Digital HEalth liteRacy Education for vulnerable groups

Intellectual Output I: State of the art

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Intellectual Output 1:

State of the art

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Literature review and country profiles

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THE PRESENT REPORT PRESENTS THE RESULTS FROM A LITERATURE REVIEW PRESENTING THE PROFILE OF CONSORTIUM COUNTRIES, AS REGARDS MIGRANT AND REFUGEE HEALTH, ELDERLY AND VULNERABLE GROUPS, AND DIGITAL HEALTH LITERACY BARRIERS AND FACILITATING FACTORS. MOST IMPORTANTLY, THIS REPORT WILL PROVIDE AN OVERVIEW OF THE SPECIFIC GAPS AND NEEDS OF PROJECT'S TARGET GROUPS AS WELL AS AVAILABLE TRAINING OPPORTUNITIES IN PARTNER COUNTRIES.

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Introduction

The iHERE project - Digital HEalthliteRacy Education for vulnerable groups – is a 2-year project funded by Erasmus+. The project includes 8 partners (EhB, PROLEPSIS, RESET, UVEG, AKADEMIE KLAUSENHOF, TUCEP, XPCSA, CSI) from 6 European countries (Belgium, Germany, Spain, Italy, Greece, Cyprus) and it targets disadvantaged and vulnerable social groups.These groups often face particular health challenges due to their lower socioeconomic status and lack of adequate social support. They are vulnerable to a number of threats to their physical and mental health, experiencing additional barriers such as the structure of the overall health care system, limited health literacy, absence or limitation of learning opportunities; their specific health needs are poorly understood, communication with health care providers remains poor, health systems are not prepared to respond adequately, access in health and other basic services is hard. Additionally, apart from legal restrictions on entitlements to health care, they may be particularly affected by user fees, as well as by impeded access to health insurance.

In this context, the project addresses the objectives:

a) to promote inclusive training by addressing diversity and reducing disparities for learners with disadvantaged backgrounds, through innovative integrated approach,
b) to digitize the quality learning content and use information and communications technology (ICT) as a driver for systemic change to increase the quality and relevance of health care training of vulnerable groups; give access to education and digital training tools to those facing vulnerability due to educational, economic, cultural and social obstacles,
c) to empower adult educators and particularly educators in the relative fields with innovative training tools and resources (such as curriculum, digital tools, methodological guidelines) concerning the adult education, the Health Literacy and Care, the vulnerable populations training and inclusive practices as well,
d) to design and implement outputs and project products for the vulnerable groups concerning their training to face the challenges of Health Care and Literacy, the potential or/and existing barriers arising from the low level of health information, knowledge, practical access in health resources (human, institutions, etc), the health threats,
e) to create and form tailored needs toolboxes/resources regarding the diversity and the synthesis of the participants profile,

f) to establish the necessary context for a shift in the way the vulnerable groups should be addressed for their effective health care and literacy,

g) to provide the essential context in EU, for health promotion, health care & prosperity, wellbeing attitudes, EU security in health systems delivery.

Defining Vulnerable population

Based on the iHERE proposal objectives, the project's target groups include vulnerable populations, such as disadvantaged and vulnerable social groups, migrants & refugees, poor health and low-income people, jobless and marginalized social groups under the risk of exclusion or experiencing poverty. Following a consortium consensus, the focus of the project will be on the following vulnerable groups: migrants/refugees, older adults, and people from low socioeconomic groups and living in poverty and in risk of exclusion.

The eHealth Ecosystem

The eHealth ecosystem is multifaceted and complex so before proceeding in discussing about digital health literacy, it is important to understand how it fits in the entire eHealth ecosystem (Fig. 1). The notion of digital health literacy is most frequently defined as the ability to seek, find, understand, and appraise health-related information from electronic sources (online), and apply the knowledge gained to address or solve a health problem. Digital health literacy is similar to the concept of "e-health literacy", which refers to the ability to read and write in online-based modes requiring multiple components from information, science, health, media and computer literacy (Normal et al., 2006). Interestingly, 1 out of 20 searches on Google is related to health and 8 out of 10 health-related consultations on health information were performed on search engines like Google, Yahoo or Bing. Variables that influence digital healthliteracy are age, health status, educational background, digital literacy skills and motivation for seeking information, among others. According to the International Telecommunications Union, in 2016, 47% of individual users are connected to the Internet, 47% of households have a computer and almost 99% of the population owns a mobile device. This is to show how connected we are digitally and the importance of digital literacy, let alone digital health literacy (DHL), in creating more inclusive and equitable societies.

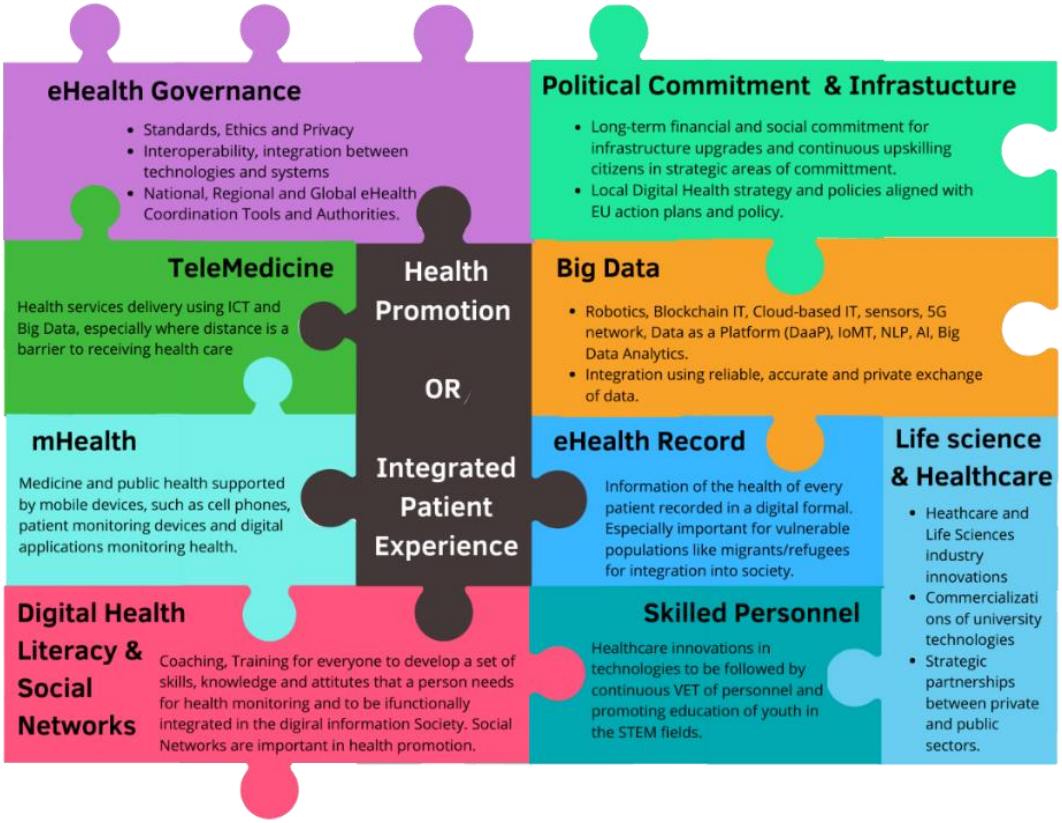


Figure 1 The e-Health ecosystem

The eHealth ecosystem around health promotion

(#howtoimprovehealth) can create a more integrated patient experience, as well as equitable health for all (sustainable development goal SDG3). According to a systematic review about health records for migrants and refugees, the use of health records for migrants and refugees can improve the quality and continuity of care (Chiesa et al., 2019).

1. EU and Country-specific information about vulnerable populations

1.1. European level

1.1.1. Migrants

In Europe a widely accepted definition of Newly Arrived Migrants is not available ranging from less than 12 months to five years.

Migrants. While there is no formal legal definition of an international migrant, most experts agree that an international migrant is someone who changes his or her country of usual residence, irrespective of the reason for migration or legal status. Generally, a distinction is made between short-term or

temporary migration, covering movements with a duration between 3 and 12 months, and long-term or permanent migration, referring to a change of country of residence for a duration of one year or more".

IOM defines a migrant as: An umbrella term, not defined under international law, reflecting the common lay understanding of a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons. The term includes a number of well-defined legal categories of people, such as migrant workers; persons whose particular types of movements are legally defined, such as smuggled migrants; as well as those whose status or means of movement are not specifically defined under international law, such as international students.

Health status. Origin, culture, legal status and migration journey experiences play a crucial role to the health issues refugees and migrants are facing. Their exposure to the risks associated with migration journeys, such as psychosocial disorders, higher newborn mortality, reproductive health problems, nutrition disorders, drug abuse, alcoholism and exposure to violence may increase their vulnerability to non-communicable diseases (NCDs) (World Health Organization, n.d.-c).

Among psychological disorders, post-traumatic stress disorder, depression and anxiety seem to be more prevalent among refugees and migrants than the host population. Depression and anxiety are generally linked to the lengthy asylum-seeking processes and poor socioeconomic conditions, such as unemployment or social and spatial isolation (World Health Organization, 2019). Depression also seems to be common among refugees' and migrants' children that, upon crossing the borders and due to weak controls, are easier to access and run the risk for abduction, trafficking for sale and labour or sexual exploitation(World Health Organization, 2019).

Female refugees and migrants frequently face specific challenges, particularly pregnancy- and delivery-related complications and issues in maternal, newborn and child health, sexual and reproductive health, and violence. Moreover, although refugees and migrants have a lower risk for all forms of cancer compared to the host population, females run higher risks of cervical cancer, which is diagnosed at an advanced stage, compared to the females among host population (World Health Organization, 2019).

With regard to non-Communicable Diseases (NCDs), refugees and migrants have a higher incidence, prevalence and mortality rate for diabetes than the host population (World Health Organization, 2019). Gastrointestinal disorders, allergies, digestive and urogenital problems, cardiovascular events and hypertension are among the most popular NCDs diagnosed, although most migrant groups are less likely to report them (Forster et al., 2018). On the other hand, communicable diseases (CDs) are not systemically

associated with migration population since they remain on extremely low risk of been imported by refugees and migrants. Among the limited CD cases reported are hepatitis, measles and rubella, leishmaniasis, typhoid and paratyphoid fever, ebola, marburg, lassa and the Middle East respiratory syndrome (MERS)(World Health Organization, n.d.-c). However, prevalence of tuberculosis and HIV/AIDS is higher in non-European refugees and migrants compared to the host population (Lebano et al., 2020).

The socioeconomic status of refugees and migrants may lead them to being occupied at work environments that ignore occupational safety and health guidelines. Around 12% of all workers in the European region were migrants in 2015. The health hazards of jobs and access to social and health protection vary drastically. Male migrants experience significantly more work-related injuries than non-migrant workers, such as accidental injuries, hypothermia and burns (World Health Organization, 2019). Additionally, negligence of oral and dental health is very common due to combination of the low socioeconomic status, limited healthcare access and cultural habits (Bhusari et al., 2020).

Health promotion-disease prevention issues. The causative factors that may limit the access of refugees and migrants to healthcare vary. Poor living and housing conditions before, during and after the migratory journey together with suboptimal hygiene and deprivation during migration are fundamental risk factors that may lead to limited health promotion and disease prevention among this group. Additionally, access to safe water before or during the migratory journey may contribute to disease prevention issues. Due to several migration journey-related conditions, interruption of healthcare frequently occurs due either to lack of access or to the decimation of healthcare systems and providers resulting to inefficient access to primary healthcare support, such as vaccination and treatment with antibiotics (World Health Organization, n.d.-c). Healthcare access limitations are enhanced encountering the legal status of the refugees and migrants, as well as the economical, language and cultural barriers and discrimination they are facing (Bhusari et al., 2020; World Health Organization, 2019).

The effects of the above-mentioned barriers are directly reflected on the refugees' and migrants' health literacy. Lack of knowledge of the healthcare services of the host country, different cultural conceptions, and the language barrier are probably the main drivers of the health literacy gap (Baccolini et al., 2021). Health promotion and disease prevention cannot be met leading to escalating events from a deeper and more profound social isolation of refugees and migrants to an unaffordable burden to the healthcare support services.

Health topics unawareness. Low levels of health literacy of the migrant population result in their unawareness about daily and even more specialized health topics. Refugees and migrants are not totally aware of healthy habits and behaviors, like a healthy diet and physical activity, thus leading to numerous

cases reporting obesity (Ward et al., 2018). Chronic diseases like asthma, type I diabetes and metabolic disorders are neglected or even not recognized due to low functional health literacy, poor knowledge of aisease and limited sense of disease severity and, sometimes, lack of equivalent terms or possible translations for chronic disease management. A lack of knowledge concerning specific diseases such as HIV and AIDS and other sexually transmitted diseases has also been reported (Kouta et al., 2013). Additionally, infectious diseases are incorrectly labeled as chronic and some chronic diseases are erroneously described as contagious. Moreover, difficulty in identifying medically significant complications, lack of knowledge of the maternity care system and ineffective ways of communicating their concerns may lead females to unsatisfying knowledge of maternal care issues (Ward et al., 2018).

Health literacy levels. Studies focusing on health literacy levels of refugees and migrants report a heterogeneous situation in European countries. Nonetheless, collectively, health literacy levels in migrant populations are lower compared to the non-migrant ones in Europe. More specifically, the Rapid Estimate of Adult Literacy in Medicine(REALM) questionnaire was used to evaluate health literacy level of migrants in the context of reading and understanding common medical terms for body parts and diseases (Thabit et al., 2009). Additionally, a three question Dutch adaptation of Chew's Set of Brief Screening Questions (SBSQ) (van Rosse et al., 2012) and Swedish Functional Health Literacy Scale and the Health Literacy Scale(HLS)-EU16 questionnaire (Wångdahl et al., 2014) were used to evaluate health literacy levels of migrants in Netherlands and Sweden, respectively (Ward et al., 2018). Under-addressed cultural and communication issues between migrants and healthcare providers, lack of information regarding available healthcare options, unaffordable costs, different perceptions of illness and stigma and gradually increasing tendency of perceptions of unmet health needs are the main problems identified in migrant populations as far as health literacy-related topics concerns (Bas-Sarmiento et al., 2015; Koponen et al., 2014; Kouta et al., 2013; Lebano et al., 2020; Pithara et al., 2012; Taglieri et al., 2013; Wångdahl et al., 2014).

Healthcare delivery legal framework. The access of migrants to health services in a country mainly depends on their legal status. To eliminate the chances of unnecessary exposure of host population to infectious diseases and to prevent NCDs from worsening and becoming life-threatening among migrant patients, each refugee and migrant must have full, uninterrupted access to a hospitable healthcare system and, when needed, to high-quality healthcare, without any discrimination. The World Health Organization (WHO) supports that the healthcare system should be accessible to migrants irrespectively of their legal status. Despite the aspect of "moral and physical integrity" of the Article 8, the European Court of Human Rights (ECHR) supports that there is no express right to healthcare. According to the European Social Charter (ESC), Article 13 supports the right of migrants to medical assistance, even in an irregular situation

or with very low incomes. Under European Union (EU) law, the EU Charter of Fundamental Rights does not refer to the right to health. However the Charter recognizes related rights such as the protection of human dignity (Article 1) and the right to physical integrity (Article 3). Under the Article 35, the Charter includes the right to healthcare system, irrespectively of nationality but always under the conditions established by national laws and practices (European Union Agency for Fundamental Rights & Council of Europe, 2014; World Health Organization, n.d.-c).

1.1.2. Older adults

The chronological definition of older adults is commonly used, but varies depending on the purpose of use. United nations have reported both 60 and 65 years of age and older as the category of older adults, thus making facilitating detailed analysis for older people in most developed countries. WHO categorize older adults starting at the age of 65 years(World Health Organization, 2001). For the purposes of the iHere project older people are those aged 60 years and older, unless otherwise age limits are indicated.

The most recent estimation of the percentage of older individuals in Europe was conducted in 2019. The percentage of older people (65 years old and over) was defined as one-fifth (20.3%) of the general population among the 27 Member States of the European Union (EU-27). This percentage has been reported to gradually increase (+2.9%) compared to 10 years earlier, while, in 1950, this percentage did not exceed 12% of the general population (Eurostat, 2020c; Pavlova, 2017).

Health-related issues. As people age, they become more susceptible to disease and disability. Frailty follows ageing and can considerably increase the number of age-related risks, like falls. Falls and related injuries cause a large share of the burden of disease and disability on older people. The risk of falls increases steeply with age(World Health Organization, n.d.-a). Impaired hearing, severe arthrosis of the hands and sight issues are among the most reported self-assessed health issues in older people (Vorrink et al., 2017).

Ageing itself contributes to the development of chronic pathological conditions (chronic pathological diseases), and when followed by lifelong unhealthy behaviors these conditions are getting worse. The 5 most popular chronic conditions are cardiovascular diseases, diabetes, cancer, chronic respiratory diseases and mental and/or cognitive disorders. Neglecting healthy habits also leads to high rates of obesity problems among older people (Peralta et al., 2018). Ageing-related functional decline, in addition to an unhealthy diet and the establishment of chronic pathological conditions, may also lead to incontinence (impaired urination and defecation control) and constipation impacting the quality of older

people's life (Cook & Sobeski, 2013; Eurocarers, 2020; European Institute of Women's Health, 2018; Thüroff et al., 2011).

Oral and dental health is one of the most important health issues for the older people. Cavities and tooth decay are serious problems that can lead to difficulty maintaining a healthy diet, low self-esteem, and other health conditions. Oral health issues associated with older adults are dry mouth, gum disease and oral cancer. Difficulties in access to dental care due to disability or economical disadvantages are the main risk factors for older people not attending regular dental check-ups (Diz et al., 2017; Palència et al., 2014).

Health promotion-disease prevention issues. Health promotion and disease prevention are limited among older individuals. Age-related physical, cognitive and mental decline are the most predominant causative factors for older people's limited access to healthcare. These causative factors cannot easily be handled by older people themselves, since, for example, people with dementia or other cognitive disorders are unable to remember appointments with doctors and people with disabilities are not able to set goals and keep to a plan (Avgerinou et al., 2019; World Health Organization, n.d.-b)).

Older people run a high risk of social isolation and poverty, which may lead to limited access to affordable, high-quality health and social services (World Health Organization, n.d.-b). These people are not supported upon having being discharged from hospital. They are also frequently getting home bound without having the proper assistance, rarely leaving the home except for very important medical appointments (Jaul & Barron, 2017).

Age discrimination is apparent in health promotion and disease prevention. Older people are not of high priority compared to younger people when it comes to prevention of cardiovascular disease, treatment of stroke, acute coronary stenosisand access to surgical procedures. Additionally, fewer diagnostic and staging procedures are conducted in older people when it comes to cancer care, leading to less evidence-based treatments. Moreover, regarding age discrimination, clinical trials exclude older people leading to limited specific evidence acquired, thus inefficient treatment (Prince et al., 2015).

Health topics unawareness. Older people tend to self-report a better or worse health condition than the real one. The misrepresentation of their health condition reflects the low levels of health literacy and the unawareness about several health-related topicsamong the group. Older people should be furtherly informed about healthcare system services, facilities and costcoverage amenities to enhance their motivation to use them. Further attention should be given to older people's information about the recognition and evaluation of symptoms that may lead to severe pathological conditions.

Whether older people have access to healthcare system amenities or not, they should be also informed about the necessity and proper use of medication provided. Old people tend to ignore or are misinformed or not aware of the way a drug may work efficiently, so they do not accept or forget to receive it at the right time and under the right condition the health professional suggests. To conquer a better quality of life, old people should also have access to information about health-promoting behaviors and habits (Gerich et al., 2020; Okan et al., 2019).

Health literacy levels. Studies focusing on the levels of health literacy among European older people are contradicting. Some studies have shown that health literacy levels increase with age based on the assumption that older people are more concerned about their health due to their higher disease burden (Gerich et al., 2020; Tiller et al., 2015). Additionally, while cognitive function declines with age, crystallized abilities (e.g. generalised knowledge, vocabularies) are likewise stable as ageing progresses(Kobayashi et al., 2016). Nonetheless, there are studies indicating the low health literacy level among older people. Usually, these low health literacy levels reported depict the gradually decreasing cognitive capacity of older people(Gerich et al., 2020). Low levels of health literacy among older people may also be the outcome of financial deprivation or the presence of chronic disorder among this group.

Low health literacy among older people has been associated with poorer self-reported health and unhealthy habits (Berkman et al., 2011). Evidence also suggests a link between low health literacy levels and increased mortality risk (Bostock & Steptoe, 2012; Cavanaugh et al., 2010). Inconvenient use of healthcare system services is also frequent among older people, since they use more emergency care facilities but they make less frequent use of preventive measures and screening examinations compared to younger people (Berkman et al., 2011). Moreover, there is a link between limited health literacy and orientation within healthcare systems and lacking knowledge about contact points for health problems and more frequent hospital stays (Okan et al., 2019; Schaeffer et al., 2017). Also, chronic illnesses, depressive symptoms, severe pain and further persistent health problems are more prevalent among older individuals with limited health literacy(Jordan & Hoebel, 2015).

1.1.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

The socioeconomic status refers to the standing or class of an individual or group taking into account the level of education, income and occupation. Low and very low socioeconomic groups in the EU-27 share a profile that is at risk of poverty or social isolation. Individuals with high risk of being part of these

groups are "*women, young adults, people with a low level of educational attainment, people who experienced limitations in activities due to health problems, and unemployed persons*" (Eurostat, 2020b).

