restricted due to insecurity and lack of access	HC facilities are congested due to influx of Syrians increasing size of the catchment population Health care is free of charge for registered Syrians. Emergency care for (un) registered Syrians. Barriers: - Language - Travel rights - Registration - Fear The EU and WHO provide support for refugee health care	HC-system overstretched, due to displaced Syrians. HC-services are available but costly. 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%) The UNHCR pays for 85% of the primary health care costs for the refugees	HC facilities are congested due to limited resources. Officially free of charge but limited availability 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. HC provided by NGOs (MSF, MdM).

		IDPs in Syria	**Turkey**	**Lebanon**	**Greece**
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) Local production of medicine decreased by 50%	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)
Killed, Injured, disabled		145.849 direct violent deaths (2011-2016) Less deaths among IDPs 1.5 million injured (2011-2016) 30% results in permanent disabilities	DRC: 500 PWDs IRC: 4000 PWDS	Disability in camps 22.9%	Disability 1%, underestimated Lot of people with disabilities remain unidentified

		IDPs in Syria	Turkey	Lebanon	Greece
Psychological trauma		Feelings of anxiety, anger, fear hopelessness 190,000 IDPS have severe mental health problems needing care 900,000 have mild to moderate psychological problems School aged children: 60.5% has a psychological disorder	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 Syrian refugee children: 50% were suffering from anxiety and withdrawal	2.5% of Syrians in need of MH-care In Syrian camp: 35.4% PTSD (lifetime prevalence) 27.2% point prevalence Increasing incidences of PTSD, depression and anxiety as well as suicidality among Syrian refugees	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 have an 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 IDPs GAM 7.2%, SAM 2.3% Chronic malnutrition seen in 12.7%	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% Chronic malnutrition 14.1-21%	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

		IDPs in Syria	Turkey	Lebanon	Greece
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	No polio cases have been reported	No polio cases have been reported
	TB	No large increase has been seen in the incidence of tuberculosis, possibly due to lack of surveillance data 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

		IDPs in Syria	Turkey	Lebanon	Greece
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 NCDs such as hypertension, diabetes and renal failure, chronic pulmonary diseases, and CVD.

Table 5: Table for comparison data of the 4 different countries

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

6.3.1 Mass population displacement

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

Secondary consequences

6.3.2 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, showing that food insecurity does not only affects IDPs. In Turkey a similar process is seen with increases in food shortages among refugees, and 30% of the households being 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 on food insecurity. The degree of food insecurity in Greece is unknown, as no formal assessment was done in the camps.

6.3.3 Lack of water and sanitation

Lebanon currently has the most difficult access to safe water for Syrian refugees. Only 36% have access to safe water, while in Syria 33% are relying on unsafe water.
Limited access to water has found in Syria, Lebanon, Turkey and Greece, mainly in the context of personal hygiene.
Sanitation seemed to be the most problematic in Greece, due to overcrowded camps, which have led to open defecation practices. This leads to a higher risk of outbreaks of infectious diseases.

6.3.4 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 and have 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.

6.3.5 Low immunisation coverage

Vaccination rates in Syria decreased from 82.4% (2001) to 50-70% in 2016. Syrian children had limited to no access to immunisation in the last 5 years, which has resulted in a reappearance of measles, polio and typhoid fever.
The immunisation coverage was lowest in Lebanon, and similar in Syria and Greece.
Measles outbreaks were seen in Syria, Lebanon and Turkey. All of which were contained.
Preventative measures were taken 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.

6.3.6 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).
In Lebanon, the humanitarian community is actively helping, to avoid the collapse of the Lebanese economy, which would make the situation even more dire.

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)

6.3.7 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 a major problem in Syria, followed by Greece. In all countries more unemployment was seen among the young people 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.

