Thesis

PRIMARY HEALTH CARE IN THE BIGGEST EUROPEAN REFUGEE CAMP KARA TEPE II ON LESVOS

submitted by

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Declaration of Academic Integrity

I hereby confirm that the present diploma thesis is the result of my own independent scholarly work. I also confirm that in all cases, where material from the work of others (in books, articles, essays, dissertations, and on the internet) is acknowledged, quotations and paraphrases are clearly indicated. No material other than that cited in the reference list has been used. I have read and understood the Medical University's regulations and procedures concerning plagiarism.

Regensburg, 12th of April 2023 *Dorothea Zoe Bonnländer m.p.*

To all the People on the Move

Acknowledgments

At this place I want to say thank you to all the people who inspired and supported me during this work. At first I want to mention the medical staff, the translators and the inhabitants in the refugee camp Kara Tepe II on Lesvos. I'm especially thankful for the time I could spend with Xavier, David, Gwen and Danny, who don't look away when structures can be improved and injustice happens. I want to thank Uwe for his support in making this topic the content of my work and Hilary for helping me with the English language. And I want to thank you all for your friendship and the time beside from our work in the camp.

I am really thankful for the patient and friendly support of my thesis supervisor Professor Wolfgang Freidl.

Family and friends always listened to me and reminded me that there is a life beside from medicine.

At last I am very thankful for my life in peace, safety and health and all its chances – this is not at all a matter of course.

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List of Abbreviations

DRC	Democratic Republic of Congo
EODY	Hellenic National Public Health Organization
GP	General Practitioner
Frontex	European Border and Coast Guard Agency („*front*ières *ex*térieures“)
ICD-10	International Statistical Classification of Diseases and Related Health Problems
ICPC	International Classification of Primary Care
MSF	Médecins Sans Frontières (Doctors without borders)
NGO	Non Governmental Organization
ÖGAM	Austrian Society for General and Family Medicine (Österreichische Gesellschaft für Allgemein- und Familienmedizin)
PHC	Primary Health Care
PHM	Health and Migration Programme
POM	People on the Move
PTSD	Post-traumatic stress disorder
SGBV	Sexual and Gender Based Violence
TES	Torturing Environment Scale
UHC	Universal Health Coverage
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children’s Fund
WHO	World Health Organisation
WICC	Wonca International Classification Committee
WONCA	World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians

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Zusammenfassung (German)

Hintergrund

Im Jahr 2015 wurde im Rahmen der Sustainable Development Goals der Vereinten Nationen festgelegt, dass bis 2030 die Gesundheitsversorgung durch das Konzept der Primary Health Care weltweit gewährleistet sein soll. Diese Arbeit widmet sich der Umsetzung von Primary Health Care in Flüchtlingslagern. Exemplarisch wurde dazu das größte Flüchtlingslager Europas – Kara Tepe II auf Lesbos – betrachtet. Im Detail soll diese Arbeit drei Fragen beantworten: Erstens soll der tatsächliche Bedarf an Primary Health Care durch Analyse der häufigsten Beratungsursachen herausgearbeitet werden. Zweitens soll die Nachfrage an medizinischer Versorgung mit dem tatsächlichen Angebot im Camp verglichen werden. Und drittens soll betrachtet werden, wovon der Bedarf an medizinischer Versorgung abhängt.

Methoden

Während eines Zeitraums von vier Wochen wurde im Frühjahr 2021 in der Primary Care Clinic im Flüchtlingslager Kara Tepe II eine ad-hoc Stichprobenstudie durchgeführt. Dafür wurden die pseudonymisierten Daten (Geschlecht, Alter, Nationalität und Beratungsursache) aller in diesem Zeitraum vorstelligen Patient*innen (2682 Konsultationsanlässe) betrachtet. Mithilfe des Fragebogens der International Classification of Primary Care wurden diese Daten kodiert und ausgewertet.

Ergebnisse

Die häufigsten Beratungsanlässe waren Symptome des Verdauungstrakts mit 20,7%, muskuloskelettale Beschwerden mit 16,3%, Hauterkrankungen mit 14,8%, Symptome der Atemwege mit 7,9% und neurologische Probleme mit 6,2%. Bei den Patientinnen waren epigastrischer Schmerz, Rückenschmerzen und Bauchschmerz allgemein die häufigsten Beratungsanlässe, bei den Patienten epigastrischer Schmerz, Zahnschmerzen und Kopfschmerzen. In den verschiedenen Altersgruppen litten die Patient*innen vor allem unter Fieber in der Altersgruppe 0 bis 5 Jahre, unter Zahnschmerz in der Altersgruppe 6 bis 10 Jahre, unter epigastrischem Schmerz in allen Altersgruppen zwischen 11 und 50 Jahren, unter Kniebeschwerden in der Altersgruppe 51 bis 60 Jahre, unter Rückenschmerzen zwischen 61 und 70 Jahren und unter Dyspnoe in der Altersgruppe über 70 Jahre.

Menschen aus Afghanistan und Somalia konsultieren die Primary Care Clinic besonders wegen gastrointestinaler und muskuloskelettaler Beschwerden, sowie Hautproblemen, während bei Menschen aus der DRC gastrointestinale Beschwerden an erster Stelle, Hautprobleme an zweiter Stelle und muskuloskelettale Beschwerden an dritter Stelle standen. Bei Syrier*innen überwogen die Hautkrankheiten vor den gastrointestinalen und muskuloskelettalen Symptomen. Ähnliche Ergebnisse ergaben sich bei Patient*innen aus dem Irak; bei ihnen standen jedoch neben muskuloskelettalen Symptomen an dritter Stelle ebenfalls generelle und unspezifische Beschwerden. Menschen aus den übrigen Ländern stellten sich vor allem wegen gastrointestinaler Symptome, muskuloskelettaler Beschwerden und respiratorischem Leiden vor.

Schlussfolgerung

Die Ziele von Primary Health Care wurden im Lager Kara Tepe II nicht ausreichend erfüllt. Besonders bei den Aspekten Aufklärung, Krankheitsprävention, Hygiene, Familienplanung, der Behandlung psychiatrischer Krankheiten und Krankheitsbilder aus der Zahnmedizin, bestanden zum Teil extreme Defizite. Im Bereich der Impfung und Immunisierung, Gesundheit von Mutter und Kind und dem Zugang zu Medikamenten war die Versorgung tendentiell ausreichend. Den Aspekten der Ernährung und Individualmedizin wurde zwar nachgekommen, jedoch auf sehr niedrigem Level.

Während bei Alter und Geschlecht wenig signifikante Unterschiede im Bedarf an medizinischer Versorgung festgestellt werden konnten, war das Aufsuchen ärztlicher Hilfe abhängig von der Nationalität der Bewohner*innen. Menschen aus dem afrikanischen Raum hatten einen höheren Bedarf an medizinischer Hilfe, während die Konsultationszahlen bei Afghaner*innen und Somalier*innen mit der Anzahl an Campbewohner*innen korrelierten und Menschen aus Syrien sogar einen geringeren Bedarf an medizinischer Hilfe aufwiesen.

Abstract

Background

As Universal Health Coverage is one of the United Nations Sustainable Development Goals of 2015 that aims to be reached by 2030, Primary Health Care is regarded as fundamental to improve peoples health. This study is about required and offered health care in refugee camps. It took as an example Europe's biggest refugee camp Kara Tepe II on Lesvos and aims to answer three questions: First of all this study wants to find out the required health care by analysing the most common consultation reasons. Second it wants to compare the required health care to the offered health care programs in the camp. And third it wants to find out the reasons that were influencing the required health care.

Methods

During a period of four weeks in spring 2021, an ad-hoc random sample took place in the Primary Care Clinic of the refugee camp Kara Tepe II. Therefore pseudonymised data (gender, age, nationality and cause of consultation) of all patients in this time (2682 cases of consultation) was recorded, coded in the International Classification of Primary Care and interpreted.

Results

The most common categories of consultations in total were digestive symptoms with 20,7%, musculoskeletal complaints with 16,3%, skin symptoms with 14,8%, respiratory symptoms with 7,9% and neurological problems with 6,2%. In female patients abdominal pain epigastric, back symptom/complaint and abdominal pain general were the most common reasons to consult medical help. In the male patients it was abdominal pain epigastric, tooth/gum symptom/complaint and headache. The youngest patients (0 to 5 years old) suffered mainly from fever, followed by tooth/gum symptom/complaint in the group of age between 6 to 10 years old. In all patients between 11 to 50 years, abdominal pain epigastric was the most common reason for consultation. Between 51 and 60 years, patients suffered mostly from knee pain/complaint, between 61 and 70 years patients suffered mostly from back pain/complaint and in the group older than 70 years from shortness of breath/dyspnoea. People from Afghanistan and Somalia consulted the Primary Care Clinic mostly because of gastrointestinal complaints, musculoskeletal complaints and

skin problems, while people from the DRC suffered first from gastrointestinal symptoms followed by skin problems and musculoskeletal problems. In Syrians skin diseases were worse than gastrointestinal and musculoskeletal complaints. It was similar in patients from Iraq, but on the third place it was not only musculoskeletal complaints but also general and unspecific complaints. People from other countries came mainly because of gastrointestinal symptoms, musculoskeletal and respiratory complaints.

Conclusion

It can be summarized that the aims of Primary Health Care were not fulfilled in an adequate way. Especially the factors education, local prevention of diseases, water and sanitation, sexual health related issues, treatment of psychological diseases and dental treatment were not guaranteed. In other aspects the aims of Primary health care generally succeeded. These aspects were expanded programs for vaccination and immunization, maternal and child health and the distribution of essential drugs. Aspects like nutrition and treatment of physical diseases were fulfilled but at a level of low quality.

While the number of consultations depending on the gender or the age resulted in less noticeable differences, there were slightly differences in the nationality. People from the DRC were in a higher need of medical health care, while patient numbers in people from Afghanistan or Somalia correlated with the number of the camp inhabitants and Syrians even had a reduced need of medical help.

1 Introduction

„Was die Flüchtlinge mit zu uns bringen ist wertvoller als Gold. Es ist etwas, was wir in den letzten Jahren wohl irgendwo auf dem Weg verloren haben: Es ist die Überzeugung, ja der unbeirrbare Glaube an den Traum von Europa.“ - “Nothing is more worth than what refugees bring to Europe. It is something we Europeans lost on our way in the last years: It is the conviction, it is the strong believe in the dream of Europe.” Martin Schulz (President of the European Parlament between 2012 and 2017) [1].

In March 2022 a new crisis of refugees started with the war in the Ukraine. This war made more than 17 million Ukrainians (January 2023) flee their home and ask for shelter either in their own country or in neighbour countries [2]. Even if some people found accommodation at friends or families places, in private houses or hotels, many of them landed up in refugee camps.

This work is about Primary Health Care in the biggest European refugee camp. The study that was used took place in 2021 when there weren’t many people fleeing the Ukraine. But the war in Eastern Europe shows the fact that refugees and Health Care in refugee camps are not part of our past but part of our present and probably part of our future.

The largest refugee camp in Europe is on the island Lesvos, a Greek island in the northeastern Aegean See. It became popular in 2015 during the Syrian civil war. As the distance to Turkey by boat is less than ten kilometres, refugees used to drive boats to reach Europe and ask for asylum.

When in spring 2020 SARS-Covid-19 reached Greece, the camp Moria with about 13.000 inhabitants was put in lockdown. The camp Moria was only built for up to 2.800 people and the hygienic situation during quarantine was so bad that in September 2021 a fire broke out – probably set by protesting inhabitants. This study is about the living conditions in the new camp Kara Tepe II that was build in September 2021 to replace Moria – out from a medical point of view. Even though there were already papers about Primary Health Care in the old camp Moria, there is in 2023 no data about how life changed in the new camp Kara Tepe II. The last study about Primary Health in Moria was done in 2015. Since then, several factors changed: First the new camp is not longer in an olive grove but set up on an old military camp and on two sides is bordered by the sea. Second, during to SARS-

Covid-19 people are no longer allowed to leave the camp whenever they want but only for four hours a week. Third, the countries of origin are changing and also the offer of medical NGOs. Further by trend the number of inhabitants is decreasing.

The intention of this study is to find out the required health care needs in the refugee camp Kara Tepe II and to compare it with the offered Primary Health Care. The study also wants to answer the question whether the required health care depends on gender, age or nationality. This is done with an ad-hoc random sample.

Limitations of this study might be that the results are quite specific for only one special refugee camp – even though it is the biggest camp in Europe. Also the lockdown situation during SARS-Covid-19 was a rather transient situation.

1.1 Primary Health Care

The basis of worldwide health care is the World Health Organisation (WHO) constitution of 1948. In this declaration health is identified as a human right. This is why countries become obliged to ensure that the highest possible health care level is realized [3].

In several international meetings like for example the Declaration of Astana in 2018 or the Global Monitoring Report in 2019 about Universal Health Coverage (UHC), countries came up with the conclusion that Primary Health Care is the way to reach Universal health coverage [4]. So in the very beginning of this work the term Universal health coverage has to be defined.

UHC requires that every single person has they same chance of health services without regarding financial or social background [5].

The WHO defines the Universal health coverage very clearly: Sixteen important health services are sorted into four categories in order to make the coverage in different countries comparable. Category one is named reproductive, maternal, newborn and child health and includes family planning, antenatal and delivery care, full child immunization and health-seeking behaviour for pneumonia. Category two is about infectious diseases and embraces tuberculosis treatment, HIV antiretroviral treatment, the use of insecticide-treated bed nets for malaria prevention and adequate sanitation. Number three is the category of non-

communicable diseases. It covers prevention and treatment of raised blood pressure, prevention and treatment of raised blood glucose, cervical cancer screening and tobacco (non-)smoking. The last category is about service capacity and access and contains basis hospital access, health worker density, assess to essential medicines and health security with means compliance with the International Health Regulations [5].

In the United Nations Sustainable Development Goals of 2015, all UN Member States have obliged themselves to reach Universal Health Coverage by 2030 [6].

To spread UHC it is important that well educated health care staff are available where they are needed. It also concentrates on epidemic diseases and their prevention in concerned regions. As it aims to be available for every patient and aims to improve equity, UHC also wants to avoid people refusing health care out of the fear of poverty through high treatment costs [5].

There are different challenges to reach a Universal Health Coverage. Even in countries where health care is well established there is still the challenge to reach all social groups in a way that inequality is reduced. Also populations are growing and the costs for health systems are growing. To reach these goals it is important that health care is available for everyone and that its capacity is strong enough to endure crises like pandemics. Of course these problems are worse in low-income-countries where the population is growing faster than health services. Health care workers don't just have to been paid but also educated. This supposes stable financial backgrounds. To be cost-effective health services must concentrate on the concrete need of the people and not on general universal suggestions. It is also important that health services are accepted by the people in need [5].

According to the WHO, Primary Health Care as „fitting for people, fitting for context and fitting for purpose" is the way to develop a Universal Health Coverage [7]. So further Primary Health Care has to be defined.

Primary Health Care, also called PHC, is part of the public health. It's intention is to provide medical services wherever they are needed. According to WHO and UNICEF, the United Nations Children's Fund, Primary Health Care is supposed to ensure the „highest possible level of health and well-being and their equitable distribution by focusing on people's needs". Therefore, Primary Health Care not only includes treatment but also

health promotion, disease prevention, rehabilitation and palliative care „in a setting close to people's everyday environment."[5]

But Primary Health Care describes more than medical care. It also concludes measures that improve nutrition, the social and mental well-being, a healthy environment, education systems and more. The aims of Primary Health Care are not only to improve people's health but also to improve equity and social justice between different social groups. It proclaims health as a human right independently from social status, nationality and similar factors. Further primary health care wants to empower the upstanding systems in a way that they can endure crises, like for example natural catastrophes or epidemics so that patients can benefit permanently [8].

Primary Health Care is supposed to be accessible to all parts of a population and not depending on any social circumstances or regional accessibility.

Primary Health Care also aims to be cost-efficient and sees the reason of a working health care in politic, social and economic circumstances. Therefore it is necessary that the community participates in decisions concerning Primary Health Care. It is the aim of PHC to act effective, equal and inclusive to all parts of a population in a way that every patient feels addressed. It aims to reach all groups of ages and social backgrounds [6].

Primary Health Care concentrates on the care of whole population groups on the one hand and on individualized medicine on the other hand. The health of whole populations wants to be improved by prevention (vaccination, health promotion, hygienic circumstances (e.g. potable water or prevention of malnutrition)) while individualised medicine understands the treatment of common diseases and of pregnancy related health issues. PHC wants to accompany people from birth to palliative care and death not only in times of concrete diseases but continuously [8].

The eight elements of Primary Health Care can be summarized in the acronym ELEMENTS [8].