Totally, one out of five people (94.2 million people; 21.1%) in the EU-27 were at risk of poverty or social exclusion in 2019. More specifically, taking into account the age of an individual, younger Europeans (18-24 years old; 27.8%) were more likely to run high risk of poverty and social exclusion than older people (over 65 years old; 18.6%) in 2019. Among unemployed individuals over 18 years old, 65.4% faced high risk of poverty or social exclusion. Additionally, around two fifths (40.3 %) of the European single adult households with dependent children were likely to live in poverty and social exclusion. Moreover, 27.2 % of individuals living in a household composed of two adults with three or more dependent children faced the risk of poverty and social exclusion. Lastly, 22.2 % of the EU-27 population living in rural areas ran the risk of poverty or social exclusion (Eurostat, 2020b).

High socioeconomic status paves the way for a good to very good quality of life, opportunities and privileges. Socioeconomic status can predict several outcomes across the life span, including physical and psychological health (American Psychological Association, 2017).

Health-related issues. Education, income and employment status are three factors of major importance that orchestrate the quality of life of an individual. If one of them is found out of balance, the level of health is distracted. Low education levels often lead to unhealthy habits and behaviors, such as smoking, binge drinking, unhealthy diet and avoidance of physical activity. Unhealthy behaviors may further contribute to the establishment of chronic pathological diseases, such as diabetes, obesity, cardiovascular diseases, cancer and hand/arm pain (World Health Organization, 2016). Low incomes also add value to the severity of these conditions, since people avoid to being supported by the healthcare system due to unaffordable costs.

Individuals with low socioeconomic status tend to be occupied in work environments with high demands, high levels of work-related physical and mental stress and extended working hours, since this is the only way to afford the daily expenses. Work stress and job strain have been associated with high risk for hypertension, diabetes, upper extremity musculoskeletal problems, back problems and cardiovascular disease. High demands and low decision control are related to heart disease. Fatigue and sleep deprivation due to extended working hours is highly associated with work-related accidents. Collectively, all these work-related factors are predicting job burnout, which among males is associated with infertility (American Psychological Association, 2010).

As aforementioned, low socioeconomic status brings people towards the risk of poverty and social isolation, sometimes giving them no meaning for life and leading them to mental problems. Individuals with low socioeconomic status are more likely to face depression and share suicidal behaviors (Lorant et al., 2018; World Health Organization, 2016).

Socioeconomic status may also reflect in a whole country, where people living in countries with a high socioeconomic status that share more resources to healthcare are more likely to have a prolonged healthspan and lifespan (Forster et al., 2018).

Health promotion-disease prevention issues. Limitations in health promotion and disease prevention are apparent among individuals with low socioeconomic status. Social and economic factors, such as income, education, employment, community safety and social supports, can significantly affect healthspan and lifespan of individuals. People with low socioeconomic status do not have the ability to make healthy choices, manage stress and afford medical care and proper housing conditions. Under these circumstances, individuals are not able to effectively self-manage health, access health services, understand available and relevant information and make informed health-related decisions (World Health Organization, 2013). Lack of health literacy (HL) in addition to low socioeconomic status may drive individuals to depression and lack of willingness to self-manage health. Additionally, low levels of education make individuals less confident when speaking with medical professionals and hesitant to admit that they do not understand medical terms and/or the severity of their condition.

Health topics unawareness. People with low socioeconomic background usually lack of efficient education, thus leading them to be health illiterate and unaware of health-related potential hazards. To avoid health hazards to the maximum extend and not being able to navigate through the health system, people of low socioeconomic status should be informed about fundamental topics.

Information about living and housing conditions is of major importance, since hygiene rules and living temperatures are among the most basic factors for living well. Sometimes, it is not a matter of unawareness, but a matter of cost to follow these rules (Braubach et al., 2009). That makes information about social funding necessary.

Low socioeconomic status individuals should also be informed about the benefits gained from increasing their physical activity and adopting healthier behaviors, such as healthy diet, smoking and drinking alcohol avoidance (Svendsen et al., 2020).

Despite their education level, individuals of low socioeconomic background should also be informed about how and what extend social security covers their healthcare-related costs. The majority of people of low socioeconomic status are avoiding the healthcare system services because either they cannot afford the expenditures of medical appointments, drugs and transportation or they have not been informed about social security expenses cover (Thomson et al., 2015).

Employed people of low socioeconomic background should be informed about their occupational safety and health guidelines in order to avoid their exposure to hazardous materials, which can predict a present or future pathological condition, and work-related injuries and more severe accidents (Samkange-Zeeb et al., 2020).

Last but of very high importance is the fact that individuals of low socioeconomic status should be informed about parental care. It may seem irrelevant but long-term health trajectories are set very early in life including risks of obesity, Cardiovascular Diseases (CVD) and mental health issues. There is an association between breastfeeding and cognitive outcomes indicating that cognitive, language and social development are influenced by the quality of the early years' home-learning environment (Marmot & World Health Organization, 2013).

Health literacy levels. Health literacy is problematic among individuals with low or very low socioeconomic status. People in lower socioeconomic positions are inefficiently able to navigate through the health system and access services when needed.

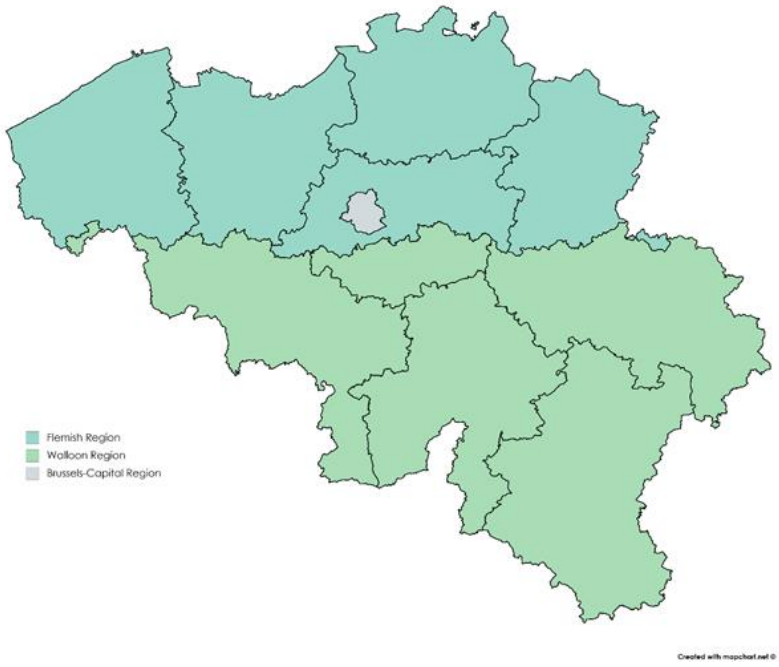
There is a tendency among people included in this vulnerable group to self-report their health as not good. But there are also individuals of low socioeconomic status that they self-report their health as better than their true condition, while they aim to avoid "unnecessary" costs and their absence from work. Limited health literacy together with underestimation of a severe pathological condition may lead to adverse health-related outcomes, such as increased mortality, lack of ability to make correct health-related decisions and follow medical instructions, less use of preventive care and more emergent hospitalizations (Svendsen et al., 2020).

1.2. Belgium

Belgium is a country in Western Europe, bordered by the Netherlands, Germany, Luxembourg, and France. Its political organization is complex and structured on both regional and linguistic grounds. It is divided into three highly autonomous communities and regions: Flemish Region (Flanders, Dutch-speaking), Walloon Region (Wallonia, French-speaking) and the Brussels-Capital Region (bilingual)

(Vermeulen et al. 2020). This to illustrate that due to the complex structure the following data might include Belgium as well as its regional subdivisions.

On the first of January 2020 Belgium counted 11.492.641 inhabitants of which 57,7% live in Flanders; 31,7% in Wallonia; 10,6% in the Brussels region and about 1% in the German-speaking region (Statbel, 2020).



In 2014, together with the Catholic University of Louvain (UCLouvain), the Christian health insurance fund (CM) performed an online survey among its members. The results showed that 3 out of 10 Belgians (29,7%) have limited health literacy and 1 out of 10 even has insufficient health literacy. This means that in total 4 out of 10 Belgians have limited or insufficient health literacy (Lambert, 2020).

Charafeddine et al. (2019) showed in the national health survey of 2018 that in Belgium a percentage of 66,6% of the people aged 15 and older has a sufficient level of health literacy; 27,8% a limited level and 5,6% an insufficient level. This means that 1 out of 3 persons aged 15 or above has a weak level of health literacy. Women, elderly people, and persons with a lower level of education tend to have a lower level of health literacy. The results of the national health survey confirm globally the conclusions of the survey by CM and UCLouvain, but also show some differences. The level of health literacy is overall estimated higher than in the before-mentioned survey.

The Independent health insurance funds performed a survey among 1.033 Belgians in 2016 surveying the communication between doctor and patient. 40% of the patients stated that they experienced difficulties understanding the explanation of the doctor, while 17% even found the communication very difficult (Lambert, 2020).

The results of the national health survey demonstrated that people with long-term illnesses, elder people, and those with a low level of education have a lower level of health literacy than the general Belgian

population. These are precisely the groups that have the highest needs for health care and health promotion and prevention (Charafeddine et al., 2019).

1.2.1. Migrants

Flows & demographic characteristics. In 2019, 174.591 persons immigrated to Belgium (Statbel, 2020). This is about 1,5% of the total Belgian population. 1.426.651 persons, 12,4% of the total population, had a foreign nationality. Most of them come from countries within the European Union, with France, the Netherlands, Italy, and Romania as most common nationalities, followed by Morocco, Poland, Spain, Portugal, Bulgaria, and Germany.

According to the annual report of the Belgian immigration department (2019), the most common countries of origin among applicants for international protection for 2019 in Belgium were Afghanistan, Syria, Palestine, Iraq, and El Salvador. Unaccompanied minors who arrive in Belgium and demand international protection mainly come from Afghanistan, Guinea, Somalia, Eritrea, and Syria.

Health status & healthcare access. The Belgian healthcare system often differs from that in the countries of origin. Health insurance is compulsory in Belgium. The affiliation must take place as soon as possible after the granting (recognition) of international protection status.

Healthcare is a basic human right. It is included in several international treaties, which are ratified by Belgium. Migrants without valid documents to reside in Belgium, often called “undocumented migrants”, are therefore entitled to healthcare, the so-called "Urgent Medical Aid" (UMA). They are not the same as asylum seekers or refugees, who do have a temporary or permanent residence permit. It is the Public Centre for Social Welfare that decides if a person without valid papers is entitled to UMA, since for those people it is not possible to join a health insurance fund. Urgent medical aid is not only for urgent matters but can also include preventive and curative care. The costs of UMA are paid by the Belgian government (Roberfroid et al., 2015).

Neither people without residence papers, nor health care professionals have enough information about the content and procedures of UMA. As the Public centres for Social Welfare don’t all follow the same procedure or criteria, the access to healthcare is unequal. It is known that undocumented migrants often have a lower health status than other citizens and accessibility to health care is more difficult for them (Roberfroid et al., 2015).

An analysis of the Belgian Health Care Knowledge Centre in 2015 mentioned three challenges for undocumented migrants for getting medical care: 1. Lack of legal entitlements; which in Belgium is not really an issue since the law guarantees access to health care; 2. Language and cultural barriers; which in

Belgium mostly includes difficulties with communication on a cultural and linguistic level, not knowing the functioning of the Belgian health care system, and insecure living conditions in the past and present; 3. Practical implementation of UMA; of which in Belgium there are no official data available yet, although several stakeholders stated that it consists of a very complicated administrative procedure (Roberfroid et al., 2015).

An article by Michiels (2019) in the Belgian magazine Knack states that psychological problems can be found everywhere in society, including among migrants and refugees. The traumatic experiences during the war and the difficult journey to Belgium are often the direct cause, but what is striking is that 1 in 4 patients attribute their mental problems to the circumstances in Belgium, the place where they thought to find a safe home. Duvivier, the psychologist being interviewed, points out that "*the longer they are in an uncertain situation, the more we notice that they suffer from depression and anxiety*".

Healthcare professionals. Migrants less often have a permanent general practitioner (GP) and participate less in prevention campaigns. They also have less access to specialized medicine. The affordability of healthcare is the main bottleneck for people in poverty. Mental health problems are common among refugees. Psychological help is made even more difficult by language and cultural background. If the care provider does not speak the native language of the client, he can ask assistance from interpreters and / or intercultural mediators (Vluchtelingenwerk Vlaanderen, 2016).

1.2.2. Older adults

According to official figures from Statbel (2020), the Belgian statistical office, about 25% of the legally resident population of Belgium was aged 60 or older on January 1st, 2020.

In an inquiry (Samyn et al., 2020) about life choices in later life with Belgians aged 60-84 (and not in need of health assistance) 7 in 10 indicated that they are in good health at that moment. Although the risk of health problems increases from the age of 74 onwards, elderly people without a steady partner are at more at risk for health problems than those with a steady partner. The socio-demographic profile relates to the self-assessed health risk.

The before mentioned inquiry also showed that the risk of health problems increases as the feeling of social support decreases. Those who are socially isolated or who report feeling lonely frequently have a lower happiness score.

Compared to 2017, elderly people felt lonelier in 2020, somehow in connection with the corona crisis. This is especially true for those who are 75 or older. The number of people over 75 who felt lonely every day even doubled compared to 2017. In the results of the inquiry, it is observed that those who are

healthier feel less lonely and those who have health problems feel lonely more often. The more people feel socially supported, the less they feel lonely. The researchers state that feeling happy and healthy can for 35% be explained by emotional isolation, one's own attitude towards ageing, the perception of social support, the risk of (worsening) health problems and being in a steady relationship. Social aspects gain importance and are often perceived as more important than physical health. The 'feeling' of social isolation and exclusion is therefore a better indicator than the social isolation index (Samyn et al., 2020).

'Frailty' in the elderly is a complex term. We can describe it as a lack of physiological reserve that makes older people less resilient to the problems they face. In the national health survey of 2018 (Nguyen et al., 2019) frailty in the older population was measured for the first time. The number of frailties was significant: 37,3% of people aged 65 and above are pre-frail and 22,8% are frail. Frailty can be seen as a precursor to serious health problems, but it is also still reversible. For this reason, it is important to keep the focus on prevention as well as tackling frailty.

In the results of the national health survey Nguyen et al. (2019) distinguishes five dimensions of frailty in people over 65 years old: weak muscle strength (35,9%), decrease in walking speed (32,5%), lack of exercise (31,3%), lack of energy (25,1%), and decreased appetite (12,3%). Frailty among the elderly population is highest in the Brussels region (28,1%), followed by Wallonia, (23,9%) and Flanders (21,5%). Frailty is related to socio-demographic characteristics: the number is higher for women than for men, it increases with age and lower levels of education (Nguyen et al., 2019).

In 2018 the national health survey found that in the group of people aged 75 and older 54,5% have a sufficient level of health literacy. This is a lower number than the younger population aged 25 to 74 wherein this percentage varies between 63% and 72,5%. For the group aged 65 to 74, 70% has a sufficient level of health literacy (Charafeddine et al., 2019).

1.2.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

In a publication about the poverty rates in 2019 Statbel, the Belgian statistical office, concludes that 14,8% of the Belgian population can be considered at risk for monetary poverty. This group is identified by living in a household with a total available income lower than 1.230 euro per month for a single person. The amount of people living in a household with a low working intensity was 12,4% and 4,4% of the population was confronted with severe material deprivation. People who find themselves in at least one of the before mentioned situations can be considered at risk for poverty and social exclusion. Which was the case for 19,5% of the population in 2019. 19,3% even point out that at the end of the month they have

difficulties making ends meet. These figures are obtained in the context of the EU SILC study (European Union – Statistics on Income and Living Conditions) and its definitions and indicators.

Within these national figures, there are wide regional differences. In Brussels each key indicator shows the most precarious situation. In Flanders, figures are less precarious and in Wallonia, figures are situated in between these two (Statbel, 2020).

There are also population factors that show great differences in poverty risk. Unemployed persons (47,9%), single parent families (34,6%), those who rent a home (32,3%), low educated people (25,3%) and people who live in densely populated areas (22,7%) are the most vulnerable groups at risk for monetary poverty (Statbel, 2020).

The Brussels metropolitan region totaled 1.163.486 inhabitants in 2014 (Englert et al., 2014). The region has the youngest population of Belgium due to the age structure of the (internal and international) migrants (Deboosere et al., 2009). It is an international area with a wide diversity of nationalities (Englert et al., 2014) and is characterised by a clear spatial differentiation between the poorer districts, mixed neighbourhoods, and the affluent areas of the city (Deboosere et al., 2009). As an indicator to identify the proportion of people experiencing financial difficulties, Vermeulen et al. (2016) categorised three types of regions reflecting a small, medium, or large number of people receiving an additional allowance, based on the postal codes ("Verhoogde tegemoetkoming van de verzekering voor geneeskundige verzorging"). This method was defined by Englert et al. (2014). Group one clustered five municipalities in which less than 15% of all residents received an additional allowance, group two contained seven municipalities in which this was the case for 15-25% of all residents, and group three consisted of seven municipalities in which this was true for more than 25% of all residents.

Generally, people whose income is less than 60% of the national median income are considered 'poor'. In their report of 2018 Guio and Vandenbroucke used another indicator to study the more 'absolute' differences between countries: deprivation in children. It measures the daily problems of children and is not based on financial concepts but applies a list of 17 items that are considered necessary for every child living in Europe. The more items a child does not have access to, the more severe the deprivation. The report indicates that in Belgium there are 15% deprived children, which is comparable to France but is much higher than in other neighbouring countries. Once again, there are great differences between regions. In Brussels this deprivation is highest, followed by Wallonia. In Flanders the number of deprived children is much lower. The most important determinant of deprivation in children in Belgium is the household income. Other risk factors that increase deprivation in children are living in a family where (almost) no one has a job, in single-parent families, in a family that rents its home, in families with heavy

debts, or living with family members with chronic health issues. Also, the level of education of the parents plays a significant role. In their conclusions and recommendations, Guio and Vandenbroucke (2018) include improvements in the provision of services like health are needed in a way that they are accessible to everyone, with affordability as a crucial problem. Even so a better cooperation is needed between local authorities and actors in different domains (housing, childcare, education, health, sports, culture, and leisure).

Data from the national health survey of 2018 by Sciensano (scientific institute of public health in Belgium) shows that in the group of people with a higher education diploma 71,1% has a sufficient level of health literacy. For those with a higher secondary diploma this is 65,2%, with a lower secondary diploma this is 55,4% and for those without diploma or with only primary education the percentage drops to 43,2%. We can conclude that in Belgium the level health literacy increases significantly with the level of education. Regional differences can be observed. In Flanders the percentage of people with a sufficient level of health literacy is 69,3%. This figure is higher than in Brussels (63,2%) and Wallonia (62,7%) (Charafeddine et al., 2019).

From the publication of Statbel of the EU-SILC study (European Union-Statistics on Income and Living Conditions) also appears that of the Belgian population aged 16 or older and in real need of a medical exam or treatment 2,8% didn't get the medical attention they needed. The main reason (77%) was that they could not afford it because medical costs are too high or are not covered by the health insurance. The same tendency counts for dental examinations and treatments. This means that necessary medical and dental care is not available for everyone (Statbel, 2020).

1.3. Cyprus

1.3.1. Migrants

Flows & demographic characteristics. According to data provided by the Migration Data Portal, in mid-2019, Cyprus recorded 191,900 international migrants, 16% of the total population, with a net migration (estimated between 2014-2019) of 25,000 immigrants, of which 55.6% were women and 44.4% men. Of these, the majority were between 20-64 years of age (80%), while 10.8% were under 19 and 8.8% were over 65. According to data provided by the Cyprus Institute of Statistics, in 2018 there were 23,442 long-term immigrants, those who arrived in Cyprus to settle there or for temporary employment for at least one year (compared to 21,306 in 2017). Specific number of applications and granting protecting status in 2019, provided by the Asylum Service can be seen in Fig.2.

The top ten countries of origin of new asylum-seekers in Cyprus in the first three months of 2020 are Syria, India, Cameroon, Bangladesh, Pakistan, Nigeria, Georgia, Nepal, Democratic Republic of Congo and Egypt. From 2002 through end March 2020, the protection rate for Syrians is 60%, with only 2.2% having been granted refugee status. The five main countries of origin of persons receiving international protection from 2002 to 2019 are Syria, Palestine, Iraq, Iran and Somalia. Of the total applications received and processed since 2002, only 19.6% were granted international protection, of which a large number being given subsidiary status (UNHCR, 2020). Domestic workers are mostly from the Philippines, India, Sri Lanka, Vietnam and Nepal.

Table 1 The Asylum Service, a department of the Ministry of Interior, is the authority responsible for asylum-related statistical collection in Cyprus.

Applications and granting of protection status at first instance: 2019

	First time applicants in 2019	Pending at end 2019	Refugee status	Subsidiary protection	Rejection	Refugee rate	Subs. Prot. rate	Rejection rate
Total	13,259	17,171	147	1,149	2,053	4.39%	34.31%	61.3%
Breakdown by countries of origin of the total numbers								
Syria	2,602	:	38	1,074	3	3.41%	96.32%	0.27%
Georgia	1,594	:	0	0	319	0%	0%	100%
India	1,508	:	0	0	419	0%	0%	100%
Bangladesh	1,270	:	1	0	327	0.30%	0%	99.70%
Pakistan	1,187	:	0	0	241	0%	0%	100%
Cameroon	1,181	:	8	0	15	34.78%	0%	65.22%
Vietnam	529	:	0	0	170	0%	0%	100%
Egypt	500	:	5	0	169	2.87%	0%	97.13%
Nigeria	386	:	2	0	18	10%	0%	90%
Sri Lanka	385	:	0	0	84	0%	0%	100%

Source: Asylum Service

Source. The statistics table was provided by the Asylum Service that is part of the AIDA report for Cyprus, 2019.*Drousiotou, C., &Mathioudakis, M. (2019). Asylum Information Database: Country Report Cyprus 2019 (p. 126). CyprusRefugeeCouncil (CRC)*

Health status & healthcare access. Migrant and refugee populations in Europe are in general young adults, with a substantial proportion of families, elderly, and disabled people (WHO, 2018). Their personal circumstances expose them into many risk factors for their health with worsening health outcomes than the host population, such as increased infant mortality, adverse gynecological outcomes, and unregulated chronic diseases, including mental and physical trauma (WHO, 2018). Asylum-seekers' health can significantly deteriorate because of the loss of family and friends, social isolation, loss of status, culture shock, uncertainty, racism, hostility, housing difficulties, poverty and loss of independent choice and

control over their circumstances. Some health issues of asylum-seekers may overlap with those of other disadvantaged and vulnerable groups in Cyprus.