Impact on individual health

6.3.8 Killed, injured, disabled

As expected, the highest number of killed, injured and disabled are found in Syria.
Overall, the death rates among the IDP population were lower compared to the rest of the Syrian population. 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
The number of disabled people in Turkey, Lebanon and Greece is probably underestimated and needs more attention to identify this vulnerable group and ensure equal rights and access to health care services

6.3.9 Psychological trauma

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 prevalence of PTSD was less than half of the prevalence in Turkey. Often access to mental health care was limited, even more by language barriers.

Comparing the data for mental health is difficult as different criteria are used in the different settings. In addition, different groups of refugees were studied. 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. The increased number In Turkey might be due to additional stress related to living in another culture with language -barriers. It might also be explained by people fleeing a more active conflict.

6.3.10 Malnutrition

In Turkey and Greece, a similar number of children were wasted (4.3% and 4.6%). This was lower in Lebanon (2.2%). In Syria, the highest number was found among IDPs (7.2%). In the general population this was similar to Lebanon (2.6%).
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.

6.3.11 Increase in infectious diseases

A large population displacement is linked with increases in infectious diseases, and this was seen to some extent in all four 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.

Polio cases were only reported in Syria, followed by vaccination campaigns in Lebanon and Turkey as preventative measures.
Since the influx of refugees, an increase in TB was only reported in Lebanon In the other countries there was not a significant increase of tuberculosis.
Increases in CL were mainly seen in Turkey and Lebanon. Higher rates were expected among the IDPs however no clear data on this has been found.

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

7 Discussion

The aim of this work is to compare the effect of the crisis on the health status of the displaced Syrian population in Syria, Lebanon, Turkey and Greece, using a framework adapted from the work of Guha-Sapir and Panhuis. The adapted framework used for analysis in this study shows the effect that conflict and displacement have on the lives of the Syrian displaced 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.

Before the crisis, the Syrian health situation was in a relatively good state. The conflict and displacement have led to the deterioration of the social determinants of health and the health status of the population. For Syria to get back to the level of health status that the population was at before the conflict will take a long time.
The refugee situation in the four discussed countries shows an overall lack of adequate shelter, food and economic possibilities which has impacted the general health and access to health care and has also had an impact on the (mental) health of the refugees.

Improving the situation of IDPs within Syria is even more difficult than in the other countries due to the disruption of services in the 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 effect on the general Syrian population, but even more so on the IDPs as they have lost their social surroundings, shelter and income. Due to the fragmentation of the humanitarian assistance, it is difficult to have a full picture of the current health status of the population. The constant movements of frontlines and of the populations makes delivering services for authorities and international organisations extremely difficult to plan.

Contrary to what may be expected, Syrians who have fled to other countries are not necessarily better off. There may be less violence and conflict, but other problems arise such as finding shelter, income, and food. They also experience language barriers, changes in culture and loss of social networks. The new host countries sometimes have problems in taking care of the refugee needs. Greece, for example, 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 and are worse than in the other countries, with no adequate shelter, WASH facilities and access to food.

It may be due to the EU-Turkey deal that no international organisations have stepped in, as they do not want to encourage new arrivals of refugees to Europe. However, despite the EU-Turkey deal arrivals on the Greek 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, the health situation is worse, reflected in the access to health care and overall health outcomes. This is especially apparent in mental health care. The highest numbers of mental health issues were seen in Turkey. 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, where the Syrians could not voice their issues in their own language.
A good policy undertaken in Turkey to overcome the cultural and language barriers has been to use the Syrian workforce, who overall are relatively well-educated, to take care of fellow Syrians.
The immediate vaccination of children when crossing the border seems to have prevented outbreaks of vaccine preventable diseases in the hosting countries. Inside Syria however, there is a decrease in vaccination coverage which is difficult to tackle because of the lack of access due to insecurity and decrease resources. To prevent large outbreaks an early warning system could help to contain diseases and prevent large outbreaks.