E - Education finds out the reasons for low health and further solutions

L - Local prevention of diseases that spread in an endemic way

E - expanded program for vaccination and immunization against infectious diseases

M - Maternal and child health but also sexual health related issues and family planning

E - Essential drugs and their distribution

N - Nutritional food supplement

T - Treatment of physical and psychological diseases

S - Safe water and sanitation

The WHO worked out three main points how to improve PHC worldwide. First of all, the WHO wants to build up a mechanism that allows to enhance PHC in its member states suited to the land and its preferences. This means providing a safe structure that is resilient to crisis also in a financial way. Second, PHC wants to concentrate on equality to strengthen lower social groups. And third, PHC wants to be promoted through policies, governments, civil organisations and other agencies to make the importance of PHC visible and permanently [5].

The WHO says: „Equity in health implies that ideally everyone should have fair opportunity to attain their full health potential and, more pragmatically, that no one should be disadvantaged from achieving this potential, if it can be avoided". It means that poverty is more than just less financial resources. It includes also a social component, which means a less difficult access to high-estimated resources like, for example, education or health care. A lower standard of education often means less interests in prevention programs. Less purchasing power means less possibilities to pay for health stimulating factors like healthy food, expensive vaccinations or accommodations in good conditions. Poverty also often causes mental health diseases like anxiety according to existential problems. This vicious circle is called „the discrimination of disadvantaged people". Further prevention often enhances social differences because disadvantaged people can't be reached as easily as well situated people. Primary Health Care wants health care to be part of all political decisions, as it is touched by social, economic and educational aspects [5].

Primary Health Care concentrates on improving health systems in a way that patients can access them as the first place to go. Primary Health Care follows three main ideas: First, health services that includes primary health care but also public health goods and functions as main points. Second, policies to address also the wider determinants of health and third, helping communities as well as individuals in participating in social and health concerning

decisions. To reach these aims Primary Health Care wants be be evidence-based and also wants be help people to become responsible and competent according to questions about their own health [5, 8].

A functioning system of Primary Health Care can not only be measured by reduced costs of health systems but can also be measured in a longer life expectancy or a lower infant mortality.

To summarize this first chapter it can be said that two main points can improve health worldwide. First a working system of Primary Health Care has to be accessible for everyone and second everyone needs a financial protection to afford Primary Health Care by Universal Health Coverage.

1.2 Situation of refugees

There are four common reasons for people to flee their home countries: War and violence, human right abuse, climate change with natural catastrophes and hunger [9]. Of course these reasons are often vicious circles and determine each other.

While war and human rights abuse cause persecution and give the people officially the rights of a refugee, hunger and natural catastrophes are not internationally accepted reasons to become a refugee. These reflections are defined by Article 14 of the Human Right Declaration. It names the right to seek asylum for people that are persecuted and obliges the United Nations to protect these people [9].

The refugee convention from Geneva from 1951 names a refugee as a person that flees out of fear of persecution caused by race, religion, nationality, social group or political persuasion. If a person flees the country which nationality he or she has, the person becomes an international refugee [10].

Refugees are people that leave their home because of war or persecution. If they cross an international border they become international refugees. They are accepted by their hosting country if their fear seems reasonable. This fear can for example be caused by persecution because of ethnic, religion, nationality, sexuality or politic interests. Refugees are under

international protection by the public international law and the refugee convention of 1951 [10].

Internally Displaced Persons (IDP) are persons that flee their home but not their home country [10].

Asylum seekers are people that are not yet accepted refugees. In Europe they have to apply for asylum in the first European country, they reach [10].

Migrants usually leave their country not out of fear but because of (poor) living conditions, to find work, education, etc. [10]

In the following the word „refugee“ is used for every person that leaves their home due to one of the four upstanding reasons.

1.2.1 Demographic situation

1.2.1.1 Situation worldwide

The UNHCR ist the United Nations High Commissioner for Refugees. According to the UNHCR-Report „Global Trends 2020“ there were 82,4 million people refugees. This is 1% of the population worldwide and the highest number the UNHCR ever noted. Still, 73% of all refugees find shelter in their neighbouring country. 86% in total live in developing countries and 80% live in poor living conditions where malnutrition is given. About 42% of all refugees worldwide are minors. The most common reason people have to leave their home (31 million) is because of natural disasters like floods, droughts, etc. This causes more refugees than violent conflicts even if most of them don’t leave their country but just their region [11].

In the Mid-Year-Trends Report from 2021 the UNHCR estimated worldwide there were more than 84 million refugees. They can be sorted in Internally Displaced People (51 million), 26.6 million international refugees and 4.4 million asylum seekers. One year later in 2022, the UNHCR estimates the number as more than 100 million people. New crisis at the moment are the war in the Ukraine, Irak, Burundi and the Central African Republic and the hunger in East Africa and in Yemen [9].

In 2020 most international refugees were Syrians (6.7 million), people from Venezuela (3.9 million), Afghans (2.6 million), people from South Sudan (2.2 million) and people from Myanmar (1.1 million) [9].

The DRC, Somalia, Sudan, the central African Republic and Eritrea also lost more than 500.000 people of their population as refugees [9].

At the end of 2020 no country hosted more refugees than Turkey with 3.6 million of people, Columbia with 1,8 million, Pakistan with 1,8 million, Uganda with 1,4 million and Germany with 1.1 million [9].

From 82.4 million refugees worldwide, about 48 million refugees are national refugees, especially from Syria, Iraq and Columbia [9].

1.2.1.2 Situation in Europe

There is no continent in the world with more registered refugees by the UNHCR than Europe (6.8 million), followed by Africa (6.6 million) and Asia (4.0 million). Still it has to be kept in mind that other continents may have still many unregistered refugees [9].

In 2021 most asylum seekers in the EU were Syrians (98.000 people) and Afghans (83.000 people). They asked for asylum mainly in Germany, France, Spain, the UK and Italy [9].

There are two common routes to enter Europe. In 2021 about 65.000 refugees were registered while trying to cross the Mediterranean Sea, mainly towards Greece, Italy and Spain. At least 28.000 were stopped by the Libyan coastguard. Since 2014 more than 24.000 refugees died while crossing the sea. In 2022 (15th December 2022) there were already 930 registered dead persons on the Mediterranean [12].

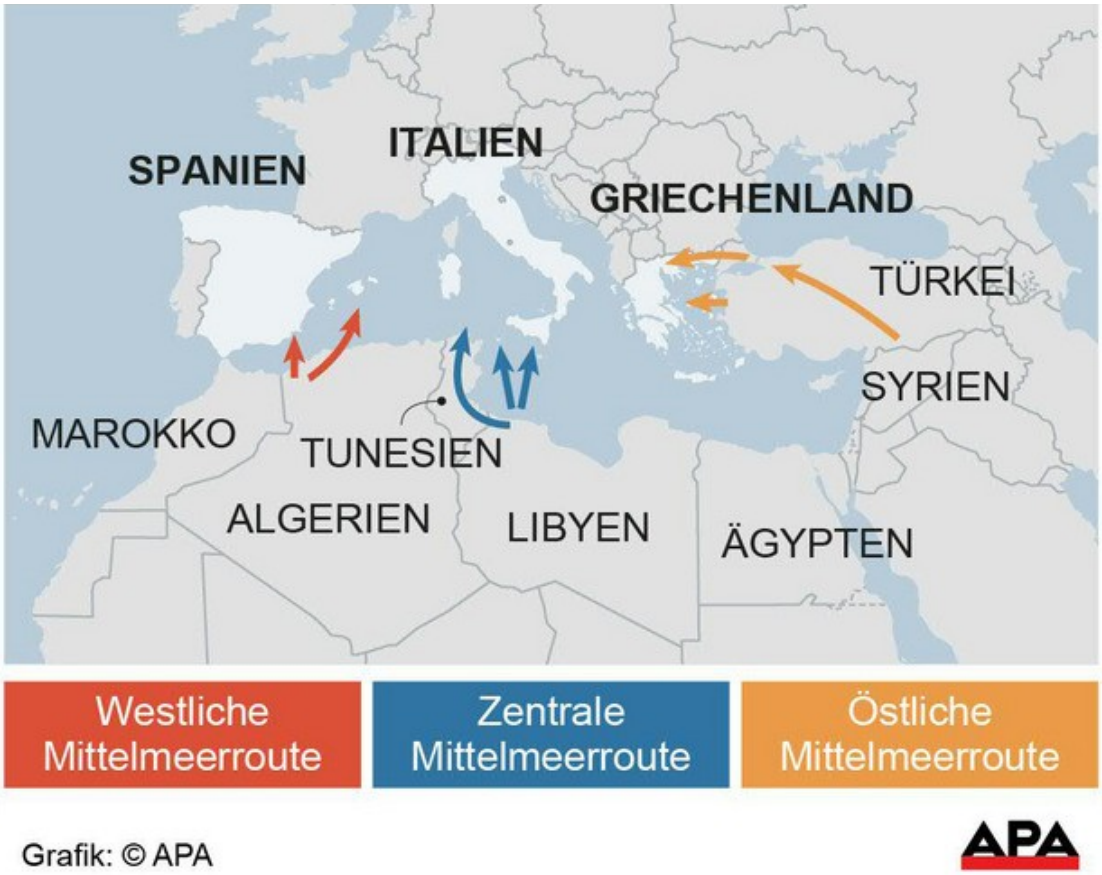

Figure 1: The Western, the Central and the Eastern Mediterranean route [13].

The alternative way to reach Europe is the Balkan route. In June 2021 about 12.000 people tried to reach Europe over the Balkan route. Most of them were from Afghanistan, Pakistan, Bangladesh and Syria. In 2015 Frontex counted more than 760.000 refugees coming over the Balkan route. They came across Slovenia, Croatia and Serbia. When these three countries closed their borders, a new Balkan route was built. It crosses Albania, Montenegro and Bosnia but also Romania [14].

Figure 2: The Balkan routes [14]

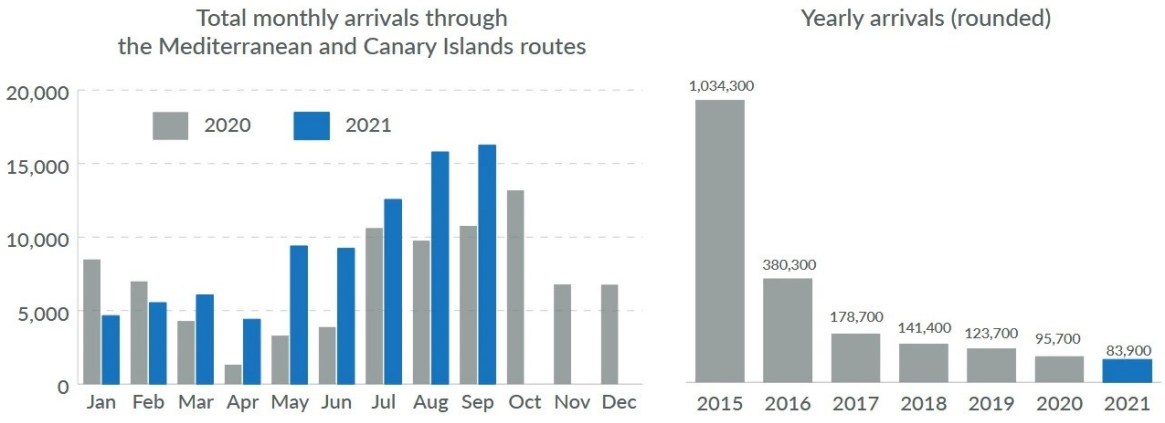

Figure 3: Arrivals through the Mediterranean and Canary Island routes [15]

1.2.2 Medical situation

The right of health is part of article 25 of the Universal Declaration of Human Rights [16]. According to the Geneva Convention from 1951, refugees should get access to the same health systems as the national population [16, 17]. Any country who provides asylum is therefore obliged to care for the health of refugees [18] as article 23 of the Refugee Convention guarantees [16]. This becomes even more important as people flee mostly situations in which health care might have suffered under the circumstances. Living for example in a war zone but also being on the move makes access to Primary Health Care often impossible [17].

To offer a full universal health coverage it is not enough to have access at the final destination. Health systems must be available along the route. While people in the receiving country are often disadvantaged in getting access to health care it is even worse during the journey [16].

The medical need of refugees can not be compared to the need of the nationals. In fact it is also important to look at the health system in the original countries of refugees, at the duration and circumstances during the flight and the access to health systems in the receiving countries. Further it is distinct between the treatment of acute injuries from war or travel but also from malnutrition, giving birth, chronic diseases or mental health issues [17].

Whether refugees are treated like the national population or not depends on the recipient country. To simplify there are three different ways to handle this treatment. Refugees are either treated like nationals especially in cases of emergency. In this case the treatment is free or less expensive than normal. Another option is, that refugees are treated like foreigners which is often more expensive than for nationals. The third option is, that refugees don’t have any access to local health systems [2].

The Health and Migration Programme (PHM) was established in 2020 by the WHO to reach the goal of promoting the health of refugees and migrants. Its goal is to access health services under social and financial protection [18].

There is also a legal component of treating asylum seekers. In many cases it is doctors that see the consequences of systematic torture or violence like wounds from electric shocks or

typical burns that have to be documented to support asylum claims and verify abuse or torture [19].

There are several circumstances in which refugees need access to health systems. First during their flight and second in the receiving country. In the receiving country they might either be integrated in the normal health system but still facing special challenges or they might live in refugee camps for years and receive health care only there. To regard the health of refugees it is easier to structure it in different determinants.

1.2.2.1 Situation depending on gender

As well known, female migrants are more vulnerable than men. This is due to several reasons:

What is emphasizing the vulnerability of the female population is, that most female refugees are on the move during their fertile period. Therefore they are more often faced with pregnancy and childcare and in an even higher need of access to health systems. Also one reason for girls to flee their home country is the fear of early marriage and genital mutilation. Further, female migrants are at higher risk to earn money through prostitution.

For women and girls during menstruation hygiene is a more important topic than for men. Therefore the access to water and sanitation needs to be safe, as the risk of women and girls to sexual and gender based violence (SGBV) is higher.

As SGBV might also increase the risk of post-traumatic stress disorder (PTSD) and mental problems, females are in a high risk of developing mental health problems.

Especially in long-term refugee camps it can be shown, that the female population is at a higher risk of obesity and therefore cardiovascular diseases or diabetes mellitus. The reasons are found in the fact that females don’t dare to show themselves in public out of religious reasons or fear of violence but also the lack of physical activity of daily life activities in camp situations (e.g. food is distributed but doesn’t have to be prepared) [20].

Also in men there are different aspects that increase their level of vulnerability as they are refugees.

Although sexual and gender based violence concerns more often the female refugees, a study in Europe found out, that a third of the victims were men or boys. They are

especially vulnerable to this topic as health workers underestimate their need and the rape of men is often stigmatized.
As men traditionally feel more often responsible to care for their family and protect them, they are slightly more vulnerable to mental health issues like the feeling of disempowerment. Also their families at home often expect men to send home money which puts men under higher pressure than women.
Men are more vulnerable due to the working conditions they often face. Migrants often do jobs that are more dangerous and physically heavily and therefore they are at a high risk of getting injured at work.
Because young and healthy men are supposed to be less vulnerable than other parts of the refugee population, is it expected of them to be able to deal with especially unhygienic living conditions. Their risk of getting infectious diseases in mass accommodations is higher than in other groups even young and healthy men are in a lower risk to suffer long-term from bad living conditions.
While females are in a higher risk of sexual abuse, men face a noticeable higher risk of physical violence, imprisonment and torture during their flight [20].

Also LGBTQI+ refugees are a very vulnerable group as they face discrimination more often than others. This becomes for example problematic as they face higher burdens for HIV prevention [20].

1.2.2.2 Situation depending on age

While the needs of children are part of many studies, the increasing numbers of older people becoming displaced is often ignored. Older people who flee more often because of natural catastrophes than economic or political reasons are also part of the vulnerable groups as they are at higher risk of diseases and have more problems to assimilate to unknown situations [20].
Unaccompanied minors are more often faced with sexual abuse and human trafficking than children in families. Unaccompanied minors in Europe are 90% male. It is assumed that the number of unaccompanied girls is indeed higher but girls often join non-relatives to become part of a group and are therefore less easy identified. Also minors may not be

recognized or accepted as minors when they look older than they are. Further minors were more often violently separated from their family and had experienced the death of close persons [20].

Children and minors, especially girls, have most often no access to education systems during flight or in refugee camps. These becomes even more important as education and health are depending on each other, for example in prevention of diseases. Reasons therefore are the need of earning money instead of going to school, language barriers or the lack of schools while the limited money in the camps is invested in food and health [20].