According to the MIGHEALTHCARE project, also available under the country profiles Database, (migHealthCare.eu), the main challenges in terms of healthcare access and/or health issues of migrants/refugees identified are the following:

- Difficulties and delays with acquiring the medical card for free medical care for asylum seekers. This challenge is significant when a newly arrived person is in need for immediate medical care.
- Great difficulties in communication with doctors in a language they understand when the refugee or asylum seeker does not speak Greek or English.
- In the case of refugees, complying with the provision of having contributed for 3 years at the social insurance fund in order to be eligible for free medical care poses challenges in certain cases.
- Access to healthcare services for migrant workers, especially prevention services and annual tests. Migrant workers have a very limited insurance coverage for healthcare treatment, which does not cover issues such as annual health tests and preventive services. The costs for private healthcare services are very high and preventive for migrant workers who receive very low salaries, while visiting public hospitals is not always possible – and is also restricted by the working hours of migrants.
- Transportation costs for asylum seekers to reach the medical centres.

More information on the legal framework and healthcare entitlements of the various categories of migrants can be found here: https://mihub.eu/en/info/info-by-topic/health. In summary, recognized refugees have the same entitlements as Cypriots therefore the same criteria for access to free care apply. Based on the legislation of Cyprus, the only migrant group entitled to free public health care are asylum seekers who are entitled to free care if they do not have the means to support themselves according to Cyprus: Refugee Law of 2000 Brief Description of the legislation concerning access to health care for migrants/refugees (Mig-HealthCare, CHAFEA) can be found below (Text copied from the website).

Asylum Seekers

Asylum seekers without adequate financial resources are allowed to free medical care at public hospitals. This applies directly to those that reside in the refugee reception centre and welfare beneficiaries. For the rest, they have to apply for a medical card in order to access free medical care. The procedure for the medical card sometimes creates challenges, especially when asylum seekers are not aware of the exact procedure and when they need immediate medical assistance. However, the majority

of asylum seekers do get the medical card. The healthcare is not entirely free – there is a small fee €3–6 to visit the doctor, €0.50 for each medicine and €10 to visit the emergency room[1] .

Refugees

Refugees and persons with subsidiary protection have the same rights to access the Cypriot public healthcare system as nationals and EU citizens. This includes the responsibility to have contributed to the social insurance fund for at least 3 years[1]. However, this does not include the scheme with which a Cypriot national is allowed to state support for healthcare outside Cyprus in the situations where such healthcare services do not exist in Cyprus. For emergency care, everyone is required to pay a registration fee of €10.

Migrants / Third Country Nationals

Beyond asylum seekers and refugees, other third country nationals legally residing in Cyprus mainly fall under two categories: foreign workers and students. In order for them to receive a visa, migrants falling within any of these categories need to have a private insurance, with which they can visit mainly private hospitals and doctors. For migrant workers, half of the cost of the insurance is covered by their employer. The government has agreed with insurance companies on an insurance package for migrant labour workers, which covers basic medical needs, including inpatient care with a ceiling reimbursement threshold and child birth[2].

As of 1 June 2019, a National Health System (GESY) is in effect for the first time in Cyprus, introducing major differences in the provision of health care services. The new system introduces the concept of a personal doctor (GP) in the community as a focal point for referrals to all specialised doctors. A network of private practitioners, pharmacies and diagnostic centres has been set-up in order for health services to be provided, and in June 2020 a number of private hospitals are also expected to join the new health system for purposes of in-hospital treatment. For the most part of the population (Cypriots and EU citizens) in Cyprus, health services are now provided almost exclusively under the new health system. Asylum seekers, along with other segments of the migrant population, are not included in the provisions of GESY. Their access to health services continues under the provisions of the previous system, which basically entails treatment by public, in-patient and out-patient departments of the public hospitals. The transition to the new system created vast confusion among medical and hospital staff in regard to asylum

[1] Drousiotou C. and Mathioudakis M. (2019), Asylum Information Database, Country Report: Cyprus, Cyprus Refugee Council and European Council on Refugees and Exiles.

[2] http://www.mihub.eu/en/info/info-by-topic/health

seekers' rights to health care. In various instances across Cyprus, persons were denied access to treatment in the hospital and were asked to register with GESY instead. Scheduled appointments with doctors who, in the meantime, had joined GESY were cancelled and access to particular medicine was restricted (Drousiotou&Mathioudakis, 2019).

The Asylum Information Database (AIDA) report points out several areas that need to be addressed (Drousiotou&Mathioudakis, 2019) in various areas around refugees and migrants, with some key barriers to equal healthcare are inadequate information, particularly for newly arrived asylum-seekers who are unfamiliar with the healthcare system in Cyprus and insufficient support in interpreting and translating for people with limited knowledge of the English or Greek languages. The lack of access to reliable public transportation for asylum-seekers is also an obstacle preventing them from accessing health services. Asylum-seekers in need of specialized healthcare which is unavailable at public medical institutions in Cyprus are not eligible for sponsored specialized medical care abroad, even where permanent disability is a foreseen risk. The 'Scheme for financial aid for health services not offered in the public sector' is available only to Cypriots and other EU nationals.

NCDs in newly arrived migrants and refugees is lower compared to the native population although as duration of stay in the host country increases so does prevalence and incidence of NCDs (WHO, 2018).Refugees and migrants who suffer from NCDs are more vulnerable to the stress caused by the migration journey and are more prone to disease complications because of adverse conditions and inability to access suitable health care. The International Red Cross (IRC) estimates that people who live under crisis or emergency situations experience two to three times higher acute complications related to pre-existing health problems (ICRC, 2018).

In a survey study of 1,286 migrants and refugees in 10 countries across Europe within the MIGHEALTHCARE project, 13.3% of participants reported suffering from chronic respiratory disease, 9.4% from diabetes, and 2.7% from cancer and strokes. Additionally, 15.9% of migrants reported gastrointestinal disease, 14.2% reported ear, nose and throat diseases, and 13.4% experienced chronic problems from injury and accidents. Some migrants reported not having access to the healthcare services required for screening, preventing and treating NCDs. Of the participants in this study, 13.1% (n=142) reported needing medication that they were unable to take, and 28.1% (n=301) felt they had worse access to healthcare compared to local people. Only 5.1% of migrants reported having had a colonoscopy, and of the female participants, 20.4% had ever had a Pap Test and 12.8% had ever had a mammogram (Karnaki et al., 2020).

Complications among migrants /refugees suffering from NCDs according to the WHO (2018) can be a result of:

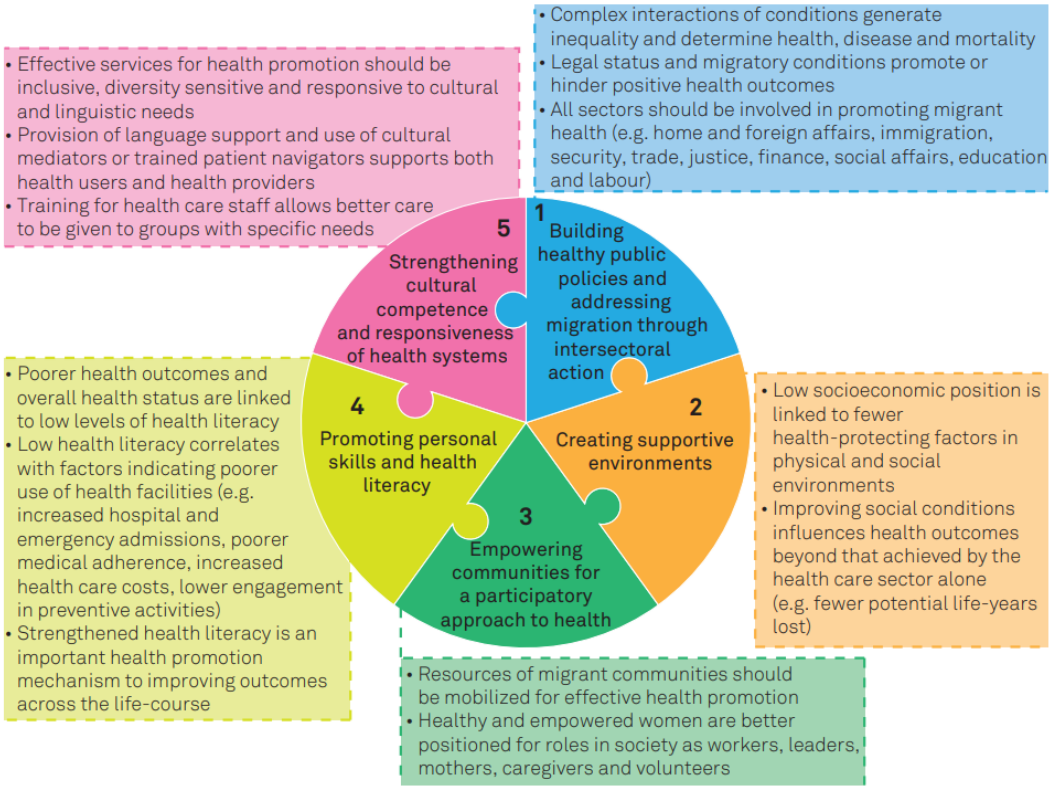
- Physical injuries: factors such as secondary infections and poor control of glycaemia, compromise management of acute traumatic injuries
- Forced displacement: loss of access to medication or devices, loss of prescriptions, lack of access to health care services leading to prolongation of disruption of treatment
- Degradation of living conditions: loss of shelter, shortages of water and regular food supplies and lack of income add to physical and psychological strain
- interruption of care: due to destruction of health infrastructure, disruption of medical supplies and the absence of health care providers who have been killed, injured or are unable to return to work
- Interruption of power supplies or safe water, with life-threatening consequences, especially for people with end-stage renal failure who require dialysis.

Asylum-seekers are generally at risk of mental health problems, which are strongly related to general health and developmental concerns. Stressful experiences before being forced to flee, especially witnessing violence, are known to be important risk factors for seeking asylum. The number of traumatic experiences and the experience of living in a refugee camp has been shown to be associated with the development of post-traumatic stress disorder (PTSD) and other mental health problems, such as anxiety disorders. The life circumstances endured after being forced to flee seem to be even more important for long-term mental health. The number of stressful events after arrival, experiences of discrimination, lack of stability and limited access to participate in the host society are prognostic of psychological problems, even eight to nine years after arrival (Drousiotou&Mathioudakis, 2019)

Health Promotion – disease prevention among displaced individuals. A technical guidance document was published by the WHO on health promotion for improved refugee and migrant health (Health Promotion for Improved Refugee and Migrant Health, 2018), that highlights that the highest attainable standard of health, without distinction of race, religion, political belief or economic and social condition cannot be done without ensuring pathways for safe, orderly and regular migration, and addressing the impacts of migration and displacement on an individual's physical and mental well-being. Health is influenced by many other overlapping and intersecting social, political, and economic factors, not just by biological factors, individual behaviours or even access to health services. These are known as the social determinants of health and include, for example, income and income distribution, employment

opportunities, education, food security, housing, gender, ethnicity and environmental conditions. According to the Rio Political Declaration on Social Determinants of Health adopted in 2011 (WHO, 2011), health inequalities arise from the social conditions in which people are born, grow, live, work and age, and, consequently, action on these determinants across all sectors of government is essential to achieve health equity and the creation of inclusive, economically productive, and healthy societies. Within the WHO European Region, the European policy framework Health 2020 (WHO/Europe, 2013), it called for transformation of the provision of services towards more integrated people-centred health systems, necessitating multisectoral whole-of-government, whole-of-society and Health in All Policies (HiAP) approaches for health policy development. Health 2020 also specifically emphasized the need to enhance the role of the health sector in responding to the specific needs of different refugee and migrant groups, while also promoting coherence among the policies of various other sectors that may affect access to health services (Fig. 3). The approach of the Ottawa Charter guided development of effective interventions for refugees and migrants in the WHO European Region for decision-makes included “Policy considerations for decision-makers includes to invest in language support and health literacy initiatives to develop personal skills in the host country”.

Figure 2 Intersectoral action addressing migration as a social determinant of health. Taken from Health promotion for improved refugee and migrant health.



Source. WHO/Europe (2018). Health Promotion for Improved Refugee and Migrant Health.

General health promotion initiatives for refugees and migrants include developing information materials on various health topics, screening programmes, social/legal support and counselling services, training programmes and use of online resources and applications Health Promotion for Improved Refugee and Migrant Health, 2018). Evidence regarding the efficacy of the different strategies, especially in the context of the WHO European Region, is not well developed and little evaluation has been carried to see what is effective and what is not. Certainly, interventions might need to be tailored specifically for particular refugee and migrant groups with situational or culture-related health concerns, such as female genital mutilation or attitudes towards immunization. Specifically, interventions need to be country-specific considering the level of social welfare and support of the host countries.

An important case study and example of digital health literacy with huge social and financial benefits is the Widening Digital Participation Programme, run by the Tinder Foundation in the UK. The NHS Widening Digital Participation programme (September 2013 to March 2016) was intended to improve the

digital skills and digital health literacy of groups most affected by health inequalities to allow them to take charge of their own health (Tinder Foundation, 2016). These include those who were unemployed, disabled, in receipt of benefits or living in social housing; minority groups (Black, Asian, other ethnicities), refugees and asylum seekers, Roma, and travellers; and those learning to speak English as a second language. Over the three years of the project, more than 387 000 people were reached to help them to manage their health with digital tools and resources, and more than 221 000 people trained to use digital health resources. Furthermore, 8000 volunteers were trained to promote awareness and use of digital resources (Tinder Foundation, 2016).

The improved digital health literacy skills and confidence gained by those supported through the programme led to direct impacts on their behaviour, resulting in changes in lifestyle and/or the way they engaged with health services (Tinder Foundation, 2016). Learner achievements included accessing health information online for the first time, going online to find health services, booking general practitioner appointments, ordering repeat prescriptions, using the Internet and sites such as NHS Choices to search for non-urgent medical advice, and using the Internet to look up information on health conditions and tips for staying healthy (Tinder Foundation, 2016). Such behaviour changes have resulted in significant cost savings for the National Health Service in the United Kingdom. Evaluation of the programme found total annual potential savings of £6 million (€6.6 million) from reduced visits to general practitioners (£3.7 million) and accident and emergency departments (£2.3 million). Other positive outcomes included learners reporting feeling less isolated or lonely and feeling more self-confident as a result of learning digital skills, as well as feeling that they were more informed about their health and were more confident using online tools to manage their health, including exploring ways to improve mental health and well-being (Tinder Foundation, 2016). The ROI from the survey responses indicated that 21% of learners made fewer calls or visits to their GP, with 54% of those saving at least three calls in the past three months and 40% saving at least three visits over the same period. The survey also indicated that 6% of learners made fewer visits to A&E, with 30% of these saving a minimum of 3 visits in the past 3 months (Tinder Foundation, 2016).

Health Literacy Levels among displaced people/migrants/refugees. People's health literacy levels have significant influence on their ability to coherently advocate for their own health-related needs, and also on their health-seeking behaviours, including utilization of screening and immunization programmes, compliance with curative and preventive treatments and management of chronic diseases (WHO/Europe, 2018). Strengthened health literacy enables engagement with health promotion activities, increases use of health services and improves health outcomes across the life-course; conversely, lower health literacy is more associated with unhealthy choices and riskier behaviours (WHO/Europe, 2018). Lower health literacy

has also been found to be correlated with increased hospital and emergency admissions and longer inpatient stays, poorer medical adherence and increased adverse medication events, increased health care costs, lower engagement in prevention activities, higher prevalence of health risk factors and comorbidities, poorer disease outcomes and overall health status, and less effective communication with health care practitioners. Some research has suggested that poorer health outcomes among certain populations, including refugees and migrants, are at least in part attributable to lower levels of health literacy in the host environment. Linguistic barriers and variances in cultural understanding and belief around health and health care limit access to resources (including information and communication technologies) and culturally appropriate services.

It is important to emphasize that refugee and migrant groups are not homogeneous in respect to health literacy levels, and that health literacy is associated with other demographic and social factors such as age, gender, socioeconomic status, educational attainment, ethnic background and access to social supports. As such, measures of health literacy should not rely solely on proficiency of language literacy and numeracy. Moreover, the concept of being health literate is contextually and culturally specific. Migrants are never health illiterate but have their own knowledge, values and attitudes about health and illness. Importantly, these influence their health-seeking behaviours, approaches to disease management, recognition of symptoms and perspectives on concepts such chronic disease, mental illness, self rating and communication of health concerns, and decision-making in regard to acting on the instructions of health care providers. In a European health care context, cultural beliefs and understandings may differ or even be at odd with those that underlie the mainstream health system; consequently, developing health literacy is rather a process of acculturation and resocialization (Health Promotion for Improved Refugee and Migrant Health, 2018). Therefore, investing in language support and health literacy initiatives to develop personal skills and relevant (digital) health literacy interventions is a key aspect in developing health promotion policies and Massive Open Online Courses (MOOCs) for refugees.

We did not find reports assessing the health literacy levels in migrants/refugees in Cyprus, but we found a dataset/report on the assessment of the health literacy and health communication needs of Syrian refugees in Turkey by the WHO/Europe (2020). This study utilized a mixed-methods approach to assess health literacy and evaluate health communication among Syrian refugees in seven Turkish provinces that host 57.1% of the Syrian refugees. A total of 7105 adults participated in face-to-face interviews to complete the survey, while 219 people (73 men, 77 women and 69 adolescents) participated in focus group discussions (FGDs). The survey questionnaire was based on the Swedish Functional Health Literacy (S-FHL)

questionnaire, the European Health Literacy Survey Questionnaire (HLS-EU-Q16) and the Health Communication Needs Assessment Questionnaire.

Prior to implementation, Arabic versions of the S-FHL were contextualized to Syrian Arabic, pretested and validated. Among the survey participants (n = 7105) 49% were female. Most participants were between 20 and 39 years of age (70.1%), 67.8% were married and 86.6% had two or more children. The highest education level attained was primary for 39% and university level for 13%. Among the participants, 23.1% assessed their health status as poor, and the top three institutions they preferred to attend for health services were public hospitals (52.9%), refugee health centres (RHCs; 28.5%) and private health centres (9.8%). Over 50% of participants reported experiencing barriers and challenges in accessing health services, with language the most common barrier, especially in public hospitals and family health centres. Nearly half of all survey participants accessed health information via either the Internet (43.9%) or social media (39.5%), while almost none used the radio (96.4%) or print media (96.8%). Participants stated a need for information on chronic diseases such as musculoskeletal diseases, cardiovascular diseases and cancer. Their preferred ways to receive health information were through social media, mobile phone calls and text messaging (short message service (SMS)).

Participants often used Internet-based platforms as sources of information but also expressed a lack of trust in these sources. However, many reported using these platforms without questioning the validity of the information, which may increase their vulnerability to misinformation. There was a lack of interest in written materials such as leaflets or posters. Functional health literacy levels were inadequate or problematic among 82.8% of the participants. Although levels of comprehensive health literacy were higher, about half of participants (49.5%) had inadequate or problematic comprehensive health literacy, which led to problems in accessing, understanding, appraising and applying health information and in making judgements and decisions on health care, disease prevention and health promotion.

A multivariate analysis of factors affecting health literacy identified factors that significantly increased the chance of having low health literacy levels ($P < 0.05$), including being over 60 years of age, having a low education level, not being legally registered as a Syrian under temporary protection, speaking only Arabic and having a low income. In particular, the findings suggest that more information should be provided on chronic disease treatment and disease prevention. This information should be delivered through the preferred and most commonly used channels (social media, telephone calls, SMS) and endorsed by trusted sources. In this regard, health authorities such as the Ministry of Health and other partner organisations should promote their presence in social media, as well as official websites in appropriate languages, as a source of much-needed reliable health messages. Twoway communication

should also be considered in reaching out to communities to build further trust in the health system and to monitor health risks, rumours and misinformation, unhealthy behaviours and further health information needs.

1.3.2. Older adults

In 2020, the population aged 65 years and above for Cyprus was 14.4 %. Population aged 65 years and above of Cyprus increased from 10 % in 1971 to 14.4 % in 2020 growing at an average annual rate of 0.75%. According to the statistical data provided, the total population of Cyprus will increase from 1,198,198 inhabitants in year 2018 to 1,394,748 by 2048, with the population aged 50+ increasing from 31,3% in 2018 to 46,5% by 2048, therefore becoming almost half of the island's population. The data demonstrates that although the population increases by the years, the Cypriot population is ageing, mainly due to the decrease of fertility and mortality rates.

During 2018 there were 5,768 deaths in Cyprus. Of these, 3,829 were people aged 75 years and older. The leading causes of death in Cyprus as presented by The Institute for Health Metrics and Evaluation for the year 2017 are: Ischemic heart disease, stroke, Alzheimer's disease, lung cancer, diabetes and Chronic Obstructive Pulmonary Disease (COPD) (HealthData, 2021). Nearly half (47 %) of people aged 65 years and over in Cyprus report having no chronic conditions. Among those who do, around one third (33 %) report having one chronic disease and a further 19 % state that they have at least two. These rates are on a par with the averages across all EU countries (OECD, 2020).