The reception and coping strategies for displaced people differ from country to country based on the political and cultural situation as well as economic factors. Until today the international community has been unable to harmonise the responses to the humanitarian crisis. Therefore, each country arranges support for the displaced people based on their own resources as well as political interests. Turkey, for example, used this as a leverage to become part of the EU. Greece has been unable to refuse people trying to get into Europe. While Lebanon, the closest in culture and language to Syria, has not been taking responsibility for refugees. The fact that refugees live among the poorest people of the Lebanese population, makes improving their situation rather difficult. For governments, in this case especially for Lebanon, taking care of the refugees while not increasing the care for the host community will increase tensions between these groups. For the internally displaced population the ongoing conflict does not give them any safety and time to rebuild their lives, and at the same time they are dealing with decreasing resources and deterioration of the country itself while they were previously used to a higher standard of living and care.

In any humanitarian crisis, obtaining accurate information about the IDPs and refugees is difficult. Due to lack of access, insecurity, and lack of working health facilities. This is even more difficult for IDPs and refugees mixed with the host communities. Refugees living in camps are relatively well recorded and more information is available. To obtain a complete picture of the situation of IDPs and refugees it would be necessary to get more information about the disease surveillance of these populations, regarding infectious and chronic diseases as this will give a more accurate picture of changes in their health status. With the constantly changing frontlines and the multiple political interests in Syria it is easy to assume that the actual situation can change very quickly depending on the different groups in charge, as well as possible different political agendas in the receiving countries and their alternatives motives in hosting the refugees.

Limitations

Most of the literature included in this work are reports of international organisations and (i)NGOs. These may not be free of bias, as iNGOs rely on these reports to apply for funding for their projects and want to show the good results of their projects to donors and governments. 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 own populations and international organisations. While clearer numbers and records 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 limited the 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. Other influences not mentioned in the framework may have been missed due to the focus on these specific factors. The adaptation made to the framework, based on the hypothesis that there would be increased NCD complications, was not confirmed as little research has been 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 have 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.

8 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 issues 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.

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 their health status. By identifying patterns in the changes of the health determinants of the Syrian population prior to and during the conflict, the health response can be adequately adapted 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 been displaced to. The following recommendations will be divided in recommendations for the international community, for the EU and for i(NGO)s working with Syrian displaced and refugees.

Recommendation for the hosting countries

9.1 Utilising the workforce among Syrians:

Initiatives, such as the development of the policy in Turkey to have Syrian medical staff working in the congested health centres, could be implemented in Lebanon and Greece. 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, as it will be given in the mother tongue of the refugees, and thereby reduce the health risks of the refugee population

9.2 Continuing early warning systems and vaccinations campaigns

Adequate action was 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 upon arrival, and follow-up systems 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.

Recommendation for the EU

9.3 Take responsibility for the effects of the EU-Turkey deal

Only 32% of the refugees in Greece were relocated within the EU. With the ongoing dire living conditions for the refugees in Greece, the European community needs to step up and relocate more refugees. Greece is seen as the gateway to Europe, but Europe has decided to stop the 'open door 'policy to receiving refugees (82–84). As part of the EU-Turkey deal, refugees waiting on the Greek mainland where supposed to be relocated to within the EU. Of the 98.000 people that the EU agreed to relocate only 31.503 were relocated (from October 2015 until October 2017) and the relocating process stopped in September 2017 (83). With the ongoing crisis of refugees crossing the Mediterranean Sea, the EU needs to show more solidarity, and other EU countries should now start receiving more refugees.

Recommendations for (i)NGOs

9.4 Focus on mental health care

Due to the conflict, traumatic events and displacement, psychological stressors of the Syrian population have increased, leading to somatic and 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 accurately reflected in the higher numbers reported in Turkey.

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) (188,189).

9.5 Increase research on chronic diseases in displaced and refugee settings

Limited data is 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 NCDs.

Health care workers 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.

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Annex

Annex Framework of Guha-Sapir and Panhuis (101)