As always children and adults suffer mostly from different diseases. In refugee children younger than five years old the most common death reasons in less developed countries are malaria, malnutrition, measles, gastrointestinal infections and respiratory infections. Adults suffer from chronic diseases, cancer and cardiovascular diseases similar to the national population [17].

1.2.2.3 Situation depending on further factors

As a third factor general circumstances should be regarded. Refugees in general have to be called a very vulnerable social group caused by the following reasons:

People on the move often live in poor living conditions like mass accommodations where there is often overcrowding. In open-air refugee camps all over the world health is aggravated by the living circumstances. The burning of biomass is associated with a higher rate of respiratory diseases. Further mould and pests are common in many camps and a sign of the bad hygienic circumstances. In many countries refugees don't automatically have access to safe drinking-water. Also there is often food insecurity. Even if people have access to food it is often not healthy or sufficient. In overcrowded camps, communicable diseases like respiratory infections, gastrointestinal infections or skin diseases spread really quickly. [20]. It can be clearly said that communicable diseases are mostly causes by catastrophic hygiene circumstances and not threatening the hosting population of the receiving country but mostly the refugees in the overcrowded camps [21]. In 2018 before SARS-Covid-19 became a problem, a team of researchers visited 13 refugee camps in Greece and named some more problems that might still increase the risk of outbreaks of communicable diseases in camps. These are the language barrier, the under-diagnosis of

mild symptoms due to low quality health assessments (e.g. vitals are rarely risen) but also the denial of symptoms when patients are afraid of the consequences especially concerning a delay of departure [22].

Concerning chronic diseases, refugees and migrant suffer mostly from interruption of treatments and difficulties accessing health care during transit [21].

Physicians in the receiving country are also often not aware of tropical diseases that are rare in the national population. This misdiagnosing is also a reason for migrants to suffer worse health care [16].

In many situations refugees land up, the language barrier and the lack of translators become a problem in communication with medical staff. Also some patients have a different - for example more traditional - understanding of medicine [20]. Refugees further often face xenophobia or discrimination [18].

Low income or poverty are a burden to get treatment itself but are also associated with a worse mental health. This increases if migrants regularly send money to their families at home [20].

As long as the status of asylum remains unclear, the fear of deportation is a really strong issue for mental health problems. This problem is still increased if migrants don’t have official passports or are working illegally. Many countries only offer health care to refugees in emergencies but don’t offer access to regular health care [20]. A general better health could be connected to a permission to stay in the country, as a study in ten European countries found out [23].

Especially if a flight takes years or people are forced to move according to governmental plans the regularly loss of social structures has a bad influence on the mental health [20].

The health status of refugees depends on the situation in the origin country and the travel route. Between 2014 and 2022 the three most dangerous routes during migration were documented. These are the crossing of the Mediterranean Sea on the worldwide first place with numbers of death. The second place is taken by crossing the Sahara Desert and the third are the desert regions on the south border of the United States from Mexico [20].

1.2.3 Situation in the camp Kara Tepe II

1.2.3.1 General facts about the camp

More than 3800 boats with more than 130.000 refugees have crossed the island Lesvos since January 2017. These numbers by the Aegean boat report do not include refugees in the years before 2017 (the maximum of refugees was in 2015 and 2016) and also not the boats that were stopped or pushbacked (estimated more than 9000 boats with about 310.000 people). Within the five weeks the study took place (12th of April to 13th of May 2021), 8 boats with in total 160 people arrived at the island. Also 59 boats with 1978 people were stopped and 39 boats with 1239 refugees were pushbacked. Of course these numbers can not include refugees that landed unobserved [12].

Kara Tepe II is the main refugee camp on the island and was set up in September 2020 after a fire in beginning of September 2020 destroyed the former refugee camp Moria. It is built on an old Army shooting range. Natural borders are to two sides the sea and to two sides fences. The camp is controlled by the Greek Police and the Greek Army. The people live either in family tents, whereas two families share a tent (up to 16 people) or in big tents (up to 150 people), whereas 8 people share one cabin. As far as possible, people are sorted into nationalities and vulnerabilities. Vulnerable people are for example families, single women, unaccompanied minors, disabled refugees or patients with chronic diseases.

Figure 4: The entrance of Kara Tepe II on Lesvos in September 2020. The big tent in the middle is the so called „clinic“ [20].

While the study took place, the camp was in a lockdown situation caused by the SARS-Covid-19. This meant, that it was not possible to leave the camp without permission. New arrivals were kept in a quarantine camp in the north of the island for two to three weeks. After the registration, refugees went through a medical screening and their vulnerability status was determined.

In April and May 2021 people in the camp with an uncertain asylum status got 75€ per month. People that got refused asylum status didn’t get any money. People with a positive asylum reply were also not allowed to leave the camp as long as they didn’t have a passport. To get a passport took up to several weeks. With a passport refugees are allowed to move in Greece but not to leave the country permanently.

At the entrance of Kara Tepe II there were isoboxes for medical services, social services, asylum offices and police.

Due to Covid restrictions, schools, activities and gathering was forbidden. Still there was one open-air area for praying and a football and basketball ground.

People got two meals a day, one in the morning and one at midday. The warm meal at midday was meant for two times. Because of fire protection it was forbidden to cook on open fire or in tents. Electricity in the tents was given for about three hours a day. This depended also on the weather. If people used heaters, electricity ran out much earlier.

During April and May 2021 people were allowed to leave the camp two times a week for two hours. The camp Kara Tepe II is five kilometres away from Mytilini, the capital of Lesvos, so it is not possible to reach there by foot within two hours.

1.2.3.2 Hygienic situation in the camp

The hygienic situation describes water and sanitation but also the Covid measures. Between the 12th of April 2021 when the study started and the 13th of May when it ended, 32 inhabitants shared one toilet. Toilet areas for men and women were not separated into gender but had to be used by both sexes. As people feared sexual violence, many of them didn't use public toilets at night and dug their own latrines next to the tents. This became a problem during rainy periods when the latrine ditches were flooded. According to the NGO MSF about 5% of all incidents of SGBV in refugees on Lesvos happened on the island itself [24]. This shows the immense need for safe access to sanitary systems, not only for the female but also for the male population. There were no sinks in the camp, but concreted areas with running water out from garden hoses. This water could be bottled in canisters and used for cooking and washing. Every person had the possibility to shower ten minutes a week with warm water and in between with cold water. For proven Covid patients, a quarantine area was build up. This area was separated from the other tents with a wire-mesh fence. There existed isoboxes for about up to twelve people but no beds. About a third of all refugees had a bed, the others slept on blankets on the ground.

Between April and June 2022 180 inhabitants of the former camp Moria questionnaires were handed out to ask about their access to sanitary systems. A 100% of them reported having "difficulties of access, lack of hygiene, and lack of privacy" concerning sanitary facilities and also a 100% were suffering from climate conditions like "extreme temperature and humidity conditions" [25].

While the Covid measures were intended to improve the health circumstances, the situation inside the camps indeed got much worse. To protect the national population and the camp inhabitants from each other, in March 2020 the camp was put in a lockdown situation and it became even more difficult to keep social distance between the inhabitants. Further the evacuation of minors that was already concretely planned by eight European countries was postponed. Instead of 1600 vulnerable persons only 59 children got the chance to leave the island [26]. When the situation in the lockdown camp Moria became unbearable in summer 2020, a fire broke out. This fire was on the one hand followed by thousands of people living on the streets and on the other hand by demonstrations in the capital of Lesvos to protest against the living circumstances in the camp Moria by hundreds of people. Both consequences were the opposite of what the government wanted because social distancing became even less fulfilled.

1.2.3.3 Medical situation in the camp

To understand the course of the study, this chapter is about the medical supply of the camp through Primary Health offers. The Hellenic National Public Health Organization (EODY) is the governmental organisation which is in charge for refugees health care. It has the main responsibility and is supported by several NGOs (Non-Governmental Organizations).

There was a clinic area next to the entrance of the camp. The clinic tent contained eight single cabins and was surrounded by isoboxes for pharmacy, dentist, blood tests and covid tests. The single rooms in the camp could be heated. Most of the time, electricity was given. Power failures happened several times a week but mostly only for minutes or hours. If there was a power failure, there was no light in the cabins. Therefore, the doctors worked with open cabin doors to let some light in. The clinic area also had two toilets, but no running water. This is were the Primary Health Care took place.

The single NGOs paid refugee seekers that wanted to work as translators. As this was a popular job in the camp, there were usually enough translators so the treatment didn’t have to be prolonged by waiting for them.

The eight single rooms of Primary Health Care contained the following: Four doctors rooms (one for the paediatric, two others are separated by curtains into two halves for four

doctors), one nursing room, a midwife/gynaecologist room and one office. Two doctors rooms and the midwives room were run by the Greek government organisation EODY. The nursing room and the two other rooms were shared by two health care providing NGOs. These NGOs were sharing the rooms, whereas acute health care took place from 8 AM until 2 PM and chronic care was provided from 8 AM until 2 PM (without a cabin) and 2 PM until 8 PM. So in the mornings from Monday to Friday, up to six doctors were available for the about 6100 refugees in the camp. This meant, that one doctor had to treat about ten patients per day within six hours, while a paediatrician treated in average about 15 children per morning and the nursing staff (one to two nurses) about 25 patients per day. These numbers only are related to the offered health care not the health care that was indeed required. The triage was also done by an NGO.

The Primary Health Clinic offered daily 50 tickets for general practitioners, 25 tickets for wound treatment by nursing staff, 15 tickets for midwives, 15 tickets for the paediatrician and 10 tickets for the dentist. On four afternoons a week, there was further a gynaecologist in the camp and there was a physiotherapist in the camp up to five afternoons a week (not regularly, depending on volunteers). In the afternoons, patients with chronic diseases were checked up. There was further a container, where Emergency Shifts were done by an NGO from 6 PM to 1 AM. In the rest of the night a Greek NGO overtook the emergency shift.

The possibilities primary health care doctors had, were the following: They could do patients history, physical examination and vital signs. There were also stethoscopes, otoscopes, a blood pressure machine, a pulse oximeter, a thermometer, an ophthalmoscope and a blood sugar device. Further, it was possible to measure CRP (C-reactive protein) and Haemoglobin. It was also possible to do an ECG (electrocardiogram), rapid Covid tests, urine dipsticks and pregnancy tests. There existed also a portable ultrasound device.

Blood samples and imaging (ultrasound, X-ray, MRI scans, but no CT scans) were only tolerated by EODY if the results were going to change the management. They paid for three blood tests a day.

There were two clinics at the island where patients could be referred to: The local hospital in Mytilini which is the only hospital on the island. Patients could only be referred to the local hospital in case of emergencies or to see a specialist if EODY gave them a referral.

Translators worked in the hospital from 8 AM to 4 PM a day. The other clinic is called IKA-Clinic. It is an outpatient clinic where diagnostic like X-rays or blood tests took place.

There was also the possibility for the doctors to talk to specialists about one day a week via telecommunication and to present cases. A medical coordinator organised the different specialisations and had contacts in many European countries.

It becomes clear that in the setting of a refugee camp most patients and diseases were only treated symptomatically. Patients often got referrals to doctors that didn't exist on the island and while they were not allowed to leave the island. As long as a disease was not life-threatening, it was rarely treated aetiologically.

In the following there is a short overview over the healthcare providing NGOs during the weeks the study took place:

Leadership:

EODY provided primary health care by two doctors, midwifery, a paediatrician, a gynaecologist and psychological services. Only EODY was allowed to transfers patients to the local hospital. EODY was also doing Covid tests and blood tests.

Emergency treatment:

BRF (boat refugee foundation) offered emergency treatment from 6 PM to 1 AM.

Hellenic red cross had a team of paramedics working from a mobile clinic around the camp.

Primary care:

MVI (medical volunteers international) were providing primary care with up to four doctor cabins and a nursing cabin for wound treatment. MVI was also running the triage.

MDM (Médicins du Monde) were providing primary care.

Chronic care:

CMA (crisis management association) provided chronic care from 8 AM to 8 PM with about one doctor and one nurse and also dental care.

Midwifery:

EODY and MSF (Médecins Sans Frontières) offered midwife services, family planning and sexual related health services. MSF only accepted uncomplicated pregnancies but also cared for cases of sexual violence. MSF was also doing vaccinations on children. MSF had their clinic outside the camp but provided a bus shuttle for patients to get there.

Dental care:

CMA provided dental care in case of emergencies. Patients could be referred to IKA hospital or to private dentists in Mytilini.

Mental health (There were no possibilities to hospitalize patients with serious psychiatric disorders. They were all treated in outpatient circumstances):

EODY, MSF and the IRC (International Rescue committee) provided one-on-one assessments for serious psychotic disorders.

HIAS (Hebrew Immigrant Aid Society) is a charity with offered group therapy specialized for survivors of torture.

MVI offered psycho-education in groups for less severe cases. They had further a psychiatrist for severe or chronic mental health illnesses.

Further there were Greek psychologists and the organisation Fenix who both offered psychological and social support. A Greek psychological team also cared for drug addicted patients.

As there were many patients with need of psychological help, most NGOs had long waiting lists. Therefore one-in-one sessions were rare and therapy was mostly given in groups.

To summarize, a study from 2015 should be cited which seems to be still valid: Volunteer doctors and nurses from all over the world replace medical services under adverse conditions [27] with less help from national health system.

2 Material and Methods

2.1 International Classification of Primary Care

The WONCA is an international organisation of general practitioners (World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians). It has one instance that is called the WICC (WONCA International Classification Committee) and that is responsible for the development of classifications [28]. These classifications aim to show the complete domain of general practice and family medicine. One of these classifications is the ICPC questionnaire. ICPC stands for International Classification of Primary Care. Nowadays its second edition – the ICPC-2 – from 2003 is used [29]. The WICC developed the ICPC together with the ÖGAM (an Austrian society for general and family medicine) [30].

The ICPC questionnaire is made to be used in Primary Care and by general practitioners. It is used in many countries around the world and accepted by the WHO [29].

The ICPC is similar to the ICD-10 classification (International Statistical Classification of Diseases and Related Health Problems) but developed especially for family medicine and Primary Health Care. Whereas the ICD-10 contains more than 14.000 terms, most of them diagnoses, the ICPC-2 is much simpler and more useful in daily life of general practitioners. It contains only diagnoses with a prevalence of more than one of hundred, which means only the most common diagnoses (about 300 diagnoses and about 100 symptoms). The ICPC is structured by organ systems with their symptoms and their reasons for consulting [29, 30]. There are sixteen chapters structured by organ systems and a seventeenth chapter for social problems. There are following categories [30]:

A General and Unspecified

B Blood, Blood Forming Organs and Immune Mechanism

D Digestive

F Eye

H Ear

K Cardiovascular

L Musculoskeletal

N Neurological

P Psychological

R Respiratory

S Skin

T Endocrine/Metabolic and Nutritional

U Urological

W Pregnancy, Childbearing, Family Planning

X Female Genital

Y Male Genital

Z Social Problems

Within the chapters, the ICPC is structured into six points: symptoms/complaints, infections, neoplasms, injuries, congenital anomalies and other diagnoses [30].

Further the ICPC-2 contains process codes which allows to document the acting of the practitioner (for example „medical examination“ or „blood test“) [30]. These are not used in the study of this work but part of the questionnaire.

ICPC-2 is based on a concept of episodes where diagnoses can be documented as well as reasons for consultation (for example „fear“ of a disease). It is possible to use ICPC-2 and the ICD-10 together as there are „mappings“, which are schedules that allow to convert them.

The ICPC makes a lot of sense in a Primary Health context as it takes place in refugee camps, as patients present with unspecific complaints, whereas many of them are never really diagnosed. Many times, the physicians don’t diagnose a disease but only exclude a life threatening event. In the foreground the symptoms and not the diseases are documented.

2.2 Patient recruitment

The study based on an ad-hoc random sample within a period of four weeks. During this period, data from all patients who came for consultation were collected.

Since the researcher only assessed pseudonymised patient data from registers, individual consent from visiting patients was not regarded as necessary. The observant was a medical student and signed a declaration to maintain all information confidential.

2.3 Study population

According to Euro Relief, an NGO in the camp who was in charge for statistics, there were 6080 people in total living in the camp when the study started (12th of April 2021). 3960 inhabitants were male and 2119 were female. 1713 inhabitants were younger than 18 years old. 4% of the minors were unaccompanied.

On the 12th of April, 68% of the refugees were from Afghanistan, 12% from the Democratic Republic of Congo (DRC), 8,2% were Somalians, 5,1% were Syrians, 4,2% were from other African countries and 2,7% from other countries.

These numbers were fluctuating as there were currently new arrivals and people that were deported from the camp. Also, there were children born in the camp and people died. Further, some inhabitants left the camp illegally.

When the study ended (13th of May 2021), there were 6232 people in total living in the camp. 4027 inhabitants were male and 2204 were female. 1794 were under 18 years old.