According to a report by the Cyprus Ministry of Health (2014), there are four main areas that need to be improved regarding primary prevention and health promotion. These are:

- A need for studies that clarify real needs of the population (including elders)
- A need to establish monitoring mechanisms through the introduction of indicators, data collection, and quality circles to identify weaknesses of the existing programs
- Need for better coordination among stakeholders (interministerial, etc.) to invest in the principle 'Health in all policies' and become more cost-effective by reducing the duplication of measures taken
- Need to identify the real needs, regarding prevention, of vulnerable groups and to develop targeted programs to cover those needs

Research conducted to assess health literacy primary healthcare users in Cyprus found that in comparison with the younger age population, the older age population reported inadequate or problematic health literacy (Andreou, Nicolaou, Papastavrou & Middleton, 2019).

Based on a report by the iHEAL project (EU-funded) the elderly suffer from poor to no access related to online health-related tools, lack of efficient digital health literacy initiatives as well as lack of

support in this area (iHEAL project, 2020). The most recent reference to the main health topics that elders may require more information on is found in a speech given by the 2012 Minister of Health who states that emphasis should be placed on the promotion of autonomy and respect for the elderly's special health needs and dignity. The elderly and their caregivers require more information on the treatment of depression in old age, the care and mental empowerment of people with senile dementia and Alzheimer's disease, the holistic care for the elderly and the management of caregivers' emotional burden (Cyprus Ministry of Health, 2012).

A study by Kontemeniotis and Theodorou (2015), which examined financial protection from health events in Cyprus, found that between 2003 and 2009 there was an increase in the number of people affected by catastrophic out-of-pocket payments. Such out-of-pocket payments more often affected poorer and small-sized households, consisting mainly of very elderly people or households with at least one person over the age of 65. The study revealed that catastrophic and impoverishing out of-pocket payments are largely driven by spending on over-the-counter prescription drugs, and inpatient and related diagnostic services. Also, according to a recent report on the inequalities of access to healthcare in Cyprus, older people experience problems related to distance and transportation to healthcare services (2018).

1.3.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

Based on a statistical report by the Statistical Service of Cyprus people of low socioeconomic backgrounds are defined as those at risk of poverty and social exclusion (2019). The main categories defined are those experiencing severe material deprivation and/or live in households with very low work intensity, as well as people experiencing difficulties with mortgage or rent due to financial difficulties. Based the latest report published by the Cyprus Statistical Services on the indicators of the groups at risk of poverty and social exclusion (2019) the following groups are considered to be low socioeconomic groups:

- People living in households with very low work intensity (this includes the percentage of the population aged 0-59, that was living in households whose adults (aged 18-59) worked less than 20% of their work potential during the past year)
- People with severe material deprivation (Severely materially deprived is the population living in conditions severely constrained by a lack of resources, they experience at least 4 out of 9 of the following deprivation items: Cannot afford 1) to pay rent or utility bills, 2) keep home adequately warm, 3) face unexpected expenses, 4) eat meat, fish or a protein equivalent every second day, 5) a week holiday away from home, 6) a car, 7) a washing machine, 8) a colour TV, or 9) a telephone.)

- People with arrears with mortgage or rent, or utility bills or hire purchase due to financial difficulties.

According to the results of the Survey on Income and Living Conditions 2019, with income reference period the year 2018, 22,3% of the population or 194.400 persons were at risk of poverty or social exclusion (AROPE indicator, one of the 9 headline indicators in the European Union's strategy «Europe 2020»). Namely, 22,3% of the population was living in households whose disposable income was below the at-risk-of-poverty threshold or was living in severely materially deprived households or was living in households with very low work intensity. This indicator exhibited an improvement in comparison with the previous year when it stood at 23,9%, continuing its downward trend of the recent years, after reaching in 2015 28,9%, the highest share ever recorded. This improvement is reflected in the percentages of both men and women, with 21,2% και 23,3% respectively, with women maintaining throughout the years their unfavorable position in respect to men.

According to the OECD/European Observatory on Health Systems and Policies report on the Health profile of Cyprus (2019), behavioral risk factors are more prevalent among people with low income and education, resulting in worse health outcomes. Also, within this report it was stated that unmet needs related to medical care are reported to be 10X higher for low-income groups than high-income groups. Unmet needs are mainly attributed to long waiting times for some public sector services and perceptions that the quality of care in the public sector is below average. Furthermore, 8.3% of people on low incomes reported unmet needs for dental care, compared with only 0.8% of people on high incomes. As in other countries of the EU people on lower incomes are less likely to report being in good health: only 65% of people in low-income groups do so, compared to 86% of people in high-income groups. A study by Kontemeniotis and Theodorou (2015), which examined financial protection from health events in Cyprus, found that between 2003 and 2009 there was an increase in the number of people affected by catastrophic out-of-pocket payments. Households belonging to the lower income group spent a higher proportion on out-of-pocket payments on medications. This is a strong indication of the financial barriers suffered by this group in relation to access to the healthcare system.

There is currently lack of evidence for the most common health promotion- disease prevention issues among this group. It is therefore a gap identified and that needs to be developed further in relation to people from low socio-economic groups.

According to the OECD/European Observatory on Health Systems and Policies report on the Health profile of Cyprus (2019), the vast majority of people in Cyprus (80%) report to be in good health, a much higher proportion than the EU average of 67%. However, as in other EU countries, there are notable

variations according to income group: about 90% of people in the highest income quintile reported to be in good health in 2015 compared with only about 70% of people in the lowest income group. This could imply that people from low socio-economic backgrounds don't have the information needed to improve their health.

The recent report by the European Social Policy Network (ESPN, 2018) on inequalities in access to healthcare states that the current healthcare system is failing to respond to the health needs of the population; "it suffers from serious problems of access and inequalities arising from different substitutive and complementary schemes of coverage, financial barriers and insufficient availability of healthcare services. Those most affected are the uninsured, immigrants (especially third country nationals), the elderly, low-income households and other vulnerable groups." (2018, p. 4). The same report indicates that 7.7% of households in the lower income quintiles reported unmet needs for a medical examination while 8.1% of the respondents reported that they had to borrow money to pay for the charges of the private system, after not being served by the public health system due to long waiting times.

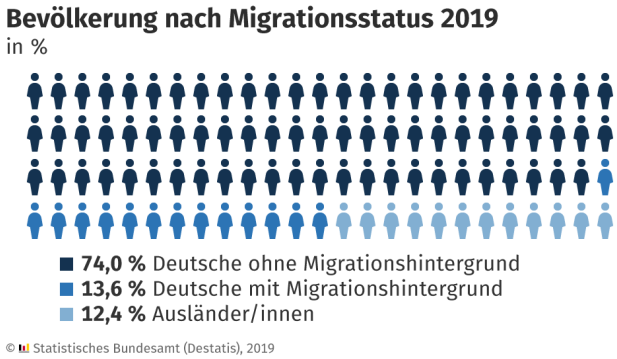
Based on self-reported data from the European Health Interview Survey (EHIS), more than one in six people 15 years or over in Cyprus live with hypertension, while one in sixteen live with asthma or other chronic respiratory diseases. There are large inequalities in the prevalence of these chronic conditions by education level. People with the lowest level of education were over three times more likely to live with hypertension, diabetes and asthma or other chronic respiratory diseases, and nearly five times more likely to live with depression than those with the highest level of education in 2014 (Statistical Office of the European Union, 2013).

1.4. Germany

1.4.1. Migrants

Flows & demographic characteristics. According to the Federal Federal Statistical Office (Destasis), 26% (which is 21,2 million people) of the German population has a migration background in 2019. Whereas more than half (11,1 million) of the semigrant population are Germans, 48% (10,1 million) has a foreign nationality. The majority (85%) of the foreign migrant population have immigrated themselves. (Federal Statistical Office, Destasis, 2021)

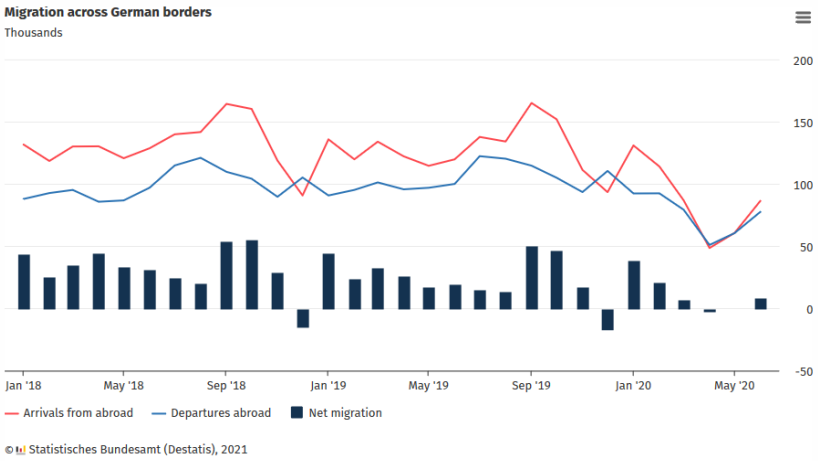
Figure 3 Population after migration status in Germany in 2019



Due to the various group of immigrants (e.g. German resettlers after Second World War, labor migration in the 50s followed by family reunification, constant migration of refugees and asylum seekers with peaks in the early 90s and the recent time) there is a need for differentiation within these immigrant population.

The provisional results of migration statistics show a net immigration of 74,000 people (529,000 arrivals and 455,000 departures across Germany's borders in the first half of 2020 in Germany). The Federal Statistical Office also reports that 748.000 arrivals, 581.000 departures and a net immigration of 167.000 people were registered in the first half of 2019. This means that the number of people arriving in the first half of 2020 was down 29% and that of people departing was down 22% on the same period a year earlier. (Federal Statistical Office, Destasis, 2021)

Figure 4 Migration across German borders between 2018-2020



Roughly 2/3 (65% or 13,8 million) of the migration population have themselves (or their parents) immigrated from another European country. 7,5 million of these European migrants have their origin in

EU-member states. 4,6 million have immigrated from Asia, which makes more than 1/5 of the migrants (there of 3,2 million with reference to Near and the Middle East). Barely 1 million have their roots in Africa, further 0,6 million are from North, Middle- and South-America as well as from Australia. The most important countries of origin are still Turkey (13%), followed by Poland (11%) and Russia (7%). (Federal Statistical Office, Destasis, 2021).

Health issues & healthcare access. In general the health situation of migrants is not much different from the health situation of non-migrants. But there are some areas showing differences regarding the extent and relative importance of certain health risks. Immigrants in Germany do not suffer from different diseases than non-immigrants, but they differ in their risk for certain diseases, in the resources to cope with theses risk and regarding totheaccess to treatment. (cf. Razum, O., Wenner, J., 2016). Due to the various group of immigrants there is a need for differentiation within these immigrant population. The present data makes it hard to fully understand health inequalities and thus to develop diversity-sensitive concepts. Among the social determinants of health (to which migration belongs to as well as social and legal status, country of origin and duration of stay) there are further parameters for the unequal health situation that need to be taken into account. As health behavior and status do not only affect life after migration but can also be inherited, it is necessary to learn more about the life before migration (like social, economic, political and cultural context). Both pre- and post-migration contexts as well as the migration process itself have to be considered for analysing and explaining the differences of health status and behaviour. (Razum and Wenner, 2016) In the last year there has been a growing number of research taking into account that benefit and factors of risks for the health status of migrants differ regarding to the different phase of migration.

Many people with a migration background work in fields that are important, especially in the time of the Corona-pandemic, making them even more vulnerable. 55 % of the cleaning workers are migrants, 38% ofworkerseach in stock management (including post and delivery) and food production are migrants. Also 30% ofworkers in the geriatric care are migrants. (Federal Statistical Office, Destasis, 2021). These low-paid jobs often come along with cramped living space or even precarious living conditions that lead into a even higher possibility of infection. These jobs mentioned and further jobs requirering only a low professional status often come along with heavy physical and psychosocial workloads. These large social differences in the health of migrant employees are – for instance – reflected by a higher number of sick days per year (Robert Koch Institut; DESTASIS 2015, p. 6).

According to the Robert Koch Institut (2015) persons with migrant background suffer more frequently from diabetes but less frequently from cancer and cardiovascular diseases. It is further

mentioned that immigrants drink less alcohol on average, exercise less and eat less healthily than people without migrant background. Migrants are more likely to be obese. Also infectious diseases such as tuberculosis, HIV and hepatitis B which are associated with the infection status in the country of origin, occur more often. There is just little information about the state of health of asylum-seekers (Robert Koch Institut; DESTASIS, 2015; Bpb/Destatis/WZB/SOEP, 2018). Differences between people with and without a migration background can also be observed in terms of behavior-related health risks. However, these differences only become apparent from the age of 45 and especially among women (Bpb/Destatis/WZB/SOEP, 2018). It is evident, that immigrant groups have been found to have a significantly elevated prevalence of dental caries, and an increased prevalence of obesity. Both are preventable health conditions (Spallek et al, 2010). Further fields showing differences regarding the extent are mother-child health, health at work and chronic diseases.

Spallek et al. (2010) are pointing out that immigrants are often highly motivated and open-minded concernig changes. This and due to a significant social-network, immigrants may have health opportunities alongside their migrant-specific health risks. Still up to know these potential stays unused. In spite of some health advantages (also including the „Healthy Migrant Effect“), immigrant populations are considered a vulnerable group in terms of health. Significance and characteristics of the various factors influencing health change in the course of refugee migration. There is slowly given proper attention in the field of health research, so that high-risk groups can be targeted, especially in the field of preventable health conditions (Spallek et al, 2010)

Health promotion – disease prevention issues among migrants. Not long ago, immigrant-specific offers in the health system of Germany were primarily related to infectious disease. Also HIV and tuberculosis especially were focused. After having slowly adapted to the needs of migrants, in general mental healthcare, preventive care (immunization) and long-term care in the presence of a growing migrant older population are nowadays identified as priorities that deserve greater attention.

Taking into account the fields in which migrants have a higher risk, these are also the topics for which migrants need more information. In addition to the health topics mentioned above information on the health system itself turns out to be a topic often unknown to migrants with own migration experience. Problems in accessing information etc. is not only a language matter, but also a matter of cultural background and other concepts of health in general (see the following description).

Level of health literacy and main problems identified among migrants. According to a cross-sectional survey the way of coping with health issues differs among the group of migrants of spanish and italian immigrants, resettlers form the former Soviet Union and turkish immigrants. Searching for help can

mean different things in dependence of the migrants country of origin: searching for help within their families and social environment or using home remedies. It is further reported that especially immigrants from the former Soviet Union and turkish immigrants experience more linguistic difficulties as barriers for the use of health services or felt misunderstood regarding their cultural peculiarities by the expert staff (Bermejo, I. et al, 2012).

The lower participation in regard to prevention programs of migrants can partly beat tribute to specific access barriers. Depending on the background, cultural and religious origins, length of residency in Germany, language abilities, gender, education and social status of the immigrant groups concerned there are more or less difficulties in obtaining knowledge of available prevention programs and identifying entry points into the systems. A lack of German language skills as well as differences in concepts underlying the understanding of health and diseases (for example among Muslim patients) might cause a lower or less effective use of health services (Spallek et al, 2010).

The consideration of cultural-related as well as linguistic factors in health care services is an essential contribution for improving health care of immigrants.

1.4.2. Older adults

Population size or % of older people compared to the general population. Germany is one of the countries in the EU where demographic change has advanced the most. More than one in four isaged 60 and over. In 2050, this figure will already have risen to more than a third.

At the end of 2014, there were approximately 81.2 million people living in Germany, of whom 22.2 million were aged 60 and over. Becoming 100 isgetting more and more frequent: at the end of 2014, there were around 17,000 people living in Germany aged 100 or older. Less than 25% ofthe Germans aged 65 and oversay their health is impaired to such an extent that they are unable to pursue their normal routines. Among the respondents in the 65 to 74-year-old category, the 20% of people in the highest income quintile are twice as likely to assess their own health as being either “good” or “very good” as the 20% ofpersons in the lowest income quintile.(Federal Statistical Office, 2016, p 44ff)

According to the Socio-Economic Panel (SOEP), a large household survey carried out annually by the German Institute for Economic Research, around 13% of the 65-year-olds and older lived in poverty or were at risk of poverty in 2016.

Senior citizens with a migrant background. In 2014, 9% of the generation 65+ had a migrant background, meaning that they had either migrated to Germany after 1949, were descendants of migrants or were foreign citizens. In future years, the proportion of older people with a migrant background will

increase sharply. For example, in 2014, around one fifth (20%) of those aged 25 to 64 had a migrant background. Among the under 16 age group, this figure was already one third (33%).Of the approximately 1.6 million people aged 65 and over with a migrant background, 17% had family roots in the territory of the former Soviet Union and 13% had a Turkish migrant background. Another 11% had roots in the states of the former Yugoslavia (Federal Statistical Office, 2016). A need for care for older migrants occurs earlier among migrants on average than in people without migrant background (Robert Koch Institut, DESTASIS, 2015).

Main health issues. Excess weight is a common health issue for round 70% of men and 57% of women in the 65+ age group. (Federal Statistical Office, 2016, p 44ff). It is therefore not very suprising that the leading causes of death in the population aged 65 and above are – besides cancer and chronic lung disesases - are cardiovascular disease. Also there is a sharp rise in suicidal deaths especially in men. Whereas depressive disorders are often overlooked in older people, there are age-related increases in chronic diseases, physical and cognitive limitations. More than 50 percent of people over the age of 65 suffer from (at least) one chronic illness. Falls and multi-morbidity determines the specific care needs of elderly. Due to polypharmacy drug therapy becomes an important field for 1/3 of the elderly (Robert Koch Institut; DESTASIS, 2015; BZgA, 2019).

Which are the most common health promotion – disease prevention issues. Prevention measurements are mainly focused on health behavior, especially implementing a higher level on physical activity in every-daylife: 1/5 ofthe 65-79 year olds took part in at least one behavioral preventive measure in 2013, women (26%) more often than men (16%) (BzgA, 2019).

But also additional measurements targeting mental fitness, nutrition and social participation are very important aspects in prevention as the interaction of these aspects can lead to an improvement in physical and mental wellbeing.

Level of health literacy and main problems identified in the group of the older ones. Though 33,7% of people aged 65+ have no problems finding, understanding, assessing and using health-related information, the second Health Literacy survey (HLS-GER 2) show for the group of the older ones (65 plus) a low level of health literacy. More than half of this group has problematic health literacy and are often faced with challenges in the health system. 52 percent of the elderly even have difficulty understanding the package inserts for medicines (BZgA, 2019).

Main health topics for which this group needs more information. Taking into account that the possibility of influencing a disease is dependent on one's own conviction that something can be changed, or the knowledge of factors that control and influence one's health and the low level of health literacy

among the majority of older ones, prevention should necessarily include fostering health literacy, so that – for example – older people with a low level of health literacy would not control their blood sugar less well (Robert Koch Institut, DESTASIS, 2015).

Regarding the extending working lives of the older popoluation the prevention measures and regulations on the basis of the „Act to Strengthen Health Promotion and Prevention" might not be sufficient anymore. At the end of 2017, almost 2.8 million people aged 65 and over were in need of care within the meaning of the Long-Term Care Insurance Act (SGB XI).

Regarding the differences of taking advantage of prevention offers (23 percent of women with a low social status took advantage of prevention offers, for women with a high social status it was 38 percent, and for men this difference was even greater: 7 percent of men with a low social status took advantage of prevention offers compared to 24 percent of men with a high social status Social status) (BZgA, 2019), prevention offers need to be maken accessible for all older-ones by e.g. settings approach.

1.4.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

Definition of low socioeconomic groups. In health research the social economic status (SES) is traditionally assessed using the three objective indicators education, occupation and income. The SES is often complemented by the subjective social status (SSS) which is calculated on the basis of this self-assessed information. Still results vary according to the respective socioeconomic indicator and health outcome. Most of the studies on trends in health inequalities in Germany examined self-rated general health, with a particular focus on SOEP data. People are in so-called at-risk-of-poverty rate- according to the AROP-Indicator - if they have a net equivalent income of less than 60% of the social mean. The data mostly referred to in this summary refers to the Health Literacy Survey (HLS-GER 2), see Chapter 1 for details on indicators.

The following table (EUROSTAT 2020) shows according to the AROPE-Indicator the percentage of the population by gender and age in Germany who is in risk of poverty or social exclusion:

Table 2 Percentage of population at risk of poverty in Germany

Percentage of population at risk of poverty or social exclusion for 2019	
Total	17,4

women	18,5
men	16,3
Age under 18	15,0
women	15,9
men	14,2
Age 18 - 64	17,7
women	18,5
men	16,8
Age 65+	18,7
women	20,8
men	16,6

Health issues (problems) among people belonging to low socioeconomic groups. Based on SOEP and the Health monitoring of the Robert-Koch-Institut (RKI) social differences in the state of health, health behavior and health care are regularly described. In Germany there is a close connection between the socioeconomic status (SES) of a person and his or her health: In general person with a lower SES have a higher risk of contracting many chronic diseases and complaints than persons with a higher SES for instance. Socio-economic differences can also be seen in the distribution of behavior-correlated risk factors such as smoking, physical in-activity, overweight, hypertension or fat metabolism disorders (Lampert et. al, 2013).

According to Lampert et al, the results show that general health has improved over time, but only among the socially advantaged groups; health inequalities tend to have even increased further (Hoebel, 2015; Lampert et. Al, 2018).

Behavioural health risks are more common among people with low socio-economic status (OECD, 2019). The following table shows the context of some behaviorial health risks with educational levels for the year 2014.

Table 3 Behavioral risks in people from low socioeconomic groups in Germany

Daily Smoking behavior	
Adultswhocompletedsecondaryeducationcompleted	17 %
Adultswithtertiaryeducation	11 %
Obesity	

Adults without a secondary education	18 %
Adultswithhighereducation	13 %

In general national data show that the higher prevalence of risk factors among socially disadvantaged groups contributes to increased premature mortality, and this is mirrored in differences in life expectancy between the highest and lowest income quintiles - 8.4 years for women and 10.8 years for men (OECD, 2019).