On the 13th of May, 65,5% of the refugees were from Afghanistan, 11,5% from the Democratic Republic of Congo, 8,3% were Somalian, 6,8% were Syrian, 4,5% were from other African countries and 3,2% were from other countries.

2.4 Study data

To do the study, the patients' data were written down during the triage. The person doing the triage, who might be a doctor, medical student, nurse or paramedic, noted following four answers:

First of all, the gender was written down (male or female). Then, people were asked for their age in years or their year of birth. There were different groups of age, in which their were sorted: Group 1 (0-5 years), Group 2 (6-10 years), Group 3 (11-20years), Group 4 (21-30 years), Group 5 (31-40 years), Group 6 (41-50 years), Group 7 (51-60 years), Group 8 (61-70 years) and Group 9 (older than 70 years). They were also asked for their nationality (Afghanistan, DRC, Somalia, Syria, Iraq or Others). “Others” were mostly from various African countries like Burkina Faso, Ivory Coast, Eritrea, Gambia, Cameroon, Liberia, Mali, Niger, Sierra Leone, Sudan and others. Finally, the patients were asked for their complaints. These were noted in the ICPC questionnaire.

2.5 Course of the study

Between 8 AM and 2 PM, about 120 to 160 patients lined up in triage. The number of patients depended on two different factors: One factor was the weather, as the waiting time (up to three hours) took place outside the clinic and next to the sea. The other factors were checkpoints of the Greek police, which, on some days, didn’t allow patients to cross the tent area and the clinic area or took their data which slowed down the upcoming patients.

When the patients lined up in triage, they were asked for Covid symptoms and their temperature was measured. If the patients had Covid symptoms (cough, shortness of breath, headache, sore throat, runny nose, nausea, vomiting, diarrhoea or fatigue), a rapid Covid test had to be done by the medical staff. Normally, the patients got their result within 15 minutes.

With a negative Covid test, patients were allowed to enter the waiting area. Now two people of the medical staff, accompanied by two translators, asked for the patients’ personal data (name, date of birth, language/nationality and case number) and symptoms. In most cases the nationality could be followed up from the language. If not patients were asked for their nationality. The patients history and the main symptoms were written down in one to seven minutes average time. Now the patient got a ticket, which allowed him to get an appointment in the Primary Health Clinic on the same morning.

This should be shown on an example: A young woman, approximately 20 years old, lines up in triage. After twenty minutes of waiting time, she is asked for Covid

symptoms. As she doesn't have any symptoms, she can enter the waiting area. After again twenty minutes of waiting time, the triage staff ask for her symptoms. The patient suffers from epigastric pain and reflux since four months and from sleep disorders since she left her home country. Now the triage staff try to find out if her symptoms are acute or life threatening. As they are not, after three minutes talk, the woman gets a ticket to see the general practitioner. Now she has to wait about one to three hours.

On the ICPC questionnaire, the triage staff notes down: „D02 abdominal pain epigastric", „D03 heartburn", and „P06 sleep disturbance" but also „female", „date of birth 2000" and „Afghanistan".

3 Results

3.1 Demography of the participants

Out of the total number of people in the camp, 2682 cases of consultation became part of the study. Some of the patients presented several times.

Within all the consultations, 1514 were asked by male patients (56,5%) and 1168 by female patients (43,5%).

	Absolute numbers of consultations	Percentage of gender
In females	1168	43,5%
In males	1514	56,5%
In total	2682	100,0%

Table 1: Genders in total

In the study, most consultations were demanded by the group of age between 21 and 30 years with 38,7%, followed by the group of age between 11 and 20 years with 15,2% and the group of age between 31 and 40 years with 14,3%.

	Absolute numbers of consultations	Percentage of groups of age
0-5	279	10,4%
6-10	89	3,3%
11-20	407	15,2%
21-30	1038	38,7%
31-40	384	14,3%
41-50	291	10,9%
51-60	139	5,2%
61-70	47	1,8%
70+	8	0,3%
In total	2682	100,0%

Table 2: Groups of age in years in total

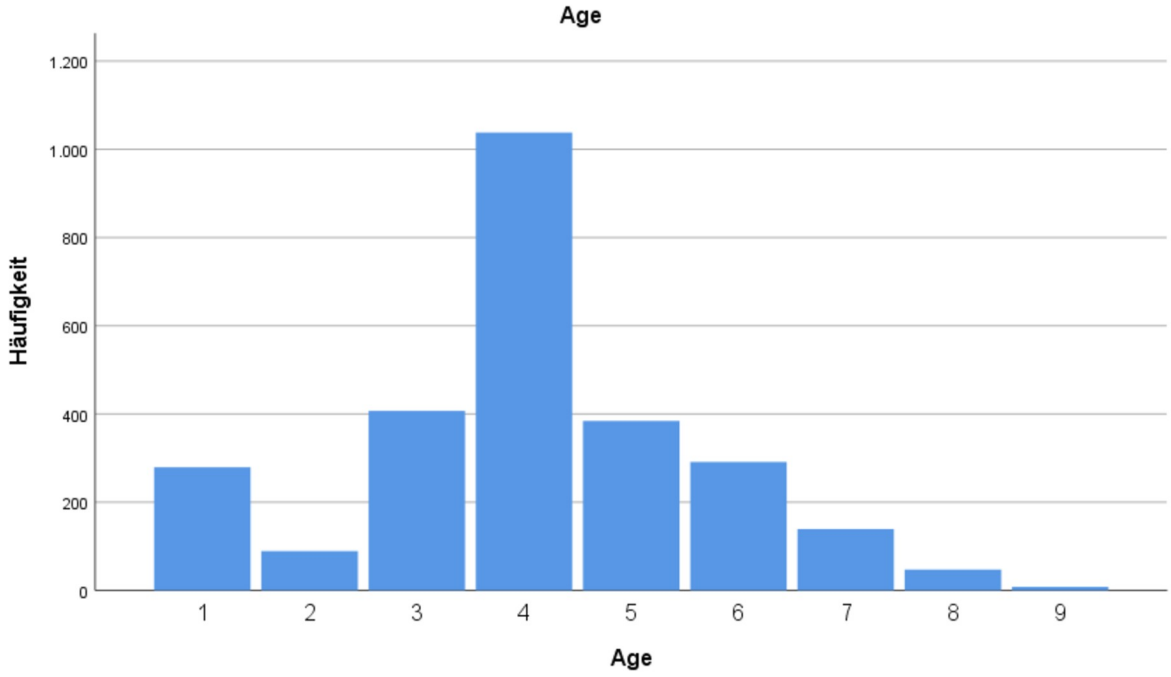

Figure 5: Groups of age in total

Most of the consultations were requested by Afghans with 60,9% (1633 in total). Afghans were followed by people from the Democratic Republic of Congo with 21,6% (580 in total) and Somalians with 7,7% (207 in total).

	Absolute numbers of consultations	Percentage in groups of nationality
Afghanistan	1633	60,9%
DRC	580	21,6%
Irak	35	1,3%
Others	139	5,2%
Somalia	207	7,7%
Syria	88	3,3%
In total	2682	100,0%

Table 3: Nationalities in total

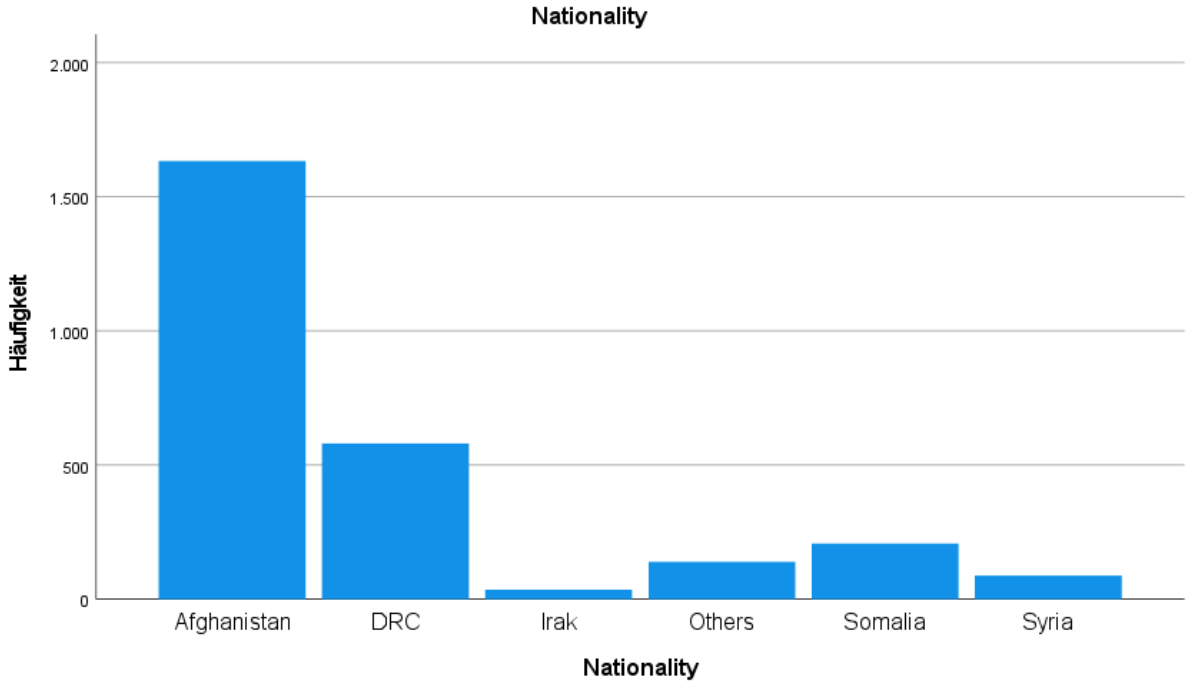

Figure 6: Groups of nationalities in total

Also cross-classified tables were generated.

		Gender		
		Consultations in females	Consultations in males	In total
Age	0-5	121=43,3%	158=56.6%	279=10,4%
	6-10	34=38,2%	55=61,8%	89=3,3%
	11-20	132=32,4%	275=67,6%	407=15,1%
	21-30	492=47,4%	546=52,6%	1038=38,7%
	31-40	171=44,5%	213=55,5%	384=14,3%
	41-50	140=48,1%	151=51,9%	291=10,6%
	51-60	52=37,4%	87=62,6%	139=5,2%
	61-70	22=46,8%	25=53,2%	47=1,8%
	70+	4=50%	4=50%	8=0,3%
In total		1168=43,5%	1514=56,5%	2682

Table 4: Cross-classified table age and gender

		Gender		
		Consultations in females	Consultations in males	In total
Nationality	Afghanistan	754=46%	879=53%	1633=61%
	DRC	230=40%	350=60%	580=22%
	Iraq	9=26%	26=74%	35=1,3%
	Others	50=36%	89=64%	139=5,2%
	Somalia	95=46%	112=54%	207=7%
	Syria	30=34%	58=66%	88=3%
In total		1168=43,5%	1514=56,5%	2682

Table 5: Cross-classified table nationality and gender

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		Nationality						
		Afghanistan	DRC	Iraq	Others	Somalia	Syria	In total
Age	0-5	203=12%	32=6%	6=17%	10=7%	8=4%	20=23%	279=10%
	6-10	84=5%	2=0,3%	0	0	0	3=3%	89=3%
	11-20	262=16%	61=11%	5=14%	23=17%	51=25%	5=6%	407=15%
	21-30	522=32%	267=46%	13=37%	75=54%	112=54%	49=57%	1038=39%
	31-40	202=12%	127=22%	4=11%	17=12%	28=14%	6=7%	384=13%
	41-50	215=13%	48=8%	7=20%	14=10%	7=3%	0	291=11%
	51-60	94=6%	41=7%	0	0	1=0,5%	3=3%	139=5%
	61-70	43=3%	2=0,3%	0	0	0	2=2%	47=2%
	70+	8=0,4%	0	0	0	0	0	8=0,3%
In total		1633=61%	580=22%	35=1%	139=5%	207=8%	88=3%	2682

Table 6: Cross-classified table age and nationality

3.2 Causes of Consultation in total

The most common reasons to ask for Primary Health Care are listed above. Only causes of consultation that were demanded by more than forty people (1,5%) out from 2682 in five weeks are included.

In order for the question of required health care to be answered, the most common categories of consultations were first reviewed. These were the following five categories: Digestive symptoms with 20,7% (in more detail D02 (abdominal pain epigastric) with 6,5% in total, D19 (teeth/gum symptom/complaint) with 3,7% in total, D01 (abdominal pain/cramps general) with 3,0% in total and D10 (vomiting) with 1,5% in total), musculoskeletal complaints with 16,3% (in more detail L02 (back symptom/complaint) with 4,5% in total, L15 (knee symptom/complaint) with 2,7% in total and L14 (leg/thigh symptom/complaint) with 1,6% in total), skin symptoms with 14,8% (in more detail S06 (rash localized) with 3,1% in total, S02 (pruritus) with 2,4% in total and S19 (skin injury other) with 1,7% in total), respiratory symptoms with 7,9% (in more detail R02 (shortness of breath/dyspnoea) with 1,5% in total) and neurological problems with 6,2% (in more detail N01 (headache) with 3,7% in total).

Further more than forty patients in the study period consulted medical staff because of P01 (feeling anxious/nervous/tense) with 2,1%, F05 (visual disturbance other) with 2,1%, W78

(pregnancy) with 1,7%, A03 (fever) with 1,6%, F01 (eye pain) with 1,6% and P06 (sleep disturbance) with 1,5%.

	Absolute numbers	Percentage
General/Unspecified	132	4,9%
Blood/Immune	45	1,7%
Digestive	555	20,7%
Eye	148	5,5%
Ear	70	2,6%
Cardiovascular	83	3,1%
Musculoskeletal	438	16,3%
Neurological	165	6,2%
Psychological	149	5,6%
Respiratory	212	7,9%
Skin	397	14,8%
Endocrine/Metabolic/Nutritional	38	1,4%
Urological	77	2,9%
Pregnancy/Childbearing/Family	75	2,8%
Female genital	46	1,7%
Male genital	31	1,2%
Social	19	0,7%
In total	2682	100,0%

Table 7: Groups of organ systems in total

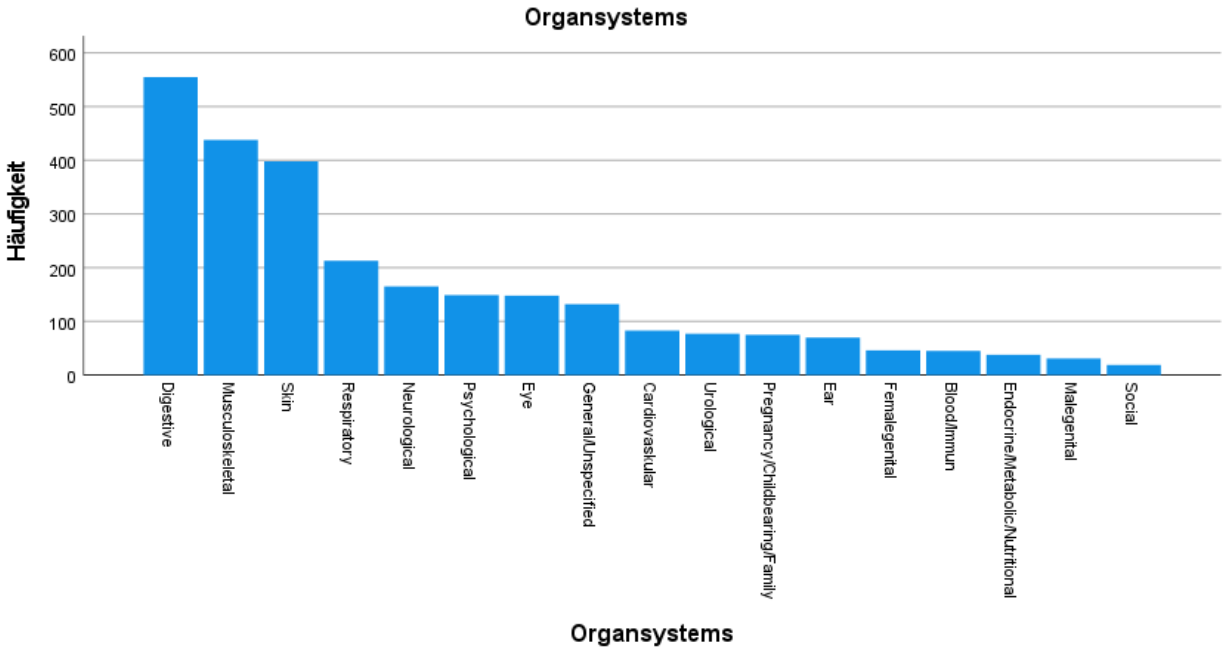

Figure 7: Groups of organ systems in total

3.3 Causes of Consultation depending on gender

The most common reasons for female patients were D02 (abdominal pain epigastric) with 94 consultations, L02 (back symptom/complaint) with 69 consultations, D01 (abdominal pain/cramps general) with 47 consultations, W78 (pregnancy) with 45 consultations, N01 (headache) with 43 consultations, S06 (rash localized) with 36 consultations, D19 (teeth/gum symptom/complaint) with 35 consultations, L15 (knee symptom/complaint) with 31 consultations and R02 (shortness of breath/dyspnoea) with 28 consultations.

The most common reasons for male patients were D02 (abdominal pain epigastric) with 79 consultations, D19 (teeth/gum symptom/complaint) with 63 consultations, N01 (headache) with 55 consultations, L02 (back symptom/complaint) with 52 consultations, S06 (rash localized) with 48 consultations, S02 (pruritus) with 43 consultations, L15 (knee symptom/complaint) with 42 consultations, P01 (feeling nervous/anxious/tense) with 38 consultations, F05 (visual disturbance other) with 35 consultations, S19 (skin injury other) with 35 consultations, D01 (abdominal pain/cramps general) with 34 consultations, P06 (sleep disturbance) with 34 consultations, L14 (leg/thight symptom/complaint) with 26 consultations and R05 (cough) with 25 consultations.

		Gender	
		Consultations in females	Consultations in males
Organ systems	General/ Unspecified	52=39,4%	80=60,6%
	Blood/Immune	25=55,5%	20=44,4%
	Digestive	257=46,3%	298=53,7%
	Eye	68=45,9%	80=54,1%
	Ear	15=21,4%	55=78,6%
	Cardiovascular	34=41%	49=59%
	Musculoskeletal	201=45,9%	237=54,1%
	Neurological	79=47,9%	86=52,1%
	Psychological	46=30,1%	103=69,1%
	Respiratory	89=42%	123=58%
	Skin	130=32,7%	268=67,3%
	Endocrine/ Metabolic/ Nutritional	17=44,7%	21=55%
	Urological	26=33,8%	51=66,2%
	Pregnancy/ Childbearing/ Family	73=97,3%	2=2,7%
	Female genital	45=97,8%	1=2,1%
	Male genital	0%	31=100%
	Social	10=52,6%	9=47,4%
In total		1168	1514

Table 8: Groups of organ systems depending on gender

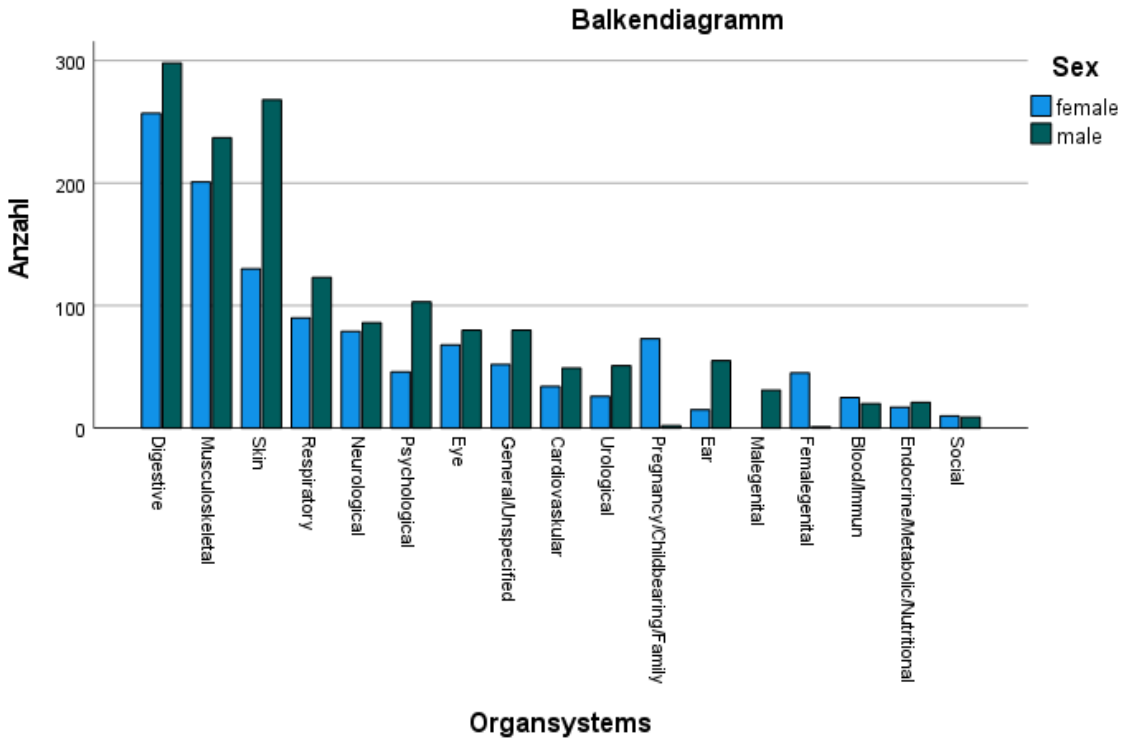

Figure 8: Groups of organ systems depending on gender

3.4 Causes of Consultation depending on age

In the following lines the three most common reasons to consult Primary Health Care depending on the groups of age are listed.

The three most common reasons to consult a doctor in patients between 0 and 5 years were A03 (fever) with 33 consultations, D10 (vomiting) and D11 (diarrhoea) with both 28 consultations.

In the group of age between 6 and 10 years, D19 (teeth/gum symptom/complaint) with 8 consultations, R96 (asthma) with 5 consultations and S06 (rash localized) with 4 consultations were the most common reasons to see medical staff.

Between 11 and 20 years, people consulted Primary Health Care mostly because of D02 (abdominal pain epigastric) with 23 consultations, L02 (back symptom/complaint) with 19 consultations and S06 (rash localized) with 18 consultations.

Within the biggest group of patients (21 to 30 years) medical help was mainly requested because of D02 (abdominal pain epigastric) with 61 consultations, D19 (teeth/gum

symptom/complaint) with 45 consultations but also L02 (back symptom/complaint) and N01 (headache) with both 44 consultations.

The three most common reasons to consult medical help in patients between 31 and 40 years were D02 (abdominal pain epigastric) with 31 consultations, L02 (back symptom/complaint) with 25 consultations and L15 (knee symptom/complaint) with 23 consultations.

Between 41 and 50 years, patients suffered mostly under D02 (abdominal pain epigastric) with 34 consultations, L15 (knee symptom/complaint) with 17 consultations and L02 (back symptom/complaint) with 15 consultations.

In patients between 51 and 60 years, consultations were because of L15 (knee symptom/complaint) and D02 (abdominal pain epigastric) with both 9 patients and F05 (visual disturbance order) with 8 patients.

The three most common reasons in patients between 61 and 70 were L02 (back symptom/complaint) with 5 cases, L15 (knee symptom/complaint) with 4 cases and L14 (leg/thigh symptom/complaint) with 3 patients.

In the patient group older than 70 years, 2 consultations were because of R02 (shortness of breath/dyspnoea). Other consultations were not more than one case at a time.

		Age								
		0-5	6-10	11-20	21-30	31-40	41-50	51-60	61-70	70+
Organ systems	General/Unspecified	45= 34,1 %	3= 2,3%	16= 12,1 %	39= 29,5%	11= 8,3%	12= 9,1%	3= 2,1%	2= 1,5%	1= 0,8 %
	Blood/Immune	2= 4,4%	2= 4,4%	8= 17%	19= 42%	5= 11,1%	4= 8,9%	4= 8,9%	1= 2,2%	0
	Digestive	91= 16,4 %	14= 2,5%	59= 19,6 %	190= 34,2%	93= 16,8%	71= 12,8%	28= 5%	9= 1,6%	0
	Eye	3= 2%	5= 3,4%	21= 14,2 %	65= 43,9%	16= 10,8%	22= 14,9%	11= 7,4%	3= 2%	2= 1,4 %
	Ear	4= 5,8%	3= 4,3%	4= 5,8%	33= 47,1%	11= 15,7%	7= 0,1%	7= 0,1%	1= 1,4%	0

	Cardiovascular	5= 6%	2= 2,4%	7= 8,4%	31= 3,7%	17= 20,5%	14= 16,9%	4= 4,9%	3= 3,6%	0
	Musculoskeletal	7= 1,6%	10= 2,3%	68= 15,5 %	159= 36,3%	76= 17,4%	62= 14,2%	36= 8,2%	18= 4,1%	2= 0,4 %
	Neurological	0	5= 3%	33= 0,2%	73= 44,2%	24= 14,5%	17= 10,3%	11= 6,7%	2= 1,2%	0
	Psychological	5= 3,6%	4= 2,7%	26= 17,4 %	67= 45%	14= 9,4%	21= 14,1%	12= 8,1%	0	0
	Respiratory	49= 23%	16= 7,5%	39= 18,3 %	62= 29,1%	25= 11,7%	12= 5,6%	5= 2,3%	2= 0,9%	3= 1,4 %
	Skin	47= 11,8 %	17= 4,2%	96= 24,1 %	154= 38,7%	54= 13,6%	18= 4,5%	9= 2,3%	3= 0,7%	0
	Endocrine/ Metabolic/Nutritional	10= 26,3 %	4= 10,5 %	6= 15,8 %	9= 23,7%	2= 5,3%	3= 7,9%	2= 5,3%	2= 5,3%	0
	Urological	6= 7,8%	1= 1,3%	7= 9,1%	33= 42,8%	9= 11,7%	16= 20,8%	4= 5,2%	1= 1,3%	0
	Pregnancy/ Childbearing/Family	0	0	8= 10,7 %	56= 74,7%	10= 13,3%	1= 1,3%	0	0	0
	Female genital	1= 2,2%	0	2= 4,3%	23= 0,5%	15= 32,6%	5= 10,9%	0	0	0
	Male genital	1= 3,2%	2= 6,5%	5= 16,1 %	18= 58%	0	4= 12,9%	1= 3,2%	0	0
	Social	3= 15,8 %	1= 5,3%	2= 10,5 %	7= 36,8%	2= 10,5%	2= 10,5%	2= 10,5%	0	0
In total		279	89	407	1038	384	291	139	47	8

Table 9: Groups of organ systems depending on groups of age

3.5 Causes of Consultation depending on nationality

Patients from Afghanistan suffered mostly from digestive symptoms (319), from musculoskeletal symptoms (293) and from skin diseases (261). It was similar in the group

of patients from the DRC with 141 patients suffering from digestive symptoms, 71 patients suffering from musculoskeletal symptoms and 56 patients suffering from skin diseases. Patients from Somalia had mostly digestive symptoms (44), followed by skin diseases (41) and musculoskeletal complaints (37). Within other countries, patients complained about digestive symptoms (31), musculoskeletal symptoms (23) and respiratory symptoms (11). Syrians suffered mostly from skin diseases (19), digestive complaints (12) and musculoskeletal symptoms (11). People from Iraq had skin diseases with twelve patients, digestive symptoms with eight patients and general and unspecified symptoms and musculoskeletal complaints with both three patients.

		Nationality					
		Afghanistan	DRC	Iraq	Others	Somalia	Syria
Organ systems	General/Unspecified	78= 59,1%	30= 22,7%	3= 2,3%	10= 7,8%	8= 6,1%	3= 2,3%
	Blood/Immune	25= 55,6%	13= 28,9%	0	3= 6,7%	4= 8,9%	0
	Digestive	319= 57,5%	141= 25,4%	8= 1,4%	31= 5,6%	44= 7,9%	12= 2,2%
	Eye	90= 60,8%	35= 23,6%	1= 0,7%	9= 6,1%	9= 6,1%	4= 2,7%
	Ear	46= 65,7%	16= 22,9%	1= 1,4%	2= 2,9%	2= 2,9%	3= 4,3%
	Cardiovascular	40= 48,2%	31= 37,3%	0	8= 9,6%	2= 2,4%	2= 2,4%
	Musculoskeletal	293= 66,9%	71= 16,2%	3= 0,7%	23= 5,3%	37= 8,4%	11= 2,5%
	Neurological	105= 63,6%	37= 22,4%	0	6= 3,6%	12= 7,3%	5= 3%
	Psychological	78= 52,3%	44= 29,5%	2= 1,3%	10= 6,7%	12= 8,1%	3= 2%
	Respiratory	129= 60,6%	44= 20,7%	2= 0,9%	11= 5,2%	20= 9,4%	7= 3,3%
	Skin	261= 65,6%	56= 14,1%	12= 3%	9= 2,3%	41= 10,3%	19= 4,8%
	Endocrine/Metabolic/ Nutritional	25= 65,8%	7= 18,4%	0	2= 5,3%	1= 2,6%	3= 7,9%
	Urological	44= 57,1%	11= 14,3%	1= 1,3%	5= 6,5%	7= 9,1%	9= 11,7%

	Pregnancy/ Childbearing/Family	45= 60%	20= 26,6%	1= 1,3%	2= 2,7%	3= 4%	4= 5,3%
	Female genital	21= 45,6%	17= 36,9%	0	5= 10,9%	1= 2,2%	2= 4,3%
	Male genital	25= 80,6%	2= 6,5%	0	1= 3,2%	3= 9,7%	0
	Social	9= 47,3%	5= 26,3%	1= 5,3%	2= 10,5%	1= 5,3%	1= 5,3%
In total		1633	580	35	139	207	88

Table 10: Groups of organ systems depending on nationality

4 Discussion

In this discussion two questions will be addressed. First if Primary Health Care was given in the camp Kara Tepe II. And second on which factors – regarding gender, age and nationality - the required health care depended on.

4.1 Realisation of Primary Health Care

The question, if Primary Health Care was given in Kara Tepe II should be answered by regarding the acronym ELEMENTS.

E - Education finds out the reasons for low health and further solutions

Education which understands also health promotion did not take place in the camp Kara Tepe II. This was not only caused but worsened by the SARS-Covid-19 situation and the lockdown of schools and forbidding of gathering. It was further not replaced by media in a way that could have respected social distancing like handouts, posters or online teaching. Identifying health problems was a task that was only assumed by volunteers or NGOs but not in an official way. Health organisations reacted mostly retrospectively to health issues. A study from 2021 supports this assumption and names health care for refugees mostly emergency-driven while preventive and promotive health care rarely exist [22]. It can be summarized that prevention of health care problems was not given, as information and education didn’t take place in the camp. In addition a sufficient hygienic situation as one of

the main factors of prevention wasn't given. This topic is furthermore described under "S - safe water and sanitation".

L - Local prevention of diseases that spread in an endemic way

The prevention of endemic diseases could not at all be ensured. Even though the new camp Kara Tepe II didn't suffer from overcrowding regarding the number of tents – compared to the old camp Moria – the lack of sanitary access was immense. Social distancing was not possible while up to 150 persons shared one tent and their only private space was their bed. Further people had to stand in line during the food distribution, to wait for showers, for registration, to enter and to leave the camp and in many more situations.

The high rate of communicable diseases can be shown in various examples. Due to overcrowding, bad hygienic circumstances and a lack of information and education, SARS-Covid-19 could spread in the camp very easily. There were masks and disinfectants contributed in the camp and there was an isolation area which was separated with wire-mesh fence for positive tested persons. These were the only measures against SARS-Covid-19 before vaccination could be offered. 7,9% of all consultations were caused by respiratory symptoms which put them on the fourth place in total. As the camp population was young and healthy they were not too vulnerable to the virus. Still dyspnoea was the most common reason of consultation in people older than 70 years. Another problem existed in the quarantine camp where people were sent directly after their arrival. People there were not separated within the time they arrived. So when new people arrived, the refugees that had already passed some time of their quarantine had to start again with about fourteen days of isolation.

Further skin problems with 14,8% - mostly scabies - were the third common reason in consulting medical help in total.

The rate of head lice was so high that people weren't obliged to line up in triage to get treatment but received lice shampoo directly at the pharmacy. Even the exact number can therefore not be proved, it is presumed to be very high.

These examples show that the prevention of communicable diseases was not at all given.

E - expanded program for vaccination and immunization against diseases that spread infectious

Even the offer for vaccination programs was in theory sufficient, people did often not accept it due to the lack of health promotion and prevention. There were two kinds of vaccinations that existed. First, the vaccination against SARS-Covid-19 was offered for everyone in the camp. Second, children were vaccinated by the NGO Médecins Sans Frontières according to international guidelines. Between April 2018 and April 2019 the European programme PHILOS accessed the vaccination status of refugee children in Greece. Vaccine protection was high (81,2%) against the first dose of MMR, but much lower for the second dose (45%). Vaccination against hepatitis B, poliomyelitis, diphtheria-tetanus-pertussis and Haemophilus influenzae type B was not really sufficient with about 46% for the first and about 24% for the second shot in a vaccination of all six diseases [31]. While each child in Kara Tepe II in theory got the chance of vaccination, many parents didn't take up the offer. This can be explained by the immense lack of promoting health care, a lack of cultural mediators and also by the fact that vaccinations weren't given in the camp but in the MSF clinic which could only be reached by bus.