Most common health promotion – disease prevention issues among this group. According to the Federal Centre for Health Education (BZgA) health education and health promotion are important elements of the health system. Health promotion as preventing health risks especially refer to the behavioral linked diseases. However, changing behavior and fostering health-promoting lifestyles require are challenging goals: Aspects of motivation and (digital) health literacy can only be improved by measurements that are strongly connected to the living conditions and the often limited resources of this target group. Therefore measurements for common health promotion often tie in with the living environments: Social space-oriented health promotion refers to places where high unemployment, limited living spaces and recreational areas are present. Referring to different education levels and horizons of meaning for offering a good starting point for developing health-promoting interventions is only possible in the field of urban development and community work and when strategies across different sectors are developed.

Level of health literacy and main problems identified in this group. As regarding the following results based on the collected data during the study of the HLS-GER 2 it is necessary to point out that socio-economic status was as well assesed as a self-assessment (see also Chapter 1). Due to the quota-based sampling in this study apparently more people with a low social status were recruited for taking part in the Health Literacy Survey.

The results of the HLS-GER 2 confirm the unequal appearance of health literacy, not only regarding the educational and occupational level or the income, but also for migration status. The so-called at-risk-of-poverty rate refers to the proportion of the population with a net equivalent income of less than 60% of the social mean.

Health literacy is unequally distributed in the population: In comparison vulnerable groups show less health literacy skills. Low health literacy (problematic or inadequate) appears especially among:

- people with low educational levels (78,3%)
- people with low social status (71,9%)
- people with migration background - especially those with personal migration experience (63,1%)

- older people aged 65 and over (65,1%)
- people living with chronic illness or long-term health problems (62.3 %).

There are minor differences in health literacy between women and men. The study underlines the importance of taking into account vulnerable groups and stresses the need of development of differentiated, target group-specific interventions, which has long been demanded to especially improve the participation opportunities of vulnerable groups (Schaeffer D. et al., 2021; Razum and Wenner 2016).

Further outcomes of the latest *Second Health Literacy Germany* (BZgA, 2019), that are of relevance for the project:

- Almost ¾ of the population has difficulties in assessing and understanding information. Even when using health information, the proportion of low health literacy is relatively high at 53.7 percent. After the outbreak of the corona pandemic, health literacy has tended to improve in all steps of information processing.
- In the area of health promotion, the highest proportion of low health literacy can be found at 67.7 percent. In the area of prevention, it amounts to 54.8 percent, in the area of coping with illness / care to 45.2 percent. Health literacy here has tended to improve during the corona pandemic.
- Poor health literacy has numerous negative consequences and is linked to unhealthy behavior such as less exercise, poorer nutrition, more frequent obesity, poorer subjective health, more absenteeism at work and more intensive use of the health system. These connections have become even stronger during the corona pandemic.
- More than four fifths of the population have poor navigational health literacy and experience difficulties in handling information for navigation and orientation - especially when it comes to the functioning of the health system, understanding health reforms, patient rights, and quality issues. Navigational health literacy has hardly changed during the corona pandemic.
- Communicative health literacy is better developed. The proportion of low health literacy here is 35.7 percent.

The new data from the HLS-GER 2 provide a more differentiated picture than previous studies because they allow statements to be made about the relationship between the duration and number of chronic illnesses and health literacy. The health literacy of people with only one chronic illness or a long-term health problem differs statistically significantly from the health literacy of people with several chronic illnesses. As the duration of the illness increases, an expertization process seems to be taking place. This is an important clue for the development of the intervention.

It should be noted, however, that the survey could only reach people who speak German sufficiently well. As shown above, the results of the HLS-GER 2 allow a more differentiated consideration of the vulnerable groups. For this, however, more extensive analyzes are necessary like regarding the different generations of migrants. This also applies to age: an age-differentiated examination of health literacy in older people should be informative.

Main health topics for which this group needs more information. Based on existing published information the target group of socially and economically disadvantaged groups generally are in need of possibilities to reduce health issues that are related to unfavorable working conditions, taking advantage of prevention measurements and behavioral aspects with impact on health. According to projects carried out in North-Rhine Westphalia by health insurances or healtinsurance associations relevant fields of promotion are:

Healthy eating

- Physical activity
- Coping with stress
- Mental health
- Addiction prevention
- Child and women's health

Projects in these fields are especially carried out to:

- Single parents
- Families
- Children and adolescents
- Olderpeople
- People with an immigrationbackground
- Unemployed
- People with mental stress(KoordinierungsstellegesundheitlicheChancengleichheit NRW, 2021)

1.5. Greece

1.5.1. Migrants

Flows & demographic characteristics. Since the early 1990s, Greece has become an important country for migrants both as final destination and as a transit stop between countries of origin and other

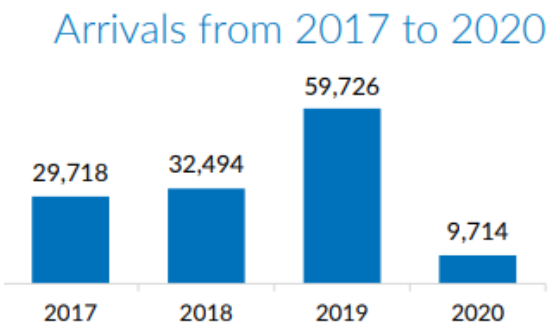
countries in the EU. Among southern European countries, Greece receives the heaviest load of migration flows nowadays[3]. Migrants and refugees are approximately 10% of the total Greek population, transforming Greek society into a multicultural society. The influxes of migrants to Greece can be described as a series of medium- to large-scale events that happen repeatedly, often simultaneously, and increase significantly in frequency during the summer months. Large numbers of individuals come into the country either by sea (usually the Aegean Sea) or across the land border with Turkey. The groups of migrants entering the country vary in numbers from tens to several hundred (WHO, 2020).

Greece is a destination country primarily for migrants from the Balkans, Eastern Europe, and some Asian and African countries, and also constitutes a transit country for Kurdish, Afghan, and other Asian migrants. The large majority of migrants to Greece comes from Albania; Albanians constitute 63.7% of the total documented migrant population in Greece, followed by Bulgarians, Georgians, Romanians, Russians, and Ukrainians (Antonopoulos &Winterdyk, 2006). More particularly, according to data published by ELIAMEP, there is over half a million of Albanian citizens, 150,000 co-ethnic returnees from the former Soviet Republics, 110-120,000 Asians (40-50,000 Pakistanis, about 20,000 Chinese and Filipinos, and about 10-15,000 Bangladeshis and Indians), 47,000 citizens from the EU15 member states (registered in 2001), 40-50.000 Poles and at least as many Bulgarians. At the 2001 census, there were approximately 20,000 Georgians, 17,000 Russians and 10,000 Ukrainians registered (Triandafyllidou et al., 2014).

According to the latest update, in 2021 a total number of 1,763 migrants and refugees arrived in Greece (UNHCR, 2021). In 2020, a total of 9,714 refugees and migrants arrived in Greece by sea (UNHCR, 2020). Taking a look on the numbers of arriving the last 4 years, in 2019, when 59,726 of migrants and refugees were recorded. The annual migration rates from 2017 until 2020 are summarized in Figure 3.

Figure 5 Percentages of migrant arrivals in Greece from 2017 – 2020

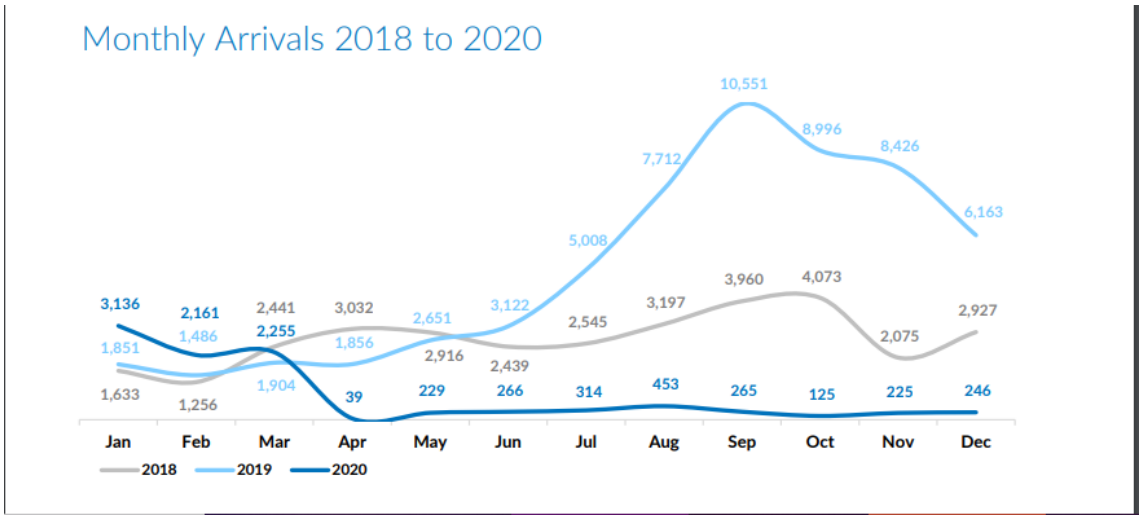
[3]According to International Organization for Migration (IOM) data available online, between January and June 2020, Greece received 9,628 immigrants, Italy received 6,950 immigrants, and Spain 8,546 immigrants. Retrieved 10 March 2021 from https://publications.iom.int/system/files/pdf/wmr_2020.pdf?fbclid=IwAR0ht--XfPd1_bOcpgHkCVeS_txuzUdhzD1laAKgo3h-11Mj8l-TdcRVCoI.



Source. UNHCR, 2020 https://data2.unhcr.org/en/documents/details/85039

In 2020 arrivals were 80% lower in comparison to 2019. Numbers of arrivals has largely decreased in April 2020 (UNHCR, 2020). Figure 2 summarizes the migration flows per month of the last 3 years.

Figure 6 Percentages of migrant arrivals in Greece from 2017 – 2020



Source. UNHCR, 2020 https://data2.unhcr.org/en/documents/details/85039

Most of the arrivals the last five years are through the sea. In 2019, 59,726 sea arrivals were recorded while 14,887 was land arrivals. In 2018, the number of sea arrivals was quite double than the land arrivals. Table 1 summarizes the total land and sea arrivals within the last 6 years.

Table 4 Land and sea arrivals in Greece within the last 6 years

Previousyears	Sea arrivals	Land arrivals	Dead and missing
2020	9,714	5,982	102
2019	59,726	14,887	71
2018	32,494	18,014	174
2017	29,718	6,592	59
2016	173,450	3,784	441
2015	856,723	4,907	799
2014	41,038	2,280	405

Note. UNHCR https://data2.unhcr.org/en/situations/mediterranean/location/5179

Over the last years, the main nationalities of migrant populations in Greece have changed. According to the latest data, the majority of refugees are originally from Syria, Afghanistan and Iraq. Figure 5 includes all nationalities of migrant population in Greece until December 2018.

Table5 Number of refugee arrivals in Greece per country of origin since January 2020

Country of origin	Population	
Afghanistan	35.2%	3,417
Syrian Arab Rep.	22.7%	2,207
Dem. Rep. of the Congo	10.3%	1,004
Somalia	9.5%	923
Others	9.1%	881
Iraq	4.3%	422
State of Palestine	3.2%	312
Iran (Islamic Rep. of)	2.0%	193
Cameroon	1.7%	166
Pakistan	1.1%	111
Stateless	0.5%	49
Kuwait	0.2%	18
Algeria	0.1%	11

Note. UNHCR, 2021 https://data2.unhcr.org/en/situations/mediterranean/location/5179

Health issues& healthcare access. Migrant populations usually face numerous challenges in host countries, including housing and sanitation, education, healthcare, employability, climate change etc. In

most cases, the migrants entering Greece, put themselves through the lack of preparedness, difficulties in adjusting to the new environment, complexity of the local system, bureaucracy, marginalization, language difficulties, cultural disparities and adverse experiences would affect their physical and mental health. Cultural and language barriers are a usual cause of the limited access to mental health services by undocumented migrants (Teunissen et al., 2016).

In general, the health issues of refugees and migrants are similar to those of the rest of the population, although some groups may have a higher prevalence. The most frequent health problems of newly arrived refugees and migrants include accidental injuries, hypothermia, burns, gastrointestinal illnesses, poisoning, asthma, cardiovascular events, pregnancy- and delivery-related complications, diabetes and hypertension. Female refugees and migrants frequently face specific challenges, particularly in maternal, newborn and child health, sexual and reproductive health, and violence. It is of primary importance to mention that refugees, who leave their homelands because of the fear of violence, war, natural disaster, and other life-threatening and life-altering events and as a result of trauma before, during, and after migration, are more prone to behavioral and mental health issues including anxiety, stress, depression, substance abuse, and/or suicidal ideations (Migrant Clinicians Network, 2017).Additionally, the exposure of refugees and migrants to the risks associated with population movements – psychosocial disorders, reproductive health problems, higher newborn mortality, drug abuse, nutrition disorders, alcoholism and exposure to violence – increase their vulnerability to Non-Communicable Diseases (NCDs) (WHO, 2020).

These health risks demand effective health communication to help migrants recognize, minimize, and respond effectively to potential health problems. The vast majority of migrants appear to have a low level of Health Literacy (HL). Language proficiency, education level, sex, age, and poverty are factors that affect the level of HL among migrants. Limitations in HL are associated with more frequent hospitalizations and emergency treatments, higher health care expenditures, reduced use of preventive measures, lower treatment adherence, and an increased risk of morbidity and mortality (Sørensen et al., 2015).

1.5.2. Older adults

Being part of the phenomenon of the ageing of Europe, the population in Greece shows a rapid increase of the percentage of the elderly people. The low birth rates, the increase in life expectancy and the improved healthcare quality have contributed to an ever-increasing proportion of older population. According to the EU's statistics agency Eurostat, Greece and Italy have the third lowest fertility rates in EU,

behind Germany and Portugal. With 21.3% of people over the age of 65, Greece also has the second oldest population in the EU, behind Italy (22%) and ahead of Germany (21.1%). The Greek financial crisis has put measurable pressure on birth rates over the last decade, which means that the crisisenhanced thedemographicproblem, as the Greek population decreased by 370,000, deaths surpassed births by about 30,000 (Eurostat, 2020). In this framework, the United Nations with the support of World Health Organization has proclaimed 2021–2030 the Decade of Healthy Ageing in order to improve the lives of older people, their families and communities bringing together all sections of society through targeted actions.

In 2011, the Greek census was carried out to ascertain the accurate number of the Greek population, the demographic, social, and economic characteristics of residents and households, and the stock of buildings available in the country. The country's population in 2011 was estimated to 10.816.286 and 2.734.621 of the total population was above the age of 60. Theresultsofthe 2017 censusrevealeda 10.755.000 population, withthe 21,5% aged 65 andabove, while in 2018 the 21,8% of the total populationaged 65 and above.Thelifespanisgraduallyincreased, especially in European countries. AsforGreece, which is just above the EU average, the life expectancy in 2018 was 81,4 years. It is estimated that one third of country's population will be 65 years and above in 2100 (Lamnisos et al., 2021).

However, due to COVID-19, there was a decrease in the expected life expectancy for Greece and other countries that have been affected by pandemic in 2020. Older adults are at higher risk for severe illness if they contract the disease, due to physiological changes that come with ageing and potential underlying health conditions. It is a fact as people age, they become more susceptible to disease and disability. Over 20% of adults aged 60 and over suffer from a mental or neurological disorder and 6.6% of all disability among people over 60 years is attributed to mental and neurological disorders. The most common mental and neurological disorders in this age are dementia and depression, which affect approximately 5% and 7% of the world's older population, respectively (WHO, 2017). Furthermore the 34% of Greek citizens after the age of 65 years suffer from 1 chronic illness, while the 19% have at least 2 chronic illnesses and/or disabilities, such as heart attack, diabetes, Parkinson or Alzheimer, rheumatoid arthritis or osteoarthritis and the 11% face basic activity limitations such as difficulty in getting dressed procedure or walking to bed (OECD/European Observatory on Health Systems and Policies, 2019). Chronic Obstructive Pulmonary Disease is another increasingly rated disease that affects mainly the lung function of elderly people (Giannakoulas et al., 2017).

All countries need to be prepared to address the consequences of demographic trends. Dealing with the increasing burden of chronic diseases requires health promotion and disease prevention interventions at community level and also disease management strategies within their health care system.

Although there is a significant differentiation between the quantity and the quality of the healthcare services in mainland and many of the country's isolated islands, the standard of healthcare in Greece is in general terms high (Allianz Care, n.d.).

Greece operates the Greek National Health System which aims to ensure free and equitable access to quality health services for all residents, including elderly. The system is made up of a mix of public and private health service providers, which are broadly divided into primary, secondary and tertiary tiers of service delivery. Health promotion in the elderly is achieved through the Primary HealthCare (PHC) and WHO recognizes the critical role that PHC centres play in maintaining health of older people worldwide and the need for these centres to be accessible (Adamakidou, Kalokerinou, 2010). Also, the state provided for regular support and care of older adults who are often isolated and alienated from their families. The first program developed for this purpose was the Open Care Centres for the Elderly (OCCE), which appears to have a positive impact on their daily lives (FrontidaZois, n.d.)

Health promotion depends largely on actions that include the creation of living conditions and environments that ensure the well-being of older people and the provision of necessary resources that meet their needs (e.g. providing security and freedom, adequate housing through supportive housing policy, social support for them and their caregivers). Additionally, these targeted actions could also improve elders' general law levels of HL given the fact it is a key issue for communicating health information. Actually, there is evidence that lower HL abilities are associated with poorer health outcomes, dementia, and higher mortality rates in later life. It has also been shown that older adults with higher HL skills are better able to manage and fight for their illnesses as well as their overall health and well-being (De Wit et al., 2020).

Taking into account the above-mentioned, elderly populations, who face many physical challenges, need proper information on health topics, such as nutrition, pills/products, and tips about the common chronic conditions associated with ageing (e.g. arthritis, heart disease, cancer, Alzheimer, diabetes etc.) Older adults actually consider healthcare providers the foundational source of health information and utilize friends and family for seeking, sharing and interpreting this information. However, an increasing amount of health information is available on the internet with a significant part of this population to be left behind. Although, online searching is common for older adults most of them have limited intuitive ability to work digital devices and they face difficulties in evaluating the credibility of the information they receive as well (Turner et al., 2018).

Elderly should receive properly training on digital skills so as to have access to a great library of health information. For this purpose, numerous number of EU-funded projects have been developed and

it is expected that during the Decade of Healthy Ageing there would be more initiatives familiarizing elderly and their helpers with new technologies and health information sources. The EU- funded projects proADAS-Promotion of Active Digital Ageing Skills and iHeal - Up-Skilling Elders in Digital Health Literacy to prevent marginalization and exclusion (see bibliography) have been developed to promote active digital ageing skills facing the gap between population ageing and digital literacy.

1.5.3. People from low socioeconomic groups and living in risk of poverty and in exclusion

According to the Greek legislation code 4019/2011, the term low socioeconomic groups or vulnerable groups refers to high-risk groups of people who *"have limited or no access to social and public goods and are facing difficulties in many parts of their life such as housing, work, income, education, health care, social security"* (Government Gazette: 216/A/30-9-2011). Phenomena like social exclusion and discrimination deteriorated to extend in Greece, especially during the financial crisis, and this fact led to wider discussion about the people who belong to low socioeconomic groups. Socioeconomic position usually can be measured using a single characteristic, such as income, education, or occupation.

Based on the same legislation code, homeless and unemployed people, underpaid employees, uninsured, patients, ex-drug users, ex-prisoners and young delinquents, and single-parent families belong in low socioeconomic groups. More particularly, homeless people live legally in a country, but they have limited or no access to the private, rented or granted residence, while unemployed are those who are competent, willing and available to apply forma job, but they cannot be hired due to the condition in the labor market. At the same time, socioeconomic problems undergo people who suffer from serious diseases (cancer, AIDS etc.) or mental disorders and those who present illegal and/or irregular behaviors or bear public condemnation like ex-prisoners, rehabilitated ex-drug users, single- parent families, juvenile delinquents, battered women.

According to Hellenic Statistical Authority (ELSTAT), in 2019 17,9% of Greek population was under poverty, a percentage that corresponded to 1.881.600 people of 10.534.857 which was the number of total Greek population. It is noted that the risk of poverty or social exclusion is higher for persons aged 18-64 years (33,1%) with lower socio-economic background lacking an efficient income rate or social insurance, elements that are important to ensure the accessibility to medical treatment services and a sufficient pension (Hellenic Statistical Authority, 2020).

Greece has been profoundly affected by the financial crisis with wide-ranging consequences. First of all, the research of EU showed that crisis affected the health condition of Greek population mitigating their accessibility in healthcare system, which was suffering from several inefficiencies, such as fragmented

population coverage (Economou et al., 2017). There has been observed also a rise in heart problems, cancer and mental disorders like depression and pathological stress. Based on surveys, these mental disturbances are correlated with emergence of physical diseases. In fact, depression is proved that proliferate the possibilities of heart attacks (Harvard Medical School, 2020).Particularly, heart attacks and various types of cancer are considered as the most common causes for death among socioeconomically vulnerable groups, who are at greater risk of poor health in general. Despite the different characteristics of these health problems, the most important similarity between them is that people in many cases do not occur severe symptoms (OECD/European Observatory on Health Systems and Policies, 2019).

These groups tend to adopt unhealthy habits such as alcohol and drugs. The main reason they neglect to care about their health, among others, is because they have limited HL. When it comes to medical terms, the diagnosis, the medical test results, the treatment instructions, or how to apply the self-care suggestions this population face significant difficulties. Additionally, they are not familiarised in communicating with public health services and healthcare system. In most cases they face barriers when communicating with health professionals and they have difficulties in understanding how the healthcare system works in general (Greek Ministry of Health, 2016). As a consequence, there is an emerging need to cultivate an understanding on the meaning, purpose, consequences and context of information and services, and ultimately determine the appropriate course of action regarding their health.

1.6. Italy

1.6.1. Migrants

The importance of immigration in Italy in recent years has led to growing attention on the part of institutions, both at national and regional level, to issues concerning the health of the foreign population and the implications of the phenomenon in terms of health policy and planning.

In addition, some population groups, including immigrants themselves, have seen their vulnerability increase as a result of increased exposure to risks to their physical and mental health arising from both the reduction in economic well-being and employment opportunities in our country, and the deterioration of the urban fabric in terms of housing and transport, public green spaces and pollution. The COVID-19 pandemic adds up as a global risk factor whose negative effect may manifest itself with greater intensity in the most vulnerable populations.

In Italy, precise health policies on migrants' health have been outlined through legislative measures merged into an organic law known as the Consolidated Act on Immigration. The guidelines that are still valid today can be traced back to this law and subsequent regulatory measures.

The philosophy of these decidedly 'inclusive' health policies can be summarised in two main statements:

- Full equality of rights and duties, with regard to health and welfare rights, between Italian citizens and legally present foreign citizens, with full coverage by the public health system;
- Ample opportunities for protection and assistance also for irregular immigrants, with particular reference to women and children and to the field of infectious diseases;

Immigrant health policies originate from the intersection between immigration and asylum policies, social policies and health care policies in general.

With reference to the Italian context, this translates into providing health care to a minority population (the immigrant population in Italy today represents about 8% of the resident population - about 5 million people - and has mostly arrived at the second generation), which is heterogeneous and in strong growth within a universal and global system of services substantially designed for Italians.

According to the "Immigration Statistics Report 2020", published in October 2020, there was no significant expansion of the foreign population resident in Italy, which on 31 December 2019 saw an increase of 0.9% compared to 2018, thus reaching 5.3 million residents, or 8.8% of the inhabitants. Almost 63 thousand children born during 2019 to foreign couples already present in Italy, around 15% of the total number of births, also contributed to the increase in presences compared to the previous year.

Demographic characteristics of migrant in Italy. The gender ratio is substantially balanced, with a slight imbalance in favour of women (51.8%), although the percentage varies greatly depending on the citizenship of origin: for example, women represent 81.2% of the Russian population in Italy, while they make up 26.4% of Senegalese residents.

The average age of the foreign population residing in Italy is around 35 years (compared to Italians who have an average age of around 46 years), with strong differences according to citizenship: Romanians, Albanians, Moroccans and Chinese are in line with the general average or slightly below it; Filipinos, Georgians and Ukrainians have a higher average age; on the other hand, citizens from North and Central Africa and South and Central Asia are estimated to be below the average age. These characteristics reflect

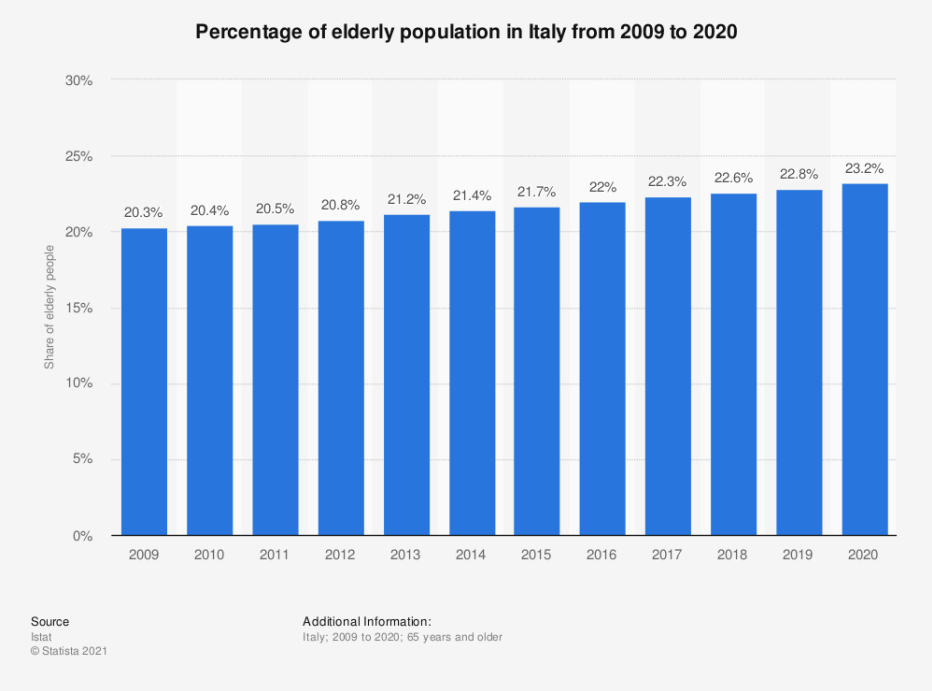
the different migration patterns: Ukrainian citizens are mostly women of adult age, who immigrated to Italy in search of a better paid job, with which they can contribute to the support of their children and family members who have remained in their country of origin. This model is also applicable to other communities from Eastern European countries (such as Georgia, the Russian Federation or Moldova). On the other hand, citizens from Central and Northern African or Central and Southern Asian countries are mainly young people on whom their families of origin make a real investment.

1.6.2. Older adults

Italy has the largest proportion of elderly citizens more than 21.4% with 60,8 milion inhabitants. The aging of the population is due to a number of reasons an increase in longevity, and low birth rate, although international migration has increase in recent years, the addition of a foreign segment of the population has neither compensated nor significantly the aging phenomenon.

Italy enjoys the second highest life expectancy in Europe, although sizeable inequalities persist across regions and by gender and socioeconomic status. The Italian health care system is generally efficient and performs well in providing good access to high-quality care at a relatively low cost, although there are significant variations across regions. The main challenges facing the health system relate to improving coordination of care for the growing share of the population living with chronic diseases and reducing disparities in access to care.

Figure 7 Percentage of elderly population in Italy from 2009 to 2020



Health Promotion for Older People is a relevant issue in Italy, one of the countries where people live the longest. Strategies, programmes and projects are set and planned at the national level, mainly by the Ministry of Health within the National Health Service, but strong competencies, funds and resources derive also from the Government, the Ministry of Labour and Social Policies and the Ministry of Internal Affairs. Moreover, European funds contribute to programmes and projects in this field. After strategic implementation at the regional level, programmes and projects are carried out at the local level under the National Health Service, mainly by the Local Health Authorities in conjunction with municipalities and other relevant stakeholders such as NGOs, the voluntary sector, families and educational and religious entities, etc.

In Italy each Regional Health Department is in charge of the implementation of the Regional Health Plan and the Regional Plan for Prevention, which are based on guidelines set out in the National Prevention Plan. At the local level, geographically based ASLs deliver public health, health promotion, community health services and primary care. The local departments of prevention are in charge of the planning and coordination of health promotion projects and activities. Integration between social and health sector actions and programmes happens at this level through a specific functional unit called District that

collaborates with Municipalities, NGOs and civil society in order to plan and implement integrated projects and actions in the field of health promotion, including that for the elderly.

1.6.3. People from low socioeconomic groups and living in risk of poverty and in exclusion

Socioeconomic status can be determined by a family's income level, education level, and occupational status. In spite of the differences in definition between poverty and socioeconomic status, researchers agree that there is a clear and established relationship between poverty, socioeconomic status, and health outcomes including increased risk for disease and premature death. Many factors can contribute to inequitable access to resources and opportunities, which may result in poverty, education, social class, social status, income level, and geographic location (e.g., urban vs. rural) can influence a household's risk of living in poverty.

In 2019, 16.5% of the EU population were at risk of poverty after social transfer (income poverty), down from 16.8% in 2018. Income poverty describes the proportion of individuals living in a household whose disposable income is below the national at risk of poverty threshold. As the thresholds reflect actual income distribution in the countries, they vary greatly both between Member States and over time.

A person living in Italy with less than 657 euros per month is considered poor. For a household with four members, this amount is around 1.8 thousand euros.

In total, about 1.7 million families and 4.6 million individuals in Italy are living below the poverty line. In 2019, the incidence rate of absolute poverty among families in Italy was 6.4 percent. Generally, larger households are morelikely to live in absolute povertycompared to smaller families: some five percent of couples with one child are affected by absolute poverty in Italy, whereas parents with three and more children as well as households with more family nuclei represent the most threatened groups.

The largest percentage of people in Italy at risk of poverty or social exclusion live in the South. In the Campania region, about half of the population was at risk of poverty or social exclusion in 2019, the highest share nationwide. Sicily region followed with only one percentage point less than Campania, while Calabria region ranked third with 39.8 percent of the population.

1.7. Spain

1.7.1. Migrants

According to EUROSTAT (2017) Spain was the second country from EU-27 in 2018 with the highest number of migrants from non EU-27 countries (643.684). In addition, it has been the country from the EU-27 with the highest increase in number of total migrants (8% with respect to 2017).

According to Instituto Nacional de Estadística (INE), the number of total migrants in Spain in 2020 was 5.434.153 with no diference by sex (50.05% female compared to 49.9% male).

Considering the total number of migrants, 34.5% were from the European Union (27), with a minimal difference between women (49.9%) and men (50.0%) that could be due to labour reasons. The higher number of migrants by nationality were Romania (667,378), Italy (252,008), Bulgaria (122,375) and Germany (111,937).

There are some differences with respect to Spanish population. The migrant population is exposed to worse socioeconomic conditions, greater mental health problems and less consumption of medication (Malmusi & Ortiz-Barreda, 2014). Despite the fact that the immigrant population has a lower prevalence of chronic diseases, a worse self-perception of health is observed, which stands out in women and the longer they stay (Rodrígues et al., 2014; Perreten et al., 2010).

The Healthy Immigrant Effect (HIE) permits to explain the dynamic of health in migrant population. Their health status is better than native population when they arrive at the country, but, as the years pass in the country, it begins to worsen until it is equal to the socio-economic group equivalent to the host population (Constant et al., 2018; Jiménez-Rubio & Hernández-Quevedo, 2011).

With regard to infectious diseases, a higher prevalence of some diseases has been observed in the migrant population, such as tuberculosis, infectious hepatitis and AIDS (Vázquez et al., 2014).

The following table shows the main barriers and strategies for disease prevention in migrant population[4].

Table 6. Barriers and strategies to promote health in the migrant population in Spain

Barriers to health promotion	Strategies to promote health in the migrant population
Cultural factors: make difficult to adapt to the new system	

[4]More information in: Belintxon, M., & López-Dicastillo, O. (2014, December). Los retos de la promoción de la salud en una sociedad multicultural: revisión narrativa de la literatura. In *Anales del Sistema Sanitario de Navarra* (Vol. 37, No. 3, pp. 401-409). Gobierno de Navarra. Departamento de Salud.

- Differences in the perception of health problems - Use of other strategies to deal with health problems (use of natural herbs)	- Health programs designed taking into account the cultural diversity, the values and beliefs of the different cultural groups, on the health aspects that are addressed in doctor visits. - Provide culturally and linguistically adapted materials according to different cultures. - Training of health professionals on the cultural aspects. - Creation of several materials with narrative and visual content in different languages, guaranteeing access to these resources. - Train people from a cultural group so that they can be a mediator in cultural meetings. - Interpreters and bilingual professionals.
Linguistic factors: hinder access to the health system - Linguistic differences that hinder communication, understanding, accepting and applying instructions from healthcare professionals. They hinder the motivation of people to seek prevention activities. - They make difficult to understand and apply the information in their daily life.	
Low level of Health Literacy - They do not have enough knowledge and skills about the health systems and how to access. - Low levels knowledge about health maintenance. - They have difficulties understanding the need to provide personal information or to make their concerns known, and they are not familiar with concepts such as prevention and self-care, which negatively affects the adoption of healthy lifestyles.	
Socio-economic disadvantages - Higher unemployment rates and more precarious jobs, which leads them to give greater importance to survival than taking care of their health.	
Prejudices and stereotypes of health professionals - They can make difficult to meet with health professionals and people from other cultures because of their beliefs and values. - There is a risk that health professionals will make "cultural impositions" based on beliefs, values and behavior patterns of their own culture. - Cultural imposition might lead professional to forget to listen and incorporate the patient's point of view when making decisions.	

Barriers in the process of getting the TSI (Individual Health Card)[5] - Difficulties in obtaining the registration certificate due to the difficulty of proving an address (either because they do not have a stable home when arriving at the country, or because they are rented, but the contract under the name of another person). - Lack of the documents required for registration, such as a passport. - Lack of knowledge of the meaning of the TSI and / or of the necessary steps to obtain it. - Difficulties in obtaining the registration certificate due to the difficulty of proving an address (either because they do not have a home address at the time of arrival, or because they live in a rented house, but the contract is under the name of another person). - Lack of the documents required for registration of residency, such as a passport. - Lack of knowledge of the meaning of the "TSI" and / or of the necessary steps to obtain it. - In the case of the irregular migrant population, there is also the fear of providing personal data and being recorded in records that may be subject to police inspection, which may lead to subsequent repatriation.	- Inform the migrant population about the importance of processing the TSI to access the National Health System. - Having the information required to process the TSI in different languages.
Payment for medicines - It represents a barrier to treatment for people with low economic resources who cannot afford medicines. - If they do not have TSI, they have to pay more for the medicines.	- Possibilityofproviding prescriptions exempt from payment

Source: Own elaboration

The measures that would favor access to health system are: having a formal interpreter, protocols for migrant population, support material in different languages, training in cultural aspects of health, having cultural mediators, being in a regular administrative situation, possession of an Individual Health Card (TSI), knowledge about the country language and having information about the health system and its services (Yago et al, 2020; Ruiz et al, 2020).

[5]More information in: [Pust, A. B., Reguant, F. C. I., Navarrete, M. L. V., & Oliveres, X. C. (2012). *Barreras de acceso de la población inmigrante a los servicios de salud en Catalunya* (Doctoral dissertation, Universitat Autònoma de Barcelona).]

Table 7. Drivers to access the Spanish Health System for migrant people

Drivers to access the Spanish Health System for migrant people	**References**
● Have a formal interpreter ● Protocols for the migrant people ● Support material in different languages ● Training in cultural aspects of health ● Have cultural mediators	Yago-Gonzalez, S., Palomino-Gomez, M., Bustos-Herranz, G., & Parra-Blazquez, D., 2020.
● Migrant in a regular administrative situation ● Have an Individual Health Card (TSI) ● Knowledge of Spanish ● Have information about the health system and its services	Ruiz-Azarola, A., Escudero Carretero, M., López-Fernández, L. A., Gil García, E., March Cerdà, J. C., & López Jaramillo, D., 2020.

Source: Own elaboration

The main difficulties for migrant population in accessing the health system are: language barriers, waiting times, the use of technical words, ignorance of current legislation, ignorance of administrative procedures (obtaining the health individual card, choice a doctor, request for doctor visits, emergencies), ignorance of sanitary habits and the search for alternative resources within the ethnic community. There are also needs related to: maintain one's own and family health, knowledge to care for dependent people, and means to get a job. In order to meet these needs, more learning contents, the face-to-face workshops taught in their language and the use of ICT are needed (Bas et al., 2015, García Fariñas et al., 2020; Gómez et al., 2019; Yago et al., 2020).

Table 8. Barriers in accessing the Spanish Health System for migrant people

Barriers in accessing the Spanish Health System for migrant people	References
Language	Bas et., 2015; García Fariñas et al., 2017; Yago et al., 2020; Ruiz et al., 2020
Lack of knowledge about procedures or conditions to access the system	García Fariñas et al., 2017; Yago et al., 2020; Ruiz et al., 2020
Ignorance of currentlegislation	Bas et., 2015
Ignorance of administrative procedures to legal stay in Spain	Bas et., 2015
Use of technicalwords	Bas et., 2015
Use of alternative resources such as healers	García Fariñas et al., 2017

Cultural barriers	Yago et al., 2020

Source: Own Elaboration

To understand theSpanish National Health System, it is necessary to detail its main characteristics:

Decentralization:

The management of health resources has been decentralized. The National government has transferred the competences in health matter to the Autonomous Communities (regional governments), which are also divided into health areas. They are in charge of the management of health centers and programs to be developed in its territorial demarcation. Likewise, each health area is divided into basic zones made up of health centers, hospitals, and specialty centers.

Universality

In terms of health, universality refers to guaranteeing the right to health protection and health care under equal conditions for all Spaniards and foreigners in Spain.

Co-payment

The copayment refers to the economic contribution that the person makes to pay a part of the cost of a health service, such as a health service, treatments and medicines. It is called co-payment because it is complemented by another means of financing, such as taxes (Rodríguez-Feijoó and Rodríguez-Caro, 2019).

Organization of the health system: two levels of care

The National Health System is made up of the services of the 17 autonomous communities, which share basic characteristics, but with differences in their management and provision. In all autonomous communities there are two levels of care: primary care and specialized care (Marrero and García, 2017).

With respect to the migrant population, it is necessary that they have the Individual Health Card. This card is the document that allows access to the Spanish health system and guarantees the right to obtain health care. For the acquisition of this card, migrant people must have their own house or have a rented house and have legal residence permit in Spain.

In the case of not having the Individual Health Card, only migrant people in special situations will receive health care. Specifically, it is reflected, according to Royal Decree-Law 7/2018, of July 27, on universal access to the National Health System and Royal Decree-Law 16/2012, of April 20, of urgent measures to guarantee the sustainability of the National Health System and improve the quality and safety of its services.

1.7.2. Older adults

According to statistical data provided by the National Institute of Statistics (INE), people aged 65 and over constitute approximately 20%; This percentage has increased since 2009 (16.65%). Regarding the differences between the sexes, there are more older women (56.7%) than men (43.3%).

Health problems in the population over 65 years are mostly chronic pathologies. According to data from the 2017 National Health Survey, 89.50% of the population between 65 and 74 years have some chronic disease. This trend increases with age and is greater in women than in men.

Among the main long-term chronic diseases, the following stand out: hypertension, osteoarthritis and high cholesterol, followed by back pain such as lumbar and cervical pain, and diabetes. Moreover, 80.65% of the population aged 65 years and over hadtheir usual activity restricted due to pain or symptoms in the last two weeks, and 40% of the population over 65 years had restricted their daily (in the last six months)[6].

Table 9. Main chronic or long-term problems or diseases in the last twelve months by age and sex (%) in Spain

	High bloodpressure	Osteoarthritis	High cholesterol
Bothwomen and men	Yes	Yes	Yes
From 65 to74 years	45.85	42.37	40.85
From 75 to 84 years	60.40	55.98	41.08
From 85 and over	58.33	63.40	29.85

Source: Own elaboration based on the National Health Survey 2017.

Table 10. Health problems and preventive actions in elderly population in Spain

Healthproblems	Prevention of health problems	References

[6] More information in [DE, P. O. E. C. O., LOS ÚLTIMOS, L. E. P. E., AL MÉDICO, D. F. O. P., ESPECIALISTA, A., SANITARIA, M. D. L. C., & ADULTA, Í. D. M. C. P. ENCUESTA NACIONAL DE SALUD. ESPAÑA 2017 (ENSE 2017).]

Self-management of medication: - Forgetting the recommendations of the healthcare professional - Missed taking dose -Duplication of a dose of the medicine --Confusion in taking the medication	-Review and reminders about taking medication	-Montenegro et al., 2014. -Mira et al., 2012.
Fragility and Situations of dependency and disability	Health promotion: -Physical exercise: multi-component training programs contain aerobic resistance, walking and balance exercises, muscular strength and flexibility. -Nutritional education: the consumption of proteins and vitamins necessary for a healthy diet is key for the prevention of disorders and diseases. -Early intervention through preventive or therapeutic measures that prevent functional deterioration and dependence, or at least slow down and delay their appearance.	-González and Domingo, G. D. S. 2017. -Ramos Cordero, P. 2018. -Pavón et al., 2018. -Salvà and Rojano, 2012. -Soler et al., 2010. -Zugastiy, 2019. -Viña et al., 2016. -Cadore, E. L. 2015. -Izquierdo, 2019. -Herrero et al.,2015. -Jiménez et al., 2014.
Feeling of loneliness and Social Isolation due to: -Difference between desired and perceived interpersonal relationships. -Lack of a social network.	Socialsupport: ● Group interventions -Animal therapy ● Identification of support networks -Promote family contact through video conferencing -Other actions -reminiscence therapies -gardening and/or horticulture workshops -cognitive interventions -mood therapies -promote home visits and improve - accessibility to social services (aid for housing accessibility, home care service).	-Dobla and Conde 2018. -Bermeja and Ausín, 2018. -Gallo et al., 2013.

Source: Own elaboration

The level of health literacy of people over 65 is low There is an inter-generational gap (Alcalá, 2016):

- Most of the elderly people use the mobile phone
- More than 60% have never used a computer or the internet.
- More than 80% have never done

Table 11 Main health problems of older adults and information needed to prevent them in Spain

Mainhealthproblems	**Information needed to prevent them**	**References**
Self-management of medication	-Memory strategy training - Educate in the use of technological tools: ● Alarm systems app for reminders ● Medication identification app	-Carrillo et at., 2015
Fragility **Situations of dependency and disability**	- Health promotion through: • Physical exercise ("multicomponent training") according to the needs and characteristics of the person • Adequate food and nutrition	-Viladrosa et al., 2017 -García, 2020 -Amador and Esteban, 2015
Feeling of Loneliness and Social Isolation	Social support through: -Group interventions ● Face-to-face: capacity-building programs ● Assisted by technology: telephone or online. -Identification of support networks for: ● ICT facilitation and training ● Information on retirement homes and specific centers for promoting social relationships -Other actions ● Animal-assisted therapies. ● Family contact through videoconferences. ● Reminiscence therapies. ● Gardening or horticulture workshops.	-Rueda, 2020.

	• Mood therapies and cognitive interventions.	

Source: Own elaboration

1.7.3. People from low socioeconomic groups and living in risk of poverty and in exclusion

The European Council refers to the group of people at risk of poverty and / or social exclusion with the acronym AROPE (At Risk of Poverty and / or Exclusion). People are at risk and / or social exclusion if:

- Their income is less than 60% of the median income of the country

- They have severe material deficiency

- They live in homes with very low work intensity (Lacuesta and Anghel,2020)[7].

According to the European Survey of Income and Living Conditions (EU-SILC) and the National Institute of Statistics, the population that presents a greater risk of poverty and / or social exclusion are unemployed and inactive population, and population with lower educational levels. For this reason, employment and education are protector factors against the risk of poverty and / or social exclusion.

According to the data provided by the National Institute of Statistics (INE) the AROPE rate was 25.3% in 2019 in Spain.

Regarding the risk of poverty and / or social exclusion (European Strategy, 2020) by sex and age groups, there is a slight feminization of poverty. Women are more likely to be in poverty situations. By age, young people are those with the highest percentages of risk of poverty and social exclusion. This is due to the fact that in Spain young people are the population group with the highest unemployment rates, while older people, thanks to the Spanish pension system, receive monthly fixed income, being the less affected by situations of poverty and / or social exclusion.

The population with a low educational level and inadequate health literacy, use preventive health services to a lesser extent. In the case of the most disadvantaged social classes, they present a worse state of health, more chronic diseases and a worse self-perception of health (Flecha et al., 2013).

[7] More information in [Lacuesta Gabarain, A., & Anghel, B. (2020). La población en riesgo de pobreza o exclusión social en España, según la definición del Consejo Europeo. *Boletín económico/Banco de España [Artículos], n. 1, 2020*]

Table 12. Main health problems in people from low socioeconomic groups in Spain and information to prevent them

Main health problems of the poor population and / or at risk of exclusion	Information needed	References
- Greater presence of chronic diseases - Worseself-perception of health - Greaterdentalhealthproblems - Greater limitations for basic activities of daily life - Greater cognitive problems (difficulty concentrating and memorizing) - Lesshealthylifestyle habits - Greatermentalhealthproblems	Health literacy to empower vulnerable groups, obtaining an equal dialogue between professional-patient to: - Elimination of technicallanguage - Knowledge of the interests and needs of this population - Train and provide the population with accessible and easily understood online information to: - - Manage visits to the health center, respond to specific demands that patients make online - - Access the information provided by the professional after visits to remember or resolve possible doubts - - Check additional and detailed information, that due to lack of time, the professional might not provide during the visit, but does provide online	-Flecha et al., 2013 -European Network to Fight Poverty and Social Exclusion in Spain (EAPN, 2019. -Miranda, 2018

Source: Own elaboration

This group is characterized by having a low level of literacy. This is largely due to the relationship between low educational level and belonging to the most disadvantaged social classes.

The information they need to reduce and prevent health problems must be provided by healthcare professionals. For this it is necessary:

- Eliminate technical language

- Know the interests and needs of this population group.
- Provide accessible and easy-to-understand online information
- Attend to specific demands online
- Access online to the information provided in doctor's visit
- Check information online that due to lack of time, doctor might not indicated

2. Digital health literacy: drivers and barriers

Health Literacy is the ability to obtain, read, understand, and use healthcare information in order to make appropriate health decisions and follow instructions for treatment, while Digital Health Literacy (DHL) is the ability to seek, find, understand and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem (WHO, 2017). Both types of literacy are fundamental components of pursuing health and well-being in a modern society. The digitization of health care and the wide spread of online health applications have emerged the necessity of the development of a broad set of digital skills among the general population that would enable the effective use of the contemporary digital health facilities. DHL, actually, has the potential to empower citizens to better manage their health and disease, improve prevention, enable more accurate diagnosis and treatment and facilitate the communication between healthcare professionals and patients. DHL can also contribute to a more equal access to healthcare while facilitating access to health information (WHO, 2017). Becoming a digital health-literate person nowadays, in a society which is bombarded with health information and misinformation, has become a growing challenge. Consequently, the elderly and other socially vulnerable groups, including migrants and refugees, are often excluded from the healthcare services or even from the digital society.

2.1. European level

2.1.1. Migrants/refugees

Digital skills

Migrants in Europe are mostly affected by phenomena of digital exclusion than the rest of the national population in Europe. They are also facing certain problems concerning their access to the digital world (in this case, access to a computer and the internet) and the use of this culture for themselves. Migrants who have come to Europe in recent years are coming from countries with limited access to computers or other infrastructures and to internet. Thus, it is reasonable to believe that migrants in Europe are not accustomed to computers and the internet (Verdi, 2020).

Despite the common notion about migrants' digital literacy, the digital skills profile of migrants in Europe evolves with an increasing number of migrants being highly qualified. Half the population of migrants in Europe was under 29 years old in 2018, much younger than the total population of the country of their destination. The young of their age make them more likely to use digital technology and help older migrants to be also able to use it. Whatever their initial level of education, digital technology proper use plays a crucial role in the process of migration journey before and after arriving to the host country.

Use of digital technology

Digital technology is mostly used from migrants and refugees in Europe for mainly the purposes of their migration journey. As aforementioned, migrants use digital means, especially smartphones, to efficiently navigate during their migration journey. Before their migration journey, they use digital technology to gather information about the host country and the required paperwork to enter, as well as for establishing contacts. During the migration journey, migrants and refugees are able to properly navigate and orient themselves on safe escape routes. Upon arriving to the host country, migrants and refugees use their smartphones to access short messenger services and social media to stay in touch with their loved ones, to read about the latest news from both their home and host country. Social media are also used by migrants and refugees as means of the formation of migration narratives and creation of both positive and negative myths (David et al., 2019). In addition to their smartphones, the great number of internet cafés managed by migrants in all big European cities tends to reinforce the notion that migrants are able to use digital technology (Europa, n.d.).The smartphones and internet access allow them to organize themselves as they become means of subsistence and instruments of daily life battle.

Digital health literacy

Proper digital technology used is a fine opportunity for vulnerable people to empower themselves. Health care and social support system of the host country were not found to be among the most important issues that migrants and refugees in Europe need information for. Only half of this group considered health as a critical issue as for migration consideration factors concerns. One great reason for this knowledge inadequacy is that finding information through digital means seems very difficult for this vulnerable group (Borkert et al., 2018). Only 27% of migrants and refugees influx in Europe have digitally searched about topics related to health care system of the host country. Main barriers for this lack of information are the language barrier as well as the affordability and accessibility on digital means.

Studies in Europe focusing on digital health literacy of migrants and refugees use more frequently the eHealth Literacy Questionnaire (eHLQ) (Kayser et al., 2018; Villadsen et al., 2020)and the eHealth

literacy scale (eHEALS) (Norman & Skinner, 2006; Wangdahl et al., 2019). The eHLQ is a questionnaire consisting of 34 items classified in seven domains; use of technology to search for health-related topics, understanding of health concepts and language, ability toactively engage with digital services, feeling of being safe and in control, motivation to engage with digital services, access to digital services and suitability of digital services to individual needs(Kayser et al., 2018). The eHEALS is an 8-item instrument concerning a broad range of literacy skills, available in several languages with high reliability and validity (Norman & Skinner, 2006). Additionally, scenario-based interviews are conducted to assess migrants' self-reported digital health literacy and the problems they face to access health digitally (Samkange-Zeeb et al., 2020).

Main barriers and drivers or facilitators for the delivery of digital health literacy

Migrants and refugees face several obstacles as digital health users. Whatever is their level of digital literacy, digital health literacy is insufficient. The lack of foreign language options in the content of the vast majority of national digital health services or not applicable translation of specific health-related terms are the major barriers for the delivery of digital health literacy. Poor English language knowledge is also a limitation among migrants and refugee, since most of the health-related information found online is available in English, making it more difficult to understand terms and conditions and follow further instructions. Even if digital health services are translated in the migrants' language, the educational level of a big portion of this group does not permit the comprehension of the content and sometimes even the reading of the context, since most of the information is provided in text mode and not in visual or audio media.

Additionally, depending on their cultural and religious values, migrants and refugees are not feeling comfortable with the format, style and "directness" of the information found on European digital health services (Marschang, 2014). Moreover, their cultural habits and their general illiteracy make them lack trust in such services.

Poor quality Internet access (e.g. public WiFi) and/or unaffordability accessing Internet are common problems migrants and refugees are facing to access digital health, especially during their migration journey (Stone et al., 2020).

Although not expected, digital literacy among migrants and refugees, especially the younger ones, could be a facilitator for the delivery of digital health literacy. Even if not proficient, migrants and refugees can be trained on how to at least use the minimum of digital health services available. The young of their age may also facilitate the delivery of digital health literacy, while the median age of migrants and refugees in 2019 was 29.2 years old, making them more likely to learn new skills than older individuals.

Simplifying the language and adding audio and visual content would be a facilitating asset for the delivery of digital health literacy. Listening to migrants' and refugees' needs would be beneficial to achieve a more appropriate and efficient design of the digital health services. Moreover, direct support availability via short messages services or via telephone contact would promote their gaining of trust towards the digital health services.

2.1.2. Older adults

Digital skills

Among the vulnerable groups of a society, older individuals tend to be more digital illiterate than the general population. They are neither educated nor used to digital technology and, additionally, they feel less confident and less skilled to do so. The Digital Agenda of Europe (DAE) identifies older people at risk of digital exclusion and together with the people of low incomes, the less educated and the unemployed represent the 30% of Europeans that have never used the Internet (ictskills4all, 2018). In 2019, 31 % of the EU-27 general adult population had above basic digital skills with those aged 65-74 years sharing the lower percentage (7%)(Eurostat, 2020a). In bright contrast, internet use in the Netherlands among older adults is really high compared to the rest of the EU-27, which may reflect to increased total levels of digital skills (Akkermans, 2013).

Use of digital technology

Adopting new technologies is more difficult for older adults to encounter as compared to the younger ones. They may experience age-related cognitive and physical challenges, they may have sceptical attitudes towards the benefits of new technologies, and they may find it difficult to get trained to new technologies that have never used. Nevertheless, older people are increasingly making use of the various possibilities of the internet (38% during 2013) (use for call, shop and bank via the internet)(Akkermans, 2013). Nowadays, the tendency to adopt new technologies is clear. In 2019, 28 % of total population that made at least one online purchase for private purposes and 31% used internet banking was among people aged 65-74 years, compared to the high 44 % of people in 2017 among people aged 65-74 years who had never used a computer. In 2019, sending/receiving e-mails was the most common activity among older people in the EU-27 (44 % in 2019), while they were less likely to use other forms of communication, such as telephone or video calls over the internet (24 %). In 2019, 18 % of older people participated in social networks, compared with an average of 54 % for general adult population of the EU-27(Eurostat, 2020a).

Digital health literacy

The rapid increase of digital technology use by older people during the 2009-2019 decade is depicted by the increased percentage of older people using digital technology to seek health information (12% in 2009 compared to 34% in 2019)(Eurostat, 2020a). Among the European countries, the percentage of users of digital health services aged more than 65 years vary from 2.5% in Cyprus and 4.3% in Ireland to 43.8% in Estonia and 43.9% in Finland (Merkel & Hess, 2020).

Studies in Europe focusing on digital health literacy among older individualshave used the eHEALS scale and the Flash Eurobarometer 404 on Digital Health Literacy survey which is based on the ad hoc thematic telephone interviews. The main type of information provided by this study is general information on digital health literacy. The search for information on a specific injury, disease or condition and, in particular, the search for information on symptoms is the second type of information provided (Eurobarometer, 2014). Another instrument used to measure digital health literacy among older individuals is the self-report scale of Digital Health Literacy Instrument (DHLI) (van der Vaart & Drossaert, 2017).The DHLI measures 7 separate skills categorized under 21 self-reported items under the prism of Health 1.0 ad Health 2.0 skills; operational skills, navigation skills,information searching, evaluating reliability, determining relevance, adding self-generated content andprotecting privacy.

Main barriers and drivers or facilitators for the delivery of digital health literacy

Older individuals are more likely to face multiple issues as far as the delivery of digital health literacy concerns. Cognitive, mental and physical decline is one of the main barriers. Age-related dementia, depression and physical malfunctions such as impaired hearing, sight issues and severe arthrosis of the hands are very common among older people, thus advocating for their loss of willingness or ability to learn how to use new technologies (Marschang, 2014; Vorrink et al., 2017). Besides the physical disadvantage of older people, they usually feel uncertain about the role and relative value of the digital health solutions and they are not likely to support a faceless content delivery since they are not “evolved” to be used to it (Stone et al., 2020).

Broadband and mobile internet availability is dependent on the living location (urban or rural region), making living location a limiting factor for the delivery of digital health literacy. Additionally, the cost of Internet services is often unaffordable for older people, thus not permitting access to available digital health trainings (Merkel & Hess, 2020).

By the healthcare system side, general features of social care systems around European countries often limit eligibility for publicly provided or funded digital services. Lack of professionals’ support and lack of integration between the different systems - health, social and housing - can present important barriers to implementation and to achievement of digital health-related benefits. The complexity of the health

system, the resource constraints, the lack of willingness to change and innovation, and the lack of structures and processes to support continuity of care is another important limiting factor for digital health delivery (Kubitschke & Cullen, 2010).

Paradoxically, the more the older people feel isolated and are getting older, the more they are willing to be able to use digital technology. Being able to use the Internet can be life-transforming and improve quality of life for older individuals who possess the know-how to navigate it.Older people are provided with the chance to connect with people around the world and share experiences, emotions and problems related to ageing, caregiving and common health conditions older people are facing through Internet based social media (Marschang, 2014).

Additionally, as aforementioned for the digital health excluded group of migrants and refugees, simplifying the language and adding audio and visual content would be a facilitating asset for the delivery of digital health literacy. Listening to older people's needs would also be beneficial together with direct support availability via short messages services or via telephone contact.

2.1.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

Digital skills

People from low socioeconomic groups are mainly identified at risk of digital exclusion by DAE, since they are commonly less educated and unemployed or with low incomes making them unable to afford the cost of digital services (Internet access, smartphones, tablets, laptops) (Verdi, 2020). There are no recent statistical data about digital literacy of low socioeconomic group but their digital skills can be reflected by studies focused on children of households from low socioeconomic group. More specifically, children living in a household with middle or low socioeconomic status have less digital skills than children in households with higher socioeconomic status (Sonck et al., 2011).

Use of digital technology

Use of digital technology is not likely to be adopted by people from low socioeconomic group since most of them have suffered from low self-esteem or have no motivation to do so. Even if they are literate enough and have access to digital infrastructures, they do not give priority to use digital technology more than the necessary, since they have time only to struggle for living (Marschang, 2014). Thus, we assume that access to digital technology does not automatically lead to the use of it.

The motivation is always an asset for using digital technology. Mothers of low socioeconomic status are strongly motivated to have access to digital technology related to their children (school activities, learning a foreign language) (Goedhart et al., 2019; van Deursen & van Dijk, 2015). In the practical aspect, people from low socioeconomic group with basic digital skills tend to search online for a job, to make cheap

online purchases or to search for a cheaper place to stay, typically actions that make people gaining more money by spending less money to survive.

Digital health literacy

Digital literacy inequalities between low- and high-income countries depict the relevant gap on digital health literacy. Only 23% of people with low educational background have used the digital means to search for health-related information as compared to 71% of people of high educational level. Additionally, 47% of unemployed individuals have used the Internet to search health-related information as compared to 75% of working people (Eurobarometer, 2014).

Since people from low socioeconomic groups share a high percentage of health illiteracy, they face greater difficulties in understanding information about disease prevention, diagnostic procedures, illnesses, diseases and treatments. Due to their health illiteracy, they are not likely to use digital technologies to search for preventive health services, such as vaccinations and cancer screening, thus making it harder for the health system to support the increased burden in the long term (World Health Organization, 2016).

Due to their lack of digital health literacy, people from low socioeconomic groups may be tempted to online purchase medicines from misleading unauthorized sources in the erroneous belief that they bypass their regular prescribers to avoid theunaffordable costs or because they are embarrassed to search for a professional advice about a particular health condition(Marschang, 2014).

The instruments that have been used to examine the low socioeconomic groups' digital health literacy have been analyzed above for the vulnerable groups of migrants and refugees as well as for the older people. These are the Flash Eurobarometer 404 on Digital Health Literacy survey(Eurobarometer, 2014)and the eHEALS scale (Zrubka et al., 2019).

Main barriers and drivers or facilitators for the delivery of digital health literacy

People from low socioeconomic groups are not adequately educated to master the skills needed to use digital health-related tools effectively. Thus, in addition to their low educational level, health illiteracy among this group is the major barrier for the delivery of digital health literacy. People of this vulnerable group lack the ability to be aware, to pay attention, to be ambitious and to have self-discipline to use new technologies to ameliorate their own and peers health. Poor readability of digital health information due to lack of education is another concern about the delivery of digital health literacy, since most of the readable health-related materials are written at high reading levels.Low rates of Internet access and use are common limitation for the efficient delivery of digital health literacy among this group (Stone et al., 2020).

Low self-esteem, lack of motivation and lack of free time make the delivery of digital health literacy more difficult among people from low socioeconomic groups (Marschang, 2014). Low self-esteem may lead to misleading perceptions and difficulties in distinguishing between low and high quality health-related information (Stone et al., 2020).

The complexity of the health system, the resources constraints and the unavailability or unwillingness of some healthcare professionals to support are common barriers for the delivery of digital health literacy(Stone et al., 2020).

The need of people from low socioeconomic groups to avoid extra costs and time may be a driving force to implement digital health services in their lives. The feeling that they are able to search for health-related topics whenever and wherever they are may be life-transforming, making them feel more confident about their health status and about giving the proper assistance their peers may need.

Similar to the other vulnerable groups described above, easy to comprehend written content and audio-visual additions would facilitate the delivery of digital health literacy. Listening to people's needs would also be beneficial together with direct support availability via short messages services or via telephone contact, so these individuals do not feel that they waste time and cost to visit healthcare professionals.

According to the report 'Digital Inclusion Barometer' coordinated by the King Baudouin Foundation (Brotcorne&Mariën, 2020) the 'digital gap' includes three dimensions: 1. inequality in access to digital technologies, 2. unequal digital skills, 3. inequality in the use of essential services.

Within the total population 32% has weak digital skills and 8% does not even use the internet at all. The lower the income and the educational level, the weaker the digital skills. It is stated that 40% of the Belgians are at risk of digital exclusion. A variety of factors are influencing people's digital skills. The lowest level of digital skills is found with people with low levels of education, low income, elderly and job seekers. They become more vulnerable when multiple factors are involved. Also, the ongoing evolution of digital innovations is a risk of not being able to keep up and staying behind (Brotcorne&Mariën, 2020).

Culture &Santé is a non-profit organization for health promotion, permanent education and social cohesion, active in the regions of Brussels and Wallonia. In a thematic file published in March 2021 the organization states that besides medical information (pathologies, care, dosages...), information relating to social rights (housing, employment, family...) and existing resources (administrative, social and cultural services...), are also to be taken into consideration when talking about digital health literacy.

In 2017 Solidaris, a socialist health insurance fund, carried out a survey about the level of health knowledge and information of the French speaking population of Belgium aged 18 and above. They additionally examined the influence of the internet on health knowledge and decisions.

The internet does not seem to cover all information needs. In fact, 50,8% of respondents say that they sometimes do not find the health information they are looking for on the internet against 35,4% saying the opposite. For most people it appears that the internet is no substitute for a doctor. Nonetheless, substitution by the internet is observed with one in six people. It is more a tendency that the internet sends people to their doctors to discuss what they have read instead of it being a substitute for a medical consultation. In the results of the survey the authors emphasize that it is not necessarily the development on the internet that is transforming the doctor-patient relationship, but the rapidly changing social, economic and cultural contexts in which the users are located. There is no need to fear a competition of interfering media in the doctor-patient relationship, it could even be a support used by professionals to increase patient involvement and compliance. Solidaris also underlines that the unique dialogue makes it possible to reduce inequalities in understanding the health information and therefore reducing social health inequalities.

Public digital spaces are places where digital equipment is made available to everyone and where social workers support people in the use of the internet. Social workers who are active in public digital spaces point out the important problem of people not being able to understand the written local language. A large proportion of the public cannot read and write and often do not master the local language. So firstly, there is the learning of spoken language. They also point out that the language barrier, reading, writing and handling a keyboard is very complex for a lot of people. The public such as elderly, migrants and economically weakened people are very isolated and find the web workshops organized by the public digital spaces too complicated. This results in less frequenting the digital spaces because they feel too overwhelmed. They even state not feeling involved anymore and that the internet scares them too much (LUSS, 2019).

2.2. Belgium

2.2.1. Migrants

Specific studies or data about digital health literacy or internet use in migrants and refugees in Belgium were not found. Although, they can often be seen as part of the ‘people from low socio-economic groups and living in poverty and risk of exclusion’ discussed further on.

2.2.2. Older adults

The Digital Inclusion Barometer (Brotcorne&Mariën, 2020) showed that people aged 55 to 74 are less connected to the internet than younger people. Samyn et al. (2020) state that from the age of 75 the use rate of digital technology and digital communication decreases. Older people with a high level of social isolation tend to have a lower use of digital communication.