Even if the conditions of immunizations were given, they did not reach the numbers of vaccination rate they could have reached.

M - Maternal and child health but also sexual health related issues and family planning

The conditions of maternal and child health were rather fulfilled, while sexual health related issues and family planning were clearly not. There was an adequate offer of healthcare concerning pregnancy by midwives. Even the required health care was very high, the offer through different NGOs was sufficient. One factor where the situation definitely could have been improved is the care of newborns and small babies. Many consultations resulted not from an unwell child but from overstrained and inexperienced mothers. The midwives did the check-ups of newborns but rarely gave information and health education. Also mothers and newborns were very vulnerable in the bad hygienic situation in the camp. The particular high rate (10,4%) of consultations by children under the age of five (mostly newborns, babies and toddlers) emphasises this fact, as consultation numbers were much lower (3,3%) in children over the age of six. In the camp there was moreover a critical lack of sex education and contraception. This was again caused by the

lack of health promotion and prevention. Also there were not enough cultural mediators for the different cultures. This can be shown with the example of contraception. Condoms were the only form of contraception that was offered in the camp and people had no realistic chance to buy them in the supermarket for two reasons: Firstly, due to Covid-restrictions people were not allowed to leave the camp for more than four hours a week and there was only one supermarket that could be reached within this time for estimated 4000 adult camp inhabitants in need. Second, in most of the origin countries, condoms are not available in supermarkets but e.g. in pharmacies. This was a fact, many people did not know. In addition, condoms were even in the camp not part of the basic hygiene fit-out but part of donations, that came only irregularly.

There was also an estimated high rate of unreported cases of prostitution and sexual abuse. This could be guessed in the number of patients that worried about sexual transferred diseases or with wounds in the genital area. Very often, these patients were male minors. Protection of sexual violence at night wasn't given as police and security staff didn't (dare to) enter the big tents during night time. The NGO Médecins Sans Frontières offered psychological help to the survivors of SGBV on the Greek island Lesvos. Between all patients, 72% were female and 28% male [27]. Victims of gender based violence are not only in need of medical help but also of psychological help.

It can be said that family planning and sexual related health issues weren't ensured in the camp Kara Tepe II. Still the numbers of midwives was high and a gynaecologist and a paediatrician were in the camp several days a week. Health care during pregnancy was rather good, while care for newborn babies could still have been improved.

E - Essential drugs and their distribution

Essential drugs were available in the pharmacy and free. Therefore this point of Primary Health Care was respected. Patients had to get a prescription from the medical staff to go to pharmacy for either over-the-counter-drugs or medicine that was only available with prescription. Yet the problem persisted that the treatment of physical and psychological diseases was rather done symptomatically than aetiologically. This should be discussed in "T – Treatment of physical and psychological diseases".

N - Nutritional food supplement

While people didn't suffer from hunger or malnutrition, the low quality of the distributed food caused problems to peoples health. Two times a day, meals were contributed. But as 20,7% patients complained about digestive symptoms, which was the highest rate of all consultation reasons, there are surely nutritional factors that could be improved. People for example reported, that meals were still frozen or not fresh any more when they were distributed. It can also be supposed, that people from different cultural backgrounds were not used to Greek food. It should be assumed, that this aspect of Primary Health Care was not fulfilled in an adequate way.

T - Treatment of physical and psychological diseases

As the Primary Clinic, where the study took place, was in charge of the physical treatment, this point should be discussed in a bit more detail. It can be said that individualised treatment could be offered but only on a very low level. All patients were either seen by physicians, dentists, nurses, midwives or psychologists. The only specialized doctors in the camp were a paediatrician and a gynaecologist. The specialisation of the other physicians depended on the training of the current volunteers. Therefore it could happen that less trained staff had to deal with patients without the possibility to transfer them to specialists. As the ways of diagnosis were very limited, doctors worked mainly by asking for patients history and doing a physical exam. Patients history was extended by the language barrier and the translating process. These two factors often prolonged consultation. Still in most of the days all patients could be seen by a physician. The complaints of a patient were treated aetiologically if possible. They were also always treated in life-threatening emergencies by transferring patients to the hospital. All other symptoms were only treated symptomatically. Even if the diagnose could be noted, there was rarely an offer for treating the cause. Patients often got referrals to doctors that didn't exist on the island and were not allowed to leave the island. For example musculoskeletal pain was only treated symptomatically by offering painkillers as there was no possibility of doing an X-ray, getting physiotherapy, surgery, etc. The immense high prescription and use of painkillers (mainly NSAIDs and paracetamol) can easily set in context with the extreme high rate of abdominal pain epigastric (D02) which made 6,4% of all consultations.

As the refugees received less or no money and had almost no possibility to go to a pharmacy by themselves, this might also have increased the consultations numbers. Patients often consulted medical personal in order to obtain over-the-counter drugs or health products like dietary supplement.

There was a critical lack of dentists in the camp. As the dentist treated only up to ten patients a day but 3,7% in total had tooth complaints, tooth pain in most cases was only treated with painkillers. In many cases, tooth pain ended in extraction of the tooth, as a more complicated treatment couldn't be offered in the camp. A study from 2021 found some explanations for the high need of dentist in refugee camps. It says that the dental health in migrants is normally worse than in the national population mainly because of bad oral hygiene. While refugees face more threatening circumstances than poor oral health, vital priorities compete with oral hygiene. Together with poor sanitary conditions and the lack of dentists in the camp, the risk of getting infectious dental diseases is that high [32, 33].

There was further a critically deficit of psychological treatment. If possible, patients were directly sent to a psychologist. But because of the immense lack of them, physicians in the Primary Clinic also tried to offer psychological help. Mostly, only life-threatening events like suicide attempts were treated by the official NGOs. There was a relative wide offering of psychological help, but the numbers of required treatment were definitely higher than the offer. Further, psychological treatment often takes more time than physical treatment, which increased the need even more. Most NGOs had long waiting lists. One-in-one sessions were rare and therapy was mostly given in groups. 5,6% of the patients presented directly requesting psychological help in triage. These were also only the patients that already knew about their problem or could name it as a psychological complaint. It can be supposed, that many physical symptoms were caused by psychological disorders. Even if a psychological illness should only be diagnosed after excluding all physical symptoms – which could not be done in the camp – the background of the refugees makes psychological diseases a very likely reason for physical complaints. Compared to a study [34], abdominal symptoms (which were in 22% described in female patients) are the most common manifestation of psychological problems in female patients and pain in the limbs (15,7% of all consultations by men) are the most common manifestation in male patients. Even these circumstances can also explained by the nutritional situation or the fact, that

about two thirds of all people had to sleep on the ground but not in beds, these numbers are noticeably high. In more detail, the ten most common consultation causes were abdominal pain epigastric, back symptom, teeth/gum symptom/complaint, headache, rash localized, abdominal pain/cramps general, knee symptom/complaint, pruritus, visual disturbance order and feeling anxious/nervous/tense. While teeth/gum symptom/complaint, rash localized, pruritus and visual disturbance order could rather be objectified by the doctors without much diagnosing, abdominal symptoms, headache and pain in the limbs can easily also be caused by psychological reasons. In a study between April and June 2020 where questionnaries were handed out to 180 people the results showed that 97% of the inhabitants suffered from “sleep problems”, 90% described “difficulties in accessing health care”. Further 79% were robbed, 65% experienced threats and 17% were treated in a humiliating sexual way. All these circumstances fulfil the conditions of a torturing environment in the refugee camp Kara Tepe II according to the Torturing Environment Scale (TES) [28]. Further, psychological diseases are often stigmatized or marked by listlessness, so that many affected patients may not have shown up in the clinic.

To summarize, the offer of health care by physicians was mostly sufficient even it took place on a very low-resourced setting and real treatment often could not be given. There was still a critical lack in oral health care and mental health care. In addition it has to be said that the high use of painkillers can be a reason for the high number for epigastric pain and therefore not only solved complaints but also caused them. Regarding the different categories of the study it can be said, that the care for male and female patients was given in an equal way. Of course, women had a clearly higher require of health care in questions of pregnancy and giving birth but this requirement was satisfied. Further, the requirement for health care in the different groups of age was satisfied in an adequate way. At least three times a week a paediatrician consulted especially children. On the other days, children could be seen by GPs. The offering of health care was not equal for patients from the different nationalities. This was clearly connected with the lack of translators for some languages. Patients where personal staff had no translator for were obliged to wait much longer or to do the consultation under difficult conditions with for example Google Translate. In general, the clinic had more translators who could help with patients from Afghanistan, Arabic speaking countries and Somalia than from the DRC. In rare cases, the medical staff had to treat patients who only spoke one language, where a translator was not

available. Especially in Muslim patients, it was intended that male doctors treated male patients and female doctors treated female patients while also the translating person was of the same gender. On many days, this system worked well.

S - Safe water and sanitation

The aspects of safe water and sanitation were probably the points that were worst fulfilled. Even safe drinking water was given, the water and sanitation situation was absolutely unacceptable. There were no sinks in the whole camp, but only garden hoses where water could be filled in canisters. Daily hygiene like tooth brushing, washing etc. had to be done out from canisters. During this study, 32 inhabitants shared one toilet. Due to construction works, some of them could not be emptied regularly, as the road was not drivable by the cleaning trucks. Therefore many people dug their own latrines next to their tents that were flooded in rainy periods. At night time, many people didn't dare to leave their tents to go to the toilet out of fear of sexual violence. Every person could only shower ten minutes per week with warm water and in between with cold water. The bad hygienic situation was shown in the immense rate of tooth pain and contagious skin diseases. With 3,7% D19 (teeth/gum symptom/complaint) was under the three most common consultation reasons of all consultation reasons and could easily be justified with bad hygienic conditions. Skin symptoms that concerned about 14,8% was mainly scabies which couldn't be treated sufficiently. The high risk of skin complaints is probably not only caused by poor living conditions but also through exposure to extreme weather and the risk for wounds due to trauma or violence during the move [22]. According to a study from 2021 the most common skin diseases in refugees are dermatitis, infections like scabies and impetigo contagious, skin ulcers, burns and frostbites but also injuries [22]. Further there were so many cases of head lice, that these patients weren't obliged to go through triage process. Also wound bandages had to be cleaned very often, because the bandages became sordid really fast.

Even if control of temperature is maybe not regarded as part of sanitation, it should be named here. Two natural borders of the camp Kara Tepe II were the sea with its harsh climate conditions. Heating the tents was not always guaranteed. As using open fires or heaters in freezing temperatures was forbidden – due to danger of fire – a warm

environment during winter months was not guaranteed. This factor may also enhance health issues especially contagious respiratory diseases.

It can be clearly said that safe water and sanitation were one of the main points of a health ensuring environment which were not given in the camp Kara Tepe II.

To summarize the question that was posed with the acronym ELEMENTS, the aims of Primary Health Care were not fulfilled in an adequate way. Especially the factors education and health promotion, local prevention of diseases, sexual health related issues and family planning, nutritional food supplement, treatment of psychological diseases and tooth complaints and safe water and sanitation were not guaranteed. The points of access to essential drugs, maternal and child care, vaccination and physical treatment (beside from dental treatment) were better fulfilled.

In the previous camp Moria a study from 2015 came to similar results. Over a period of twelve weeks, the most common diagnoses were noted. These were upper respiratory tract infections and dental problems. Further the study found out that the rate of suicide attempts was high and that many psychological problems were diagnosed [35]. According to them the most urgent health threats were the inadequate sanitation and hygiene but also the severe overcrowding which existed in the old camp and further the lack of a vaccination program [35]. For a period for six months between 2019 and 2020, another study in the camp Moria focussed on the treatment of chronic health issues. They named 30% of all presentations because of chronic diseases, mainly musculoskeletal pain (25,1%), mental health problems (15,9%) and cardiac diseases (12,7%). They also regarded the acute health problems where injuries and wounds (20,8%), respiratory infections (12,5%), gastroenteritis (10,7%) and skin problems mainly scabies (9,7%) were quite common [36]. Apart from the higher rate of respiratory complaints and the inclusion of chronic diseases, also these results are in line with the results of the study in Kara Tepe II.

A literature study in papers from 2011 to 2020 in nine European countries – similar to this study – agrees that health care criteria is worst fulfilled in oral health and mental care. It also found out that migrants often sought medical help in emergency departments instead of primary healthcare services. These problems were mainly caused by language and legal

barriers. Further preventive care and long-term care in older parts of the migrant population were underestimated [26].

A study from 2018 to 2019 in adult migrants in various European countries named the three most common health problems headaches/migraines (12,72%), mental health issues (7,68%) and sleep disorders (6,75%) [26]. 26,7% of all migrants in this study believed, that their chance to get medical support was lower than that of the national population. One of the reasons was the language barer and the lack of translators (35,6%) [26]. Even this study took place in countries that were often the final destination but not situations in refugee camps, it shows a similar need compared to the results of this study.

4.2 Factors influencing consultation numbers

A further question related to which factors the required healthcare depends on. First the factor „Gender“ should be regarded. In most of the categories of organ systems, men and women had about the same need. Other categories such as urological, pregnancy/childbearing/family, female genital and male genital could easily be differed in gender specific. Nevertheless in some categories the numbers of demanded health care showed conspicuous differences. In these cases the percentages were not in the defined range of 35% to 65%. Men presented slightly more often with ear complaints (78% of all consultations were asked by men), with psychological symptoms (69,1% of all consultations were asked by men) and skin problems (67% of all consultations were asked by men). While the ear complaints are probably by coincidence as the number in total with 70 consultations out of 2682 consultations is not remarkable high, psychological problems and skin problems have logical reasons. While in most classes of age, both genders were about the same numbers, there were clearly differences in the groups from 11 to 20 years and slightly differences in the group of 21 to 30 years. This can be explained, as it is often young men who flee alone and without family beside. Without the protection and mental support of a family, violence on the journey and psychological health issues occur more often. Especially unaccompanied minors are in a high risk of SGBV or human trafficking. Further, young men over the age of 18 don’t have any vulnerability status. This is why their accommodations suffer from especially bad hygienic circumstances, as they are mostly hosted in big tents and not in small family tents. This can explain the higher rate of

skin diseases like scabies and skin wounds but also the high risk of SGBV which can even raise the number of mental health problems.

The second factor is how the required health care depends on factors related to the age. The number of consultations by a special group of age correlated mostly with the absolute number of a gender. The range was counted as abnormal when it was higher than 47% and lower than 40%. Still there were slightly aberrations in the group of age between 11 and 20 years, where 67,6% consultations were requested by male patients (the average of consultations by males was 56,5%). With 62% the group of age between 51 and 60 years was also higher in consultations by male patients than normal. Between 41 and 50 years, more consultations were requested by female patients (48,1% of 43% consultations in total by females). In the group of age between 11 and 20 years, the gender gap was the widest in all consultations in the camp and conspicuously higher in consultations by male persons. It can be assumed that this is caused by the number of unaccompanied minors as a very vulnerable group. Regarding the nationality most of these people came proportionally from Somalia or other countries. Also it can be assumed that these apparently young and healthy men do not get any status of vulnerability. While evaluating the status of vulnerability is meant to balance inequalities in refugees while supporting persons better when they are in higher need of protection, it should not happen, that people are disadvantaged while trying to avoid imbalance. While minors probably are often not identified as minors, it is the young men who face the poorest living conditions of all. Even they are probably the part of population that challenges these circumstances best, young men should not be forgotten or disadvantaged in their needs regarding health care. While comparing the symptoms in the groups of age between 41 and 60 in more detail, no remarkable difference could be found. Because the total numbers in this group of age are also not very high, the numbers are regarded as statistical spikes.

The third factor, that wants to be compared is if the required health care depends on the nationality. It was regarded how many numbers of consultation came out of a specific part of the camp population. While the number of consultations from Afghans (61%) and Somalians (7%) were a bit lower compared to inhabitants from Afghanistan (66,5%) and Somalia (8,2%) in the camp, the number of patients from Syria (3%) were only half compared to all Syrian inhabitants (5,9%). The difference was most impressive in people from the DRC. While the percentage of people from the DRC in the camp was only 12%,

they represented 22% of all consultations in the clinic. The number of patients from Iraq or other countries seemed too low to present explicit results. To answer this peculiarity, a second table comparing the groups of age to them of nationality was elevated. It showed that patients from the DRC were mostly young adults between 21 and 30 years (46% of all consultations by people from the DRC). These age groups travel mostly without family and therefore being on the run is an extremely higher risk. This also explains why Syrians who come mostly in families are in a rather good health compared to other asylum seekers. In line with this, researchers in Sweden proofed that PTSD in minors from Afghanistan happened in 56%, while it was only 34% in Syrian minors [38]. They explained it by the fact, that Syrian children between 16 and 18 years old travelled six times more often in families than Afghan minors in the same group of age [39]. Along with this the NGO MSF found out that 81% of the survivors of sexual violence were from African Countries [27]. Further, people from Africa not only face the crossing of the Mediterranean but mostly also the crossing of the Sahara desert. Both routes are known as the two deadliest refugee routes in the world. Also it can be assumed that people in Syria had access to a health system of high quality before the war started while countries in middle Africa face tropical diseases, malaria, malnutrition and other crisis that have a bad impact on peoples health already in the country of origin.

To summarize it became obvious that there were no extremely differences in consulting health care like gender, age and nationality. Still it seemed as if the group of males between 11 and 30 years particularly from African countries faced a slightly higher need in health care than other parts of the inhabitants. On the one hand this seems logical as this group faces the poorest living conditions and has also less support by family structures. On the other hand there might be also reasons why females are maybe suffering in the same way but are not asking for medical help for example out of religious reasons or fear. This is a topic that should be explored in further studies.

4.3 Limitations

There are several limitations of the study. First of all the required health care is specific to the camp Kara Tepe II on Lesvos and can not easily be applied to other European camps without adaption. As the situation of refugees is a really fluctuant topic, studies have to be

quite up to date. This depends on the living circumstances which are not only different in different refugee camps but are also changing. Changing factors are especially weather and climate, that are different in the whole of Europe and changing over the year, further the refugee routes and therefore common injuries, the economic situation of the hosting countries and at last circumstances like international crises, e.g. the SARS-Covid-19-pandemic.

Therefore another limiting factor during the study was the SARS-Covid-19-Pandemic which caused a transient situation. Behaviour rules concerning the virus changed regularly in the camp within a few weeks. Not only the disease itself but also the fact of being not allowed to leave the camp depending on free will but only a few hours per week may have increased psychological and social problems. The reason for setting a fire in the former refugee camp Moria by protesting inhabitants was for example seen in the unacceptable living conditions after the whole camp was put under lockdown.

A very important limiting factor of the study is also, that several patients weren't obliged to run through the triage process, so their data couldn't become part of this study. These were the two following patient groups: First, patients with a known chronic disease (e.g. high blood pressure, diabetes mellitus) who had a fixed appointment for a regularly check-up or just measuring their values could enter the Primary Care Clinic without the triage process. The second patient group that wasn't obliged to run through triage process were patients with head lice. As so many people suffered from lice and the capacity of the medical staff was limited, these people were allowed to go directly to pharmacy to ask for treatment.

Further after 1:30 PM patients that were lined up were sent away because of a lack of capacities. Their data wasn't taken, as they didn't go through the triage process.

Another limiting factor is that regarding nationalities and age the data of the absolute inhabitants and of the patients did not match exactly. Even this was considered in the interpretation, a congruence would have been better to work with.

Another limiting factor is that social problems which are actually an important part of the ICPC-2 were not asked by the medical staff in the Primary Care Clinic. Most of the diagnoses sorted under Z (Social problems) concerned many or all of the camp inhabitants but were not directly their cause for seeing a doctor but maybe indirect. Such factors were for example Z01 Poverty/financial problem, Z02 Food/water problem, Z03

Housing/neighbourhood problem, Z04 Social cultural problem, Z06 Unemployment problem, Z07 Education problem, Z08 Social welfare problem, Z09 Legal problem, Z10 Health care system problem, Z23 Loss/death parent/family member, Z25 Assault/harmful event problem, Z27 Fear of a social problem, Z29 Social problem NOS.

In total the results would have been more valuable if the number of data would have been still higher. Even if 2682 consultation causes became part of this study, which is a high number, for some nationalities and some groups of age – especially older persons and less represented nationalities - only low numbers are available. Therefore in some cases the numbers are probably too low to get explicit results.

4.4 Conclusion

There are several different aspects that could clearly improve Primary Health Care in refugee camps like Kara Tepe II. Especially education and health promotion, safe water and sanitation and local prevention of diseases are strongly dependent on each other. By improving one of these points, the other aspects would improve as well and probably lead to a distinct better outcome. Health promotion is especially needed concerning oral health, mental health and family planning. Further the risk of SGBV has to be urgently reduced and can therefore hopefully also improve mental health. Sanitary areas should be separated by gender. Other measures like offering contraception don't come up with a high effort and could easily become part of the basic hygiene-kit that people receive at their arrival.

While volunteering in medical NGOs seems rather popular amongst European medical staff, more effort should be put into the recruitment of dentists. Raised numbers of psychologists are urgently needed but as mental health problems in refugee camps are so clearly connected with bad living circumstances and the treatment of psychiatric disorders needs a safe environment, more effort should be put in creating a safe and healthy environment. This also includes a better nutritional food supplement.

To reach these goals the camp inhabitants should become part of the solution and not be seen as a problem. While many refugees describe the feeling of disempowerment and do not work in regularly job structures, as much independence and self-reliance should be given to them as possible. Refugee camps in Greece are for their inhabitants sadly most

often a home for weeks, months or years. People therefore have to become active and integrated in the task of reaching Primary Health Care. This could be reached through promoting health care, teaching through refugees, translator and cultural mediation jobs done by refugees, training and employing refugees in Primary clinics or encouraging health professionals to work in their profession inside of the camp. Also the creation of for example open-air kitchens could encourage people to be responsible for their own nutrition. Therefore fire-proof areas would have to be defined. Hopefully the tense situation will become better with the end of the lockdown situation. Still the inhabitants of refugee camps are really vulnerable to pandemics not because of a weak health but because of the stressful and poor living conditions which increase extremely in lockdown situations. These are suggestions to improve Primary Health Care in refugee camps.

While regarding the factors, medical need relied on, one group of inhabitants could be identified which had a higher need in health care than the average. This was the unaccompanied male minors or young men especially from African countries like the DRC which suffered more than others from psychological disorders. While awareness exists for many groups of vulnerable inhabitants and is meant to balance inequality, these young men are in danger to become a forgotten group of vulnerable people. Still more research needs to be done in this direction to make sure that young women do not suffer from the same amount of health issues but just do not ask for medical help in consultation settings.

Two of the limiting factors were regarded as more serious than others. While it can be assumed that poor living conditions and therefore special diseases are not only typical for the camp Kara Tepe II but for many refugee camps in whole Europe, the lockdown situation was rather specific and a reason for even worse circumstances than usual. The second fact that has to be kept in mind is that the study took place in a setting of acute care and that care of chronic diseases could not become part of the results.

In 2023 the goal to reach Universal Health Coverage until 2030 for all people in the world seems quite unrealistic. But particularly in times where numbers of refugees through various crises raise every year, it should be kept in mind that health care is a human right and has to be regarded as such.

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6 Appendix

6.1 Questionnaire

ICPC-2 – English

International Classification of Primary Care – 2nd Edition

Wonca International Classification Committee (WICC)

Process codes

-30	Medical Exam/Eval-Complete
-31	Medical Examination/Health Evaluation-Partial/Pre-op check
-32	Sensitivity Test
-33	Microbiological/Immunological Test
-34	Blood Test
-35	Urine Test
-36	Faeces Test
-37	Histological/Exfoliative Cytology
-38	Other Laboratory Test NEC
-39	Physical Function Test
-40	Diagnostic Endoscopy
-41	Diagnostic Radiology/Imaging
-42	Electrical Tracings
-43	Other Diagnostic Procedures
-44	Preventive Imunisations/Medications
-45	Observe/Educate/Advice/Diet
-46	Consult with Primary Care Provider
-47	Consultation with Specialist
-48	Clarification/Discuss Patient's RFE
-49	Other Preventive Procedures
-50	Medicat-Script/Reqst/Renew/Inject
-51	Incise/Drain/Flush/Aspirate
-52	Excise/Remove/Biopsy/Destruction/Debride
-53	Instrument/Catheter/Intubate/Dilate
-54	Repair/Fixate-Suture/Cast/Prosthetic
-55	Local Injection/Infiltration
-56	Dress/Press/Compress/Tamponade
-57	Physical Medicine/Rehabilitation
-58	Therapeutic Counselling/Listening
-59	Other Therapeutic Procedure NEC
-60	Results Tests/Procedures
-61	Results Exam/Test/Record
-62	Administrative Procedure
-63	Follow-up Encounter Unspecified
-64	Encounter Initiated by Provider
-65	Encounter Initiated third person
-66	Refer to Other Provider (EXCL. M.D.)
-67	Referral to Physician/Specialist/Clinic/Hospital
-68	Other Referrals NEC
-69	Other Reason for Encounter NEC

General and Unspecified A

A01	Pain general/multiple sites
A02	Chills
A03	Fever
A04	Weakness/tiredness general
A05	Feeling ill
A06	Fainting/syncope
A07	Coma
A08	Swelling
A09	Sweating problem
A10	Bleeding/haemorrhage NOS
A11	Chest pain NOS
A13	Concern/fear medical treatment
A16	Irritable infant
A18	Concern about appearance
A20	Euthanasia request/discussion
A21	Risk factor for malignancy
A23	Risk factor NOS
A25	Fear of death/dying
A26	Fear of cancer NOS
A27	Fear of other disease NOS
A28	Limited function/disability NOS
A29	General symptom/complaint other
A70	Tuberculosis
A71	Measles
A72	Chickenpox
A73	Malaria
A74	Rubella
A75	Infectious mononucleosis
A76	Viral exanthem other
A77	Viral disease other/NOS
A78	Infectious disease other/NOS
A79	Malignancy NOS
A80	Trauma/injury NOS
A81	Multiple trauma/injuries
A82	Secondary effect of trauma
A84	Poisoning by medical agent
A85	Adverse effect medical agent
A86	Toxic effect non-medicinal substance
A87	Complication of medical treatment
A88	Adverse effect physical factor
A89	Effect prosthetic device
A90	Congenital anomaly OS/multiple
A91	Abnormal result investigation NOS
A92	Allergy/allergic reaction NOS
A93	Premature newborn
A94	Perinatal morbidity other
A95	Perinatal mortality
A96	Death
A97	No disease
A98	Health maintenance/prevention
A99	General disease NOS

Blood, Blood Forming Organs and Immune Mechanism B

B02	Lymph gland(s) enlarged/painful
B04	Blood symptom/complaint
B25	Fear of aids/HIV
B26	Fear cancer blood/lymph
B27	Fear blood/lymph disease other
B28	Limited function/disability
B29	Sympt/complt lymph/immune other
B70	Lymphadenitis acute
B71	Lymphadenitis non-specific
B72	Hodgkin's disease/lymphoma
B73	Leukaemia
B74	Malignant neoplasm blood other
B75	Benign/unspecified neoplasm blood
B76	Ruptured spleen traumatic
B77	Injury blood/lymph/spleen other
B78	Hereditary haemolytic anaemia
B79	Congen.anom. blood/lymph other
B80	Iron deficiency anaemia
B81	Anaemia, Vitamin B12/folate def.
B82	Anaemia other/unspecified
B83	Purpura/coagulation defect
B84	Unexplained abnormal white cells
B87	Splenomegaly
B90	HIV-infection/aids
B99	Blood/lymph/spleen disease other

PROCESS CODES

SYMPTOMS/COMPLAINTS

INFECTIONS

NEOPLASMS

INJURIES

CONGENITAL ANOMALIES

OTHER DIAGNOSES

Digestive D

D01	Abdominal pain/cramps general
D02	Abdominal pain epigastric
D03	Heartburn
D04	Rectal/anal pain
D05	Perianal itching
D06	Abdominal pain localized other
D07	Dyspepsia/indigestion
D08	Flatulence/gas/belching
D09	Nausea
D10	Vomiting
D11	Diarrhoea
D12	Constipation
D13	Jaundice
D14	Haematemesis/vomiting blood
D15	Melaena
D16	Rectal bleeding
D17	Incontinence of bowel
D18	Change faeces/bowel movements
D19	Teeth/gum symptom/complaint
D20	Mouth/tongue/lip symptom/complt.
D21	Swallowing problem
D23	Hepatomegaly
D24	Abdominal mass NOS
D25	Abdominal distension
D26	Fear of cancer of digestive system
D27	Fear of digestive disease other
D28	Limited function/disability (d)
D29	Digestive symptom/complaint other
D70	Gastrointestinal infection
D71	Mumps
D72	Viral hepatitis
D73	Gastroenteritis presumed infection
D74	Malignant neoplasm stomach
D75	Malignant neoplasm colon/rectum
D76	Malignant neoplasm pancreas
D77	Malig. neoplasm digest other/NOS
D78	Neoplasm digest benign/uncertain
D79	Foreign body digestive system
D80	Injury digestive system other
D81	Congen. anomaly digestive system
D82	Teeth/gum disease
D83	Mouth/tongue/lip disease
D84	Oesophagus disease
D85	Duodenal ulcer
D86	Peptic ulcer other
D87	Stomach function disorder
D88	Appendicitis
D89	Inguinal hernia
D90	Hiatus hernia
D91	Abdominal hernia other
D92	Diverticular disease
D93	Irritable bowel syndrome
D94	Chronic enteritis/ulcerative colitis
D95	Anal fissure/perianal abscess
D96	Worms/other parasites
D97	Liver disease NOS
D98	Cholecystitis/cholelithiasis
D99	Disease digestive system, other

Eye F

F01	Eye pain
F02	Red eye
F03	Eye discharge
F04	Visual floaters/spots
F05	Visual disturbance other
F13	Eye sensation abnormal
F14	Eye movements abnormal
F15	Eye appearance abnormal
F16	Eyelid symptom/complaint
F17	Glasses symptom/complaint
F18	Contact lens symptom/complaint
F27	Fear of eye disease
F28	Limited function/disability (f)
F29	Eye symptom/complaint other
F70	Conjunctivitis infectious
F71	Conjunctivitis allergic
F72	Blepharitis/stye/chalazion
F73	Eye infection/inflammation other
F74	Neoplasm of eye/adnexa
F75	Contusion/haemorrhage eye
F76	Foreign body in eye
F79	Injury eye other
F80	Blocked lacrimal duct of infant
F81	Congenital anomaly eye other
F82	Detached retina
F83	Retinopathy
F84	Macular degeneration
F85	Corneal ulcer
F86	Trachoma
F91	Refractive error
F92	Cataract
F93	Glaucoma
F94	Blindness
F95	Strabismus
F99	Eye/adnexa disease, other

Ear H

H01	Ear pain/earache
H02	Hearing complaint
H03	Tinnitus, ringing/buzzing ear
H04	Ear discharge
H05	Bleeding ear
H13	Plugged feeling ear
H15	Concern with appearance of ears
H27	Fear of ear disease
H28	Limited function/disability ear
H29	Ear symptom/complaint other
H70	Otitis externa
H71	Acute otitis media/myringitis
H72	Serous otitis media
H73	Eustachian salpingitis
H74	Chronic otitis media
H75	Neoplasm of ear
H76	Foreign body in ear
H77	Perforation ear drum
H78	Superficial injury of ear
H79	Ear injury other
H80	Congenital anomaly of ear
H81	Excessive ear wax
H82	Vertiginous syndrome
H83	Otosclerosis
H84	Presbyacusis
H85	Acoustic trauma
H86	Deafness
H99	Ear/mastoid disease, other

Cardiovascular K

K01	Heart pain
K02	Pressure/tightness of heart
K03	Cardiovascular pain NOS
K04	Palpitations/awareness of heart
K05	Irregular heartbeat other
K06	Prominent veins
K07	Swollen ankles/oedema
K22	Risk factor cardiovascular disease
K24	Fear of heart disease
K25	Fear of hypertension
K27	Fear cardiovascular disease other
K28	Limited function/disability (k)
K29	Cardiovascular sympt./complt. other
K70	Infection of circulatory system
K71	Rheumatic fever/heart disease
K72	Neoplasm cardiovascular
K73	Congenital anomaly cardiovascular
K74	Ischaemic heart disease w. angina
K75	Acute myocardial infarction
K76	Ischaemic heart disease w/o angina
K77	Heart failure
K78	Atrial fibrillation/flutter
K79	Paroxysmal tachycardia
K80	Cardiac arrhythmia NOS
K81	Heart/arterial murmur NOS
K82	Pulmonary heart disease
K83	Heart valve disease NOS
K84	Heart disease other
K85	Elevated blood pressure
K86	Hypertension uncomplicated
K87	Hypertension complicated
K88	Postural hypotension
K89	Transient cerebral ischaemia
K90	Stroke/cerebrovascular accident
K91	Cerebrovascular disease
K92	Atherosclerosis/PVD
K93	Pulmonary embolism
K94	Phlebitis/thrombophlebitis
K95	Varicose veins of leg
K96	Haemorrhoids
K99	Cardiovascular disease other