Brotcorne and Mariën (2020) state that the national statistics agency (Statbel) and other available data on European level don't include people above the age of 74 in surveys on ICT use. This has an influence on the figures of 'people who have ICT equipment' and 'use of digital technologies'. Therefore, these figures hide a lot of existing situations of vulnerability and digital exclusion. In the Digital Inclusion Barometer (2020) Brotcorne and Mariën mention that a survey in Wallonia is an exception to this. In the 'Baromètre de maturité numérique des citoyens wallons' they do include people aged above 74. 42% of these elderly people in Wallonia were not connected to the internet in 2019. Those who are connected mostly use it for communication via email and the search for information, especially news items. This older population states that the use of the internet intensifies the contact with their loved ones and other social relations. On the other hand, elderly people describe the protection of private life and the possible social exclusion as their greatest concerns about the further digitalization of society.

In conversations with people aged above 70 who are not or hardly connected to the internet, Brotcorne and Mariën (2020) heard anger and/or confusion in the face of the increasing digitization of daily activities and practices. The elderly feel that they are being ignored and overlooked in this matter. This kind of exclusion can lead to unsuspected discrimination on a financial level or in access to certain rights and services.

It is not only social or economic reasons that can lead to digital exclusion within the elderly population. Also, physical problems or a disability can be the cause, which are often neglected in definitions of digital exclusion.

Not all elderly can count on social support to help them out with digital services. This also makes them dependent on others and makes them lose autonomy, which is often an issue for a great deal of older people. Not only the elderly themself but also the professionals in the first line notice what they call 'institutionalisation of digital dependency' (Brotcorne and Mariën, 2020).

2.3. Cyprus

2.3.1. Migrants

There are no instruments in Cyprus that measure digital health literacy, like in other European countries, but there is the early adoption of the DHLI tool mentioned above for research purposes, that can be much more widely adopted for the measurement of vulnerable subgroups, such as migrants and refugees. The tool can be adopted in a Cyprus-wide manner and further adopted by various refugee/migrants supporting organizations that can aid in the provision of digital health literacy courses/training as part of their long-term commitment and strategy for migrant integration into the Cypriot society. However, we can extrapolate from a recent Danish study assessing the digital health literacy of pregnant migrant woman that found descendants and immigrant women to have lower levels of ehealth literacy and health literacy than women of Danish origin. These differences are potentially antecedents of adverse birth outcomes and could inform structural efforts to mitigate health inequalities (Villadsen et. al., 2020).

The United Nations High Commissioner for Refugees Agency wrote a comprehensive Integration Strategy in June 2018 for refugees in Cyprus that revolves around many key issues of employment, education, access to basic services including healthcare, social assistance and for persons with specific needs. They provide a list of recommendations in the main areas and under the “Access to Basic Services”, although there is no mention in the entire report about digital health literacy, digital literacy, or health literacy, they do provide the following recommendations where digital health literacy can be placed under. The UNHCR Agency can implement such tool for the successful integration of migrants/refugees (Kossiva et al., 2018).

1. Ensure that a screening assessment takes place in order to identify vulnerable individuals in need of state-sponsored healthcare.
2. Provide health education opportunities for refugees at the Kofinou Reception Centre, as well as to refugees residing in the community, via local municipalities. Health education needs to include reproductive health and family planning issues.
3. Cross-cultural health mediators and interpreting services are needed so as to enable refugees to access the system properly; good use could be made in this regard of former refugees and refugee community organizations.
4. It is strongly advisable that projects dealing with mental health of refugees incorporate activities conducive to employment, thus recognizing the link between health and employment.

5. Outreach work should be used to go where people are, informing them of their rights and enabling them to better access health care facilities.
6. Establish a joint Standard Operating Procedure involving the Social Welfare Services, the Asylum Service and the Ministry of Health for the earliest possible identification and ongoing monitoring of vulnerable individuals throughout the asylum procedure and after the granting of international protection.
7. It is important that vulnerability assessment is conducted in a holistic manner by multi-disciplinary teams of experts, including social counsellors, health practitioners and psychologists, taking into account the specific circumstances of each refugee.
8. Adequate measures should be in place to ensure access to age-sensitive reproductive health care, HIV information and education, and other special health care needs of women and girls.

Special needs benefits available to nationals are not provided to refugees. The benefits that are lacking can be support for survivors of sexual and genderbased violence and survivors of torture. One of the other main problems is the lack of early identification of persons with special needs. There are, if any, very little efforts made to systematically carry out vulnerability assessment during the initial asylum stage. This is where the vulnerability assessment conducted by experts (see numbers 6 and 7) are important.

Levels of digital skills among refugees

Digital skills are defined as information and technology skills such as analytics, coding, social media, search engine and content marketing, word processing skills and web design, and digital news literacy, throughout all sectors and fields of work. They can be provided and achieved in both physical (e.g. face-to-face training courses) and virtual (e.g. through online courses and digital platforms) spaces. Digital skills providers increase refugees' digital literacy, namely the ability to use technology to acquire and communicate knowledge and information, with substantial gains in terms of further opportunities for learning and social connections. Digital platforms can include mobile apps, websites, formal and informal online education platforms (including Massive Open Online Courses (MOOCs) and initiatives such as Coursera for Refugees), local digital newspapers and blogs for refugee communities, e-commerce platforms and digital forums and spaces for communication, networking including social media (e.g. WhatsApp, Viber, Instagram, Facebook, Telegram and YouTube) and digital games (Rizzo et al., 2020).

According to research that investigates the role of digital platforms and digital skills in facilitating community building and social cohesion between refugees and host communities, they have addressed the question "What digital platforms and digital skills are being utilised that have the ability to create, foster,

and adapt spaces (which can be both physical and virtual) for refugees and host communities for community building and social cohesion?" (Rizzo et al., 2020).

Despite of the high rates of smartphone and social media usage (mainly Facebook and WhatsApp) among refugees (especially Syrians), the levels of digital literacy seem to be low. 307 Refugees are not used to accessing apps or search engines (Rizzo et al., 2020). Only a small minority of refugees use email, which limits the opportunities to contact them. This also means that any service that requires an email address, for example, as a mode of authentication or to create an account in the App Store to download an app, is likely to exclude a large proportion of refugees.309 Low levels of digital literacy among users are also likely to coincide with low awareness of the issue of informed consent around data collection and usage (Buchmann & Mason, 2016; Rizzo et al., 2020). This includes aligning the digital initiative with apps that come pre-installed on smartphones, such as Facebook and WhatsApp, which are highly used by refugees (Rizzo et al., 2020). Any digital project that requires more effort, such as a new app that needs to be installed, or a website accessed through a browser, would be more difficult for some potential users to access (Buchmann & Mason, 2016; Rizzo et al., 2020). In Germany and Lebanon, Kiron students revealed that they are not familiar with the use of the online forum and the chatroom set up by the initiative, and would rather prefer to use WhatsApp. For this reason, there is a trend towards increased 'user-friendliness' and towards aggregating resources and tools – information links, language learning offers, etc. – on the same platforms (Buchmann & Mason, 2016; Rizzo et al., 2020). Given that the identity of refugees is sensitive, there is a need for digital initiatives working with this target group to make more efforts to develop and use strict ethical data practices. Refugees consider carefully the surveillance capabilities and practices of governments before deciding whether to engage with online services, but more could be done to provide refugees with education about data rights. In general, Facebook messenger bots are still the preferred way to communicate with others, compared to mobile apps that refugees have to download and install (Rizzo et al., 2020). As for physical opportunities to access digital initiatives, lack of reliable internet access represents a significant barrier. If most refugees use the Kofinou Temporary Center in Cyprus (in a more permanent way), do they have reliable access to WIFI for example.

Barriers for the implementation of digital health literacy training among migrants/refugees

The Drousiotou & Mathioudakis (2019) and Spaneas et al., 2018 reports are conclusive in terms of the main barriers among migrants/refugees in Cyprus.

In the absence of specific legislative or procedural guidelines, the identification and assessment of special reception and procedural needs take place fragmentally, while the assessment tools and approaches to be used are neither defined nor standardised. Relevant to that, there is no provision for

training of the staff engaged in the identification and assessment procedure, and the role of Social Welfare and Health Services – being the most competent state authorities in relation to evaluating the needs of vulnerable persons – is rather confined. No monitoring mechanism of the overall procedure is foreseen which could contribute to the efficient and timely coordination among the involved agencies. From mid-2019 and onwards, efforts have been made by the Asylum Service and European Asylum Service Office (EASO) in collaboration with UNHCR and the Cyprus Refugee Council to set up a comprehensive vulnerability assessment procedure at the First Registration Reception Centre, including the development of a common tool to be used for screening and assessment of vulnerable persons and a Standard Operation Procedure. Due to the rise in the numbers of new arrivals and then the developments due to Covid-19 this has been put on hold (Drousiotou&Mathioudakis, 2019).

In terms of Social Welfare, international protection beneficiaries, both recognised refugees and subsidiary protection beneficiaries have access to the national social welfare system Guaranteed Minimum Income (GMI) at the same level and under the same conditions that apply to nationals (Drousiotou&Mathioudakis, 2019). The Ministry of Labour, Welfare and Social Insurance and specifically the Welfare Benefit Management Service is the authority responsible for the administration of the GMI. In practice applicants for GMI, both nationals and beneficiaries of international protection, face long delays in the examination of their application with most cases reaching up to six months. For beneficiaries of international protection this period is extremely difficult as any benefits received as an asylum seeker are ceased upon issuance of a decision on the asylum application and there is no transitional assistance provided. During this period and after the submission of the GMI application, an applicant of GMI has the right to apply for an emergency benefit at the District Welfare Office to cover basic needs. However, the amount provided under the emergency benefit is extremely low at about €100-150 for one person per month and approximately €150-280 for a family per month (Drousiotou&Mathioudakis, 2019). It is obvious that in the absence of financial means and long delays for receiving a GMI or an emergency benefit, it can be a huge contributor to their health deterioration and any digital health literacy course at this stage is deemed useless.

Beneficiaries of international protection are included in the new health system. The transition to the new health system was, however, not smooth due to various coordination challenges between the appointed relevant governmental departments, a lack of translated material in the language of beneficiaries and confusion among medical and hospital staff in regard to refugees' rights to health care. The most prominent obstacle still present is the fact that persons which received international protection and whose residence permit is under issuance are not able to access GESY services. This creates serious

obstacles as the waiting time for the issuance / renewal of a residence permit is long (Drousiotou&Mathioudakis, 2019).

Beneficiaries of international protection have access to the schemes of the Department for Social Inclusion of Persons with Disabilities, operating under the Ministry of Labour and Social Insurance. These schemes include various types of allowances and access to care and technical means. Since May 2018, following a decision of the Council of Ministers, international protection holders are granted access to the allowance scheme provided to HIV positive persons (Drousiotou & Mathioudakis, 2019).

According by research carried out at the University of Nicosia, collecting both quantitative and qualitative data, to analyze the insufficiencies of the reception and inclusion of asylum seekers in Cyprus has shown the following issues:

1. Single women and traumatized individuals are placed in the Reception Centre under the same conditions as the other residents. The only differentiation made among residents is that single men and single women stay in different rooms in distinct sections. Efforts were taken to improve the conditions, but in general, the room size leaves minimum personal space for anyone (1 room shared by 4 individuals). Several reports about personal hygiene issues were made.
2. The current voucher scheme prevents people from shopping in the best value shops and markets.
3. People who use vouchers also may spend more for their shopping (percentage analogy) than other shoppers because they are prevented from receiving any change.
4. The limited number of shops which currently participate limit asylum-seekers from accessing foods appropriate to their culture and/or religious beliefs.
5. Shops may be located quite far away from where they live and therefore they have also to walk long distances to use their vouchers, as they may not have cash to pay for bus tickets.
6. People feel humiliated when they present their vouchers in shops whilst others in the queue have money or when they cannot purchase the items they need.
7. A mistrust from the side of the State is displayed as they don’t allow them to spend their money at their own discretion.
8. Delays in receiving vouchers occur almost each month; to add to this, the vouchers expire by the end of each calendar month, and therefore recipients are unable to regularly buy fresh products or save vouchers for the following month.
9. There is an absence of a person-centred approach for vulnerable individuals, such as elderly or disabled people, as they receive no additional assistance to help them meet their additional costs and needs (e.g. special dietary needs).

10. There is no assessment of the payments that should be made for exceptional needs or should be provided for extraordinary casessuch as health problems and disabilities.
11. The value and amount of the vouchers is not consistent with the current cost of living and this has not been updated since 2013, even though the prices of goods are adjusted annually.
12. Asylum-seekers in Cyprus are allowed and encouraged to access the labour market six months after lodging their asylum application (UNHCR, 2016). However, their access to employment opportunities is limited to certain sectors, based on 2008 administrative regulations. Those sectors are considered unattractive to the local population and often offer low pay.
13. Their monthly compensation is relatively low as they are considered unskilled workers. The majority of the sectors in which they can be employed are often located in remote rural areas, and they may face difficulties travelling to these workplaces.
14. There is relatively little evidence relating to access to and use of healthcare among migrants in Cyprus. Whilst many asylum-seekers arrive in Cyprus in relatively good physical health, health problems can rapidly develop whilst they are in the country.
15. Health services directed towards asylum-seekers are still, too often, focused on vaccinations and infectious diseases (Drousiotou, C., & Mathioudakis, M., 2019).
16. The lack of access to reliable public transportation for asylum-seekers is also an obstacle preventing them from accessing health services.
17. Lack of clear information about treatments which they are entitled to, and which are free to them, is another obstacle observed.
18. Asylum-seekers in need of specialized healthcare which is unavailable at public medical institutions in Cyprus are not eligible for sponsored specialized medical care abroad, even where permanent disability is a foreseen risk.
19. Asylum-seekers over the age of 16 face great difficulties in accessing educational activities in general. They have access to language lessons offered by municipalities in cooperation with NGOs and funded by the Asylum, Migration and Integration Fund (AMIF). However, these programmes are usually offered in big cities, which can exclude people living in suburbs or rural areas.
20. As regards access to tertiary education, asylum-seekers can enter either public or private universities, although few, if any, asylum-seekers do so mainly because of the language barrier, as well as the cost (for the case of private universities).
21. Communication constitutes a major challenge when participants interact with healthcare professionals. A remarkable percentage of the participants (70.5%) indicated language issues as a

major difficulty. The opinion that healthcare professionals had problematic attitudes when addressing their patients remained at 16% (who answered yes at this question). There is a long waiting list for scheduling an appointment to see a doctor; there is a long waiting time in the emergency unit and there are significant communication barriers in the admissions process.

From this study the demographics and results were:

- With respect to the place of residence, 33.5% of the participants indicated Larnaca, 26.4% Nicosia, 25% Limassol and 15.2% Paphos.
- The vast majority (80.7%) of respondents had only received vouchers and coupons, and 59.5% had received only financial support. In particular, the respondents mentioned the application they have to fill in for a monthly public allowance from the Social Welfare Services (SWS). Very few replied that they had received psycho-social support services (7.5%) and general information (7.4%) about the life and conditions in Cyprus. Nevertheless, a significant finding is the very small percentage (0.7%) that received family support services when they asked for them.
- Most participants (77.6%) have not received emergency financial support. Those who have received emergency support (22.44%) are noticeably dissatisfied with the service.
- From previous tacit experience, it was assumed that many asylum-seekers, due to their restrictive legal status that does not allow them to work, cannot satisfy basic needs, such as having enough food. The findings of the study show that nearly 60% of the participants have experienced lack of food.
- The temporary Reception Centre in Kofinou does not constitute an attractive residence among the available options for accommodation. The research showed that the majority of participants opted to stay there after they had exhausted all other viable options. More specifically, 59.1% were instructed to stay there, 44% did not have anywhere else to stay and 49.4 % could not afford to rent a place on their own. Half of participants (50.5%) replied that they have resided at the temporary Reception Centre for one year or more; 19% said that they had been residing there between 6 and 12 months, and 30.5% of the sample answered 1 to 6 months.
- The research also examined participants' health levels as well as their experiences interacting with the national health services. 13.6% of the participants answering 'Poor', 20.3% 'Fair', 39.7% 'Good', 18% 'Very good' and 8.4% 'Excellent'. Based on the findings, the overall health of asylum-seekers interviewed could be characterized as average. The majority of the sample

(53.2%) said that they had accessed healthcare services, while 43.4% said they had never used them. Only 3.4% answered that they were unaware there were any health services.

- When the participants were asked how many times they had visited a doctor in the last 12 months, they answered on average 3.5 times.
- The majority of the sample (75%) had never been hospitalized for any reason, whereas 25% had been hospitalized.
- The participants' satisfaction with the medical care they had received when hospitalized was also assessed. 13.5% of the participants answered that the care was 'Very Poor', 20.5% 'Poor', 44.9% 'Fair', 13.5% 'Good' and 7.7% 'Very good'. About one in three were dissatisfied with the healthcare they had received. More than one in three indicated that they would not feel willing to utilize the healthcare system. Nearly 40% believed that they were not treated equally due to their ethnicity.
- A majority of participants (57%) were aware of the Greek language courses available to them, while an important percentage (43%) was unaware that such courses existed. Of the participants who are aware of available Greek language courses, the vast majority (61%) have never attended any of them, while 39% of respondents had the opportunity to participate in such courses.
- 93.4% of participants indicated that there were not any additional learning opportunities, such as vocational training, in order to acquire new skills. A total of 40.6% of the interviewees answered that they had received information, whereas the majority of the participants (59.4%) were unaware about their rights and obligations regarding employment.

If the infrastructure, administration, and financial barriers are such an obstacle, this can have a huge impact on their health and a digital health literacy course might be obsolete or useless at the stage when refugees have not had their basic needs met. A digital health literacy course is obsolete, because of most refugees face extreme survival difficulties that can continuously cause their mental health issues. Based on the Maslow's **hierarchy of needs**, a psychology motivational theory, lower basic needs (such as physiological and safety) need to be met first for at least the growth needs to matter. It is likely that we need to target our course to the specific status refugees are in.

2.3.2. Older adults

According to a CEDEFOP report on the upskilling needs of the adult population in Cyprus there is a high proportion of people in the older age groups and among unemployed and inactive people that are

considered to be low-skilled (2019). Compared to the European average, Cyprus presents a very high share of adults with low computer and digital skills. Among the people in need of upskilling for which data is available, the population groups most in need of upskilling are: people aged 55-64 out of the labour force (inactive) and inactive and unemployed adults aged 35-54. They all share high proportions of low skilling in all domains considered, such as education, digital skills (i.e. low use of Internet or below basic digital skills), literacy and numeracy. A very high proportion of 82.7% of unemployed adults aged between 55-64 are considered to be most at risk of low digital skills, while this amount goes up to 91.1% for inactive adults aged 55-64. Among employed people, those with the highest risk of low digital skills again was found to be among the older age group (76%).

According to the Statistical Service of Cyprus (2018) below are figures listed in relation to internet use among older people (ages 55-74) in Cyprus:

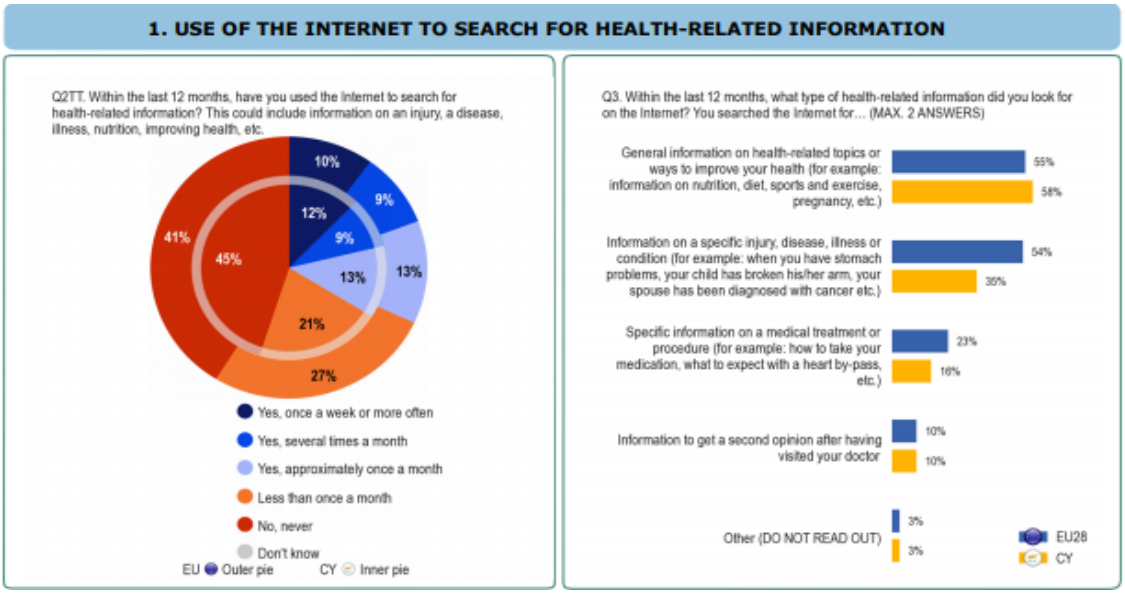
- For the age group 55-74, men use the internet more frequently than women while for the age group 25-54, females use the internet more frequently than males.
- In the 55-64 age group, 65.5% access and use the internet, while in the 65-74 age group only 37.5% access and use the internet. In the retired/inactive category 54.7% access and use the internet which amounts to almost half of the retired/inactive population.
- 67.1% of all internet users (no age group defined) are seeking health related information.
- 13.1% of retired/inactive population use the internet to buy or order goods or services for private use.

Research conducted on the association of health literacy and e-Health Literacy among carers of people with dementia in Cyprus used the eHealth Literacy Scale adapted for carers to measure eHealth Literacy. They also used the European Health Literacy Survey Questionnaire 16 (HLS-EU-Q16) (Pelikan, Ganahl, Van den Broucke, & Sorensen, 2019) and Single Item Literacy Screener (Morris, MacLean, Chew &Littenberg, 2006).

To our knowledge there are no reports specialising