Musculoskeletal L

L01	Neck symptom/complain
L02	Back symptom/complaint
L03	Low back symptom/complaint
L04	Chest symptom/complaint
L05	Flank/axilla symptom/complaint
L07	Jaw symptom/complaint
L08	Shoulder symptom/complaint
L09	Arm symptom/complaint
L10	Elbow symptom/complaint
L11	Wrist symptom/complaint
L12	Hand/finger symptom/complaint
L13	Hip symptom/complaint
L14	Leg/thigh symptom/complaint
L15	Knee symptom/complaint
L16	Ankle symptom/complaint
L17	Foot/toe symptom/complaint
L18	Muscle pain
L19	Muscle symptom/complaint NOS
L20	Joint symptom/complaint NOS
L26	Fear of cancer musculoskeletal
L27	Fear musculoskeletal disease other
L28	Limited function/disability (l)
L29	Sympt/complt. Musculoskeletal other
L70	Infections musculoskeletal system
L71	Malignant neoplasm musculoskeletal
L72	Fracture: radius/ulna
L73	Fracture: tibia/fibula
L74	Fracture: hand/foot bone
L75	Fracture: femur
L76	Fracture: other
L77	Sprain/strain of ankle
L78	Sprain/strain of knee
L79	Sprain/strain of joint NOS
L80	Dislocation/subluxation
L81	Injury musculoskeletal NOS
L82	Congenital anomaly musculoskeletal
L83	Neck syndrome
L84	Back syndrome w/o radiating pain
L85	Acquired deformity of spine
L86	Back syndrome with radiating pain
L87	Bursitis/tendinitis/synovitis NOS
L88	Rheumatoid/seropositive arthritis
L89	Osteoarthrosis of hip
L90	Osteoarthrosis of knee
L91	Osteoarthrosis other
L92	Shoulder syndrome
L93	Tennis elbow
L94	Osteochondrosis
L95	Osteoporosis
L96	Acute internal damage knee
L97	Neoplasm benign/unspec musculo.
L98	Acquired deformity of limb
L99	Musculoskeletal disease, other

Neurological N

N01	Headache
N03	Pain face
N04	Restless legs
N05	Tingling fingers/feet/toes
N06	Sensation disturbance other
N07	Convulsion/seizure
N08	Abnormal involuntary movements
N16	Disturbance of smell/taste
N17	Vertigo/dizziness
N18	Paralysis/weakness
N19	Speech disorder
N26	Fear cancer neurological system
N27	Fear of neurological disease other
N28	Limited function/disability (n)
N29	Neurological symptom/complt. other
N70	Poliomyelitis
N71	Meningitis/encephalitis
N72	Tetanus
N73	Neurological infection other
N74	Malignant neoplasm nervous system
N75	Benign neoplasm nervous system
N76	Neoplasm nervous system unspec.
N79	Concussion
N80	Head injury other
N81	Injury nervous system other
N85	Congenital anomaly neurological
N86	Multiple sclerosis
N87	Parkinsonism
N88	Epilepsy
N89	Migraine
N90	Cluster headache
N91	Facial paralysis/bell's palsy
N92	Trigeminal neuralgia
N93	Carpal tunnel syndrome
N94	Peripheral neuritis/neuropathy
N95	Tension headache
N99	Neurological disease, other

Psychological P

P01 Feeling anxious/nervous/tense
P02 Acute stress reaction
P03 Feeling depressed
P04 Feeling/behaving irritable/angry
P05 Senility, feeling/behaving old
P06 Sleep disturbance
P07 Sexual desire reduced
P08 Sexual fulfilment reduced
P09 Sexual preference concern
P10 Stammering/stuttering/tic
P11 Eating problem in child
P12 Bedwetting/enuresis
P13 Encopresis/bowel training problem
P15 Chronic alcohol abuse
P16 Acute alcohol abuse
P17 Tobacco abuse
P18 Medication abuse
P19 Drug abuse
P20 Memory disturbance
P22 Child behaviour symptom/complaint
P23 Adolescent behav. Symptom/complt.
P24 Specific learning problem
P25 Phase of life problem adult
P27 Fear of mental disorder
P28 Limited function/disability (p)
P29 Psychological symptom/complt other
P70 Dementia
P71 Organic psychosis other
P72 Schizophrenia
P73 Affective psychosis
P74 Anxiety disorder/anxiety state
P75 Somatization disorder
P76 Depressive disorder
P77 Suicide/suicide attempt
P78 Neuraesthenia/surmenage
P79 Phobia/compulsive disorder
P80 Personality disorder
P81 Hyperkinetic disorder
P82 Post-traumatic stress disorder
P85 Mental retardation
P86 Anorexia nervosa/bulimia
P98 Psychosis NOS/other
P99 Psychological disorders, other

Respiratory R

R01 Pain respiratory system
R02 Shortness of breath/dyspnoea
R03 Wheezing
R04 Breathing problem, other
R05 Cough
R06 Nose bleed/epistaxis
R07 Sneezing/nasal congestion
R08 Nose symptom/complaint other
R09 Sinus symptom/complaint
R21 Throat symptom/complaint
R23 Voice symptom/complaint
R24 Haemoptysis
R25 Sputum/phlegm abnormal
R26 Fear of cancer respiratory system
R27 Fear of respiratory disease, other
R28 Limited function/disability (r)
R29 Respiratory symptom/complaint oth.
R71 Whooping cough
R72 Strep throat
R73 Boil/abscess nose
R74 Upper respiratory infection acute
R75 Sinusitis acute/chronic
R76 Tonsillitis acute
R77 Laryngitis/tracheitis acute
R78 Acute bronchitis/bronchiolitis
R79 Chronic bronchitis
R80 Influenza
R81 Pneumonia
R82 Pleurisy/pleural effusion
R83 Respiratory infection other
R84 Malignant neoplasm bronchus/lung
R85 Malinant neoplasm respiratory, other
R86 Benign neoplasm respiratory
R87 Foreign body nose/larynx/bronch
R88 Injury respiratory other
R89 Congenital anomaly respiratory
R90 Hypertrophy tonsils/adenoids
R92 Neoplasm respiratory unspecified
R95 Chronic obstructive pulmonary dis
R96 Asthma
R97 Allergic rhinitis
R98 Hyperventilation syndrome
R99 Respiratory disease other

PROCESS CODES
SYMPTOMS/COMPLAINTS
INFECTIONS
NEOPLASMS
INJURIES
CONGENITAL ANOMALIES
OTHER DIAGNOSES

Skin S

S01 Pain/tenderness of skin
S02 Pruritus
S03 Warts
S04 Lump/swelling localized
S05 Lumps/swellings generalized
S06 Rash localized
S07 Rash generalized
S08 Skin colour change
S09 Infected finger/toe
S10 Boil/carbuncle
S11 Skin infection post-traumatic
S12 Insect bite/sting
S13 Animal/human bite
S14 Burn/scald
S15 Foreign body in skin
S16 Bruise/contusion
S17 Abrasion/scratch/blister
S18 Laceration/cut
S19 Skin injury other
S20 Corn/callosity
S21 Skin texture symptom/complaint
S22 Nail symptom/complaint
S23 Hair loss/baldness
S24 Hair/scalp symptom/complaint
S26 Fear of cancer of skin
S27 Fear of skin disease other
S28 Limited function/disability (s)
S29 Skin symptom/complaint other
S70 Herpes zoster
S71 Herpes simplex
S72 Scabies/other acariasis
S73 Pediculosis/skin infestation other
S74 Dermatophytosis
S75 Moniliasis/candidiasis skin
S76 Skin infection other
S77 Malignant neoplasm of skin
S78 Lipoma
S79 Neoplasm skin benign/unspecified
S80 Solar keratosis/sunburn
S81 Haemangioma/lymphangioma
S82 Naevus/mole
S83 Congenital skin anomaly other
S84 Impetigo
S85 Pilonidal cyst/fistula
S86 Dermatitis seborrhoeic
S87 Dermatitis/atopic eczema
S88 Dermatitis contact/allergic
S89 Diaper rash
S90 Pityriasis rosea
S91 Psoriasis
S92 Sweat gland disease
S93 Sebaceous cyst
S94 Ingrowing nail
S95 Molluscum contagiosum
S96 Acne
S97 Chronic ulcer skin
S98 Urticaria
S99 Skin disease, other

Endocrine/Metabolic and Nutritional T

T01 Excessive thirst
T02 Excessive appetite
T03 Loss of appetite
T04 Feeding problem of infant/child
T05 Feeding problem of adult
T07 Weight gain
T08 Weight loss
T10 Growth delay
T11 Dehydration
T26 Fear of cancer of endocrine system
T27 Fear endocrine/metabolic dis other
T28 Limited function/disability (t)
T29 Endocrine/met./sympt/complt other
T70 Endocrine infection
T71 Malignant neoplasm thyroid
T72 Benign neoplasm thyroid
T73 Neoplasm endocrine oth/unspecified
T78 Thyroglossal duct/cyst
T80 Congenital anom endocrine/metab.
T81 Goitre
T82 Obesity
T83 Overweight
T85 Hyperthyroidism/thyrotoxicosis
T86 Hypothyroidism/myxoedema
T87 Hypoglycaemia
T89 Diabetes insulin dependent
T90 Diabetes non-insulin dependent
T91 Vitamin/nutritional deficiency
T92 Gout
T93 Lipid disorder
T99 Endocrine/metab/nutrit. dis. other

Urological U

U01 Dysuria/painful urination
U02 Urinary frequency/urgency
U04 Incontinence urine
U05 Urination problems other
U06 Haematuria
U07 Urine symptom/complaint other
U08 Urinary retention
U13 Bladder symptom/complaint other
U14 Kidney symptom/complaint
U26 Fear of cancer of urinary system
U27 Fear of urinary disease other
U28 Limited function/disability urinary
U29 Urinary symptom/complaint other
U70 Pyelonephritis/pyelitis
U71 Cystitis/urinary infection other
U72 Urethritis
U75 Malignant neoplasm of kidney
U76 Malignant neoplasm of bladder
U77 Malignant neoplasm urinary other
U78 Benign neoplasm urinary tract
U79 Neoplasm urinary tract NOS
U80 Injury urinary tract
U85 Congenital anomaly urinary tract
U88 Glomerulonephritis/nephrosis
U90 Orthostatic albumin./proteinuria
U95 Urinary calculus
U98 Abnormal urine test NOS
U99 Urinary disease, other

Pregnancy, Childbearing, Family Planning W

W01 Question of pregnancy
W02 Fear of pregnancy
W03 Antepartum bleeding
W05 Pregnancy vomiting/nausea
W10 Contraception postcoital
W11 Contraception oral
W12 Contraception intrauterine
W13 Sterilization
W14 Contraception other
W15 Infertility/subfertility
W17 Post-partum bleeding
W18 Post-partum symptom/complaint oth.
W19 Breast/lactation symptom/complaint
W21 Concern body image in pregnancy
W27 Fear complications of pregnancy
W28 Limited function/disability (w)
W29 Pregnancy symptom/complaint other
W70 Puerperal infection/sepsis
W71 Infection complicating pregnancy
W72 Malignant neoplasm relate to preg.
W73 Benign/unspec. neoplasm/pregnancy
W75 Injury complicating pregnancy
W76 Congenital anomaly complicate preg.
W78 Pregnancy
W79 Unwanted pregnancy
W80 Ectopic pregnancy
W81 Toxaemia of pregnancy
W82 Abortion spontaneous
W83 Abortion induced
W84 Pregnancy high risk
W85 Gestational diabetes
W90 Uncomplicate labour/delivery live
W91 Uncomplicate labour/delivery still
W92 Complicate labour/ delivery livebirth
W93 Complicate labour/delivery stillbirth
W94 Puerperal mastitis
W95 Breast disorder in pregnancy other
W96 Complications of puerperium other
W99 Disorder pregnancy/delivery, other

Female Genital X

X01 Genital pain female
X02 Menstrual pain
X03 Intermenstrual pain
X04 Painful intercourse female
X05 Menstruation absent/scanty
X06 Menstruation excessive
X07 Menstruation irregular/frequent
X08 Intermenstrual bleeding
X09 Premenstrual symptom/complaint
X10 Postponement of menstruation
X11 Menopausal symptom/complaint
X12 Postmenopausal bleeding
X13 Postcoital bleeding
X14 Vaginal discharge
X15 Vaginal symptom/complaint other
X16 Vulval symptom/complaint
X17 Pelvis symptom/complaint female
X18 Breast pain female
X19 Breast lump/mass female
X20 Nipple symptom/complaint female
X21 Breast symptom/complt. female other
X22 Concern breast appearance female
X23 Fear sexually transmitted disease (f)
X24 Fear of sexual dysfunction female
X25 Fear of genital cancer female
X26 Fear of breast cancer female
X27 Fear genital/breast disease other (f)
X28 Limited function/disability (x)
X29 Genital symptom/complt female oth.
X70 Syphilis female
X71 Gonorrhoea female
X72 Genital candidiasis female
X73 Genital trichomoniasis female
X74 Pelvic inflammatory disease
X75 Malignant neoplasm cervix
X76 Malignant neoplasm breast female
X77 Malignant neoplasm genital other (f)
X78 Fibromyoma uterus
X79 Benign neoplasm breast female
X80 Benign neoplasm female genital
X81 Genital neoplasm oth/unspecied (f)
X82 Injury genital female
X83 Congenital anomaly genital female
X84 Vaginitis/vulvitis NOS
X85 Cervical disease NOS
X86 Abnormal cervix smear
X87 Uterovaginal prolapse
X88 Fibrocystic disease breast
X89 Premenstrual tension syndrome
X90 Genital herpes female
X91 Condylomata acuminata female
X92 Chlamydia infection genital (f)
X99 Genital disease female, other

Male Genital Y

Y01 Pain in penis
Y02 Pain in testis/scrotum
Y03 Urethral discharge
Y04 Penis symptom/complaint other
Y05 Scrotum/testis sympt/complt. other
Y06 Prostate symptom/complaint
Y07 Impotence NOS
Y08 Sexual function sympt./complt.(m)
Y10 Infertility/subfertility male
Y13 Sterilization male
Y14 Family planning male other
Y16 Breast symptom/complaint male
Y24 Fear of sexual dysfunction male
Y25 Fear sexually transmitted dis. male
Y26 Fear of genital cancer male
Y27 Fear of genital disease male other
Y28 Limited function/disability (y)
Y29 Genital sympt./complt.male other
Y70 Syphilis male
Y71 Gonorrhoea male
Y72 Genital herpes male
Y73 Prostatitis/seminal vesiculitis
Y74 Orchitis/epididymitis
Y75 Balanitis
Y76 Condylomata acuminata male
Y77 Malignant neoplasm prostate
Y78 Malign neoplasm male genital other
Y79 Benign/unspec. neoplasm gen. (m)
Y80 Injury male genital
Y81 Phimosis/redundant prepuce
Y82 Hypospadias
Y83 Undescended testicle
Y84 Congenital genl anomaly (m) other
Y85 Benign prostatic hypertrophy
Y86 Hydrocoele
Y99 Genital disease male, other

Social Problems Z

Z01 Poverty/financial problem
Z02 Food/water problem
Z03 Housing/neighbourhood problem
Z04 Social cultural problem
Z05 Work problem
Z06 Unemployment problem
Z07 Education problem
Z08 Social welfare problem
Z09 Legal problem
Z10 Health care system problem
Z11 Compliance/being ill problem
Z12 Relationship problem with partner
Z13 Partner's behaviour problem
Z14 Partner illness problem
Z15 Loss/death of partner problem
Z16 Relationship problem with child
Z18 Illness problem with child
Z19 Loss/death of child problem
Z20 Relationship prob. parent/family
Z21 Behaviour problem parent/family
Z22 Illness problem parent/family
Z23 Loss/death parent/family member
Z24 Relationship problem friend
Z25 Assault/harmful event problem
Z27 Fear of a social problem
Z28 Limited function/disability (z)
Z29 Social problem NOS

Abbreviations

Anom	anomaly
behav.	behaviour
bronch.	bronchus
complicat.	complication
congen.	congenital
dis.	disease
eval.	evaluation
exam.	examination
gen.	genital
malig.	malignant
metab.	metabolic
musculo.	musculoskeletal
NEC	not elsewhere classified
NOS	not otherwise specified
nutrit.	nutrition
oth	other
preg.	pregnancy
prob.	problem
RFE	reason for encounter
sympt.	symptom
unspec.	unspecified
w	with
w/o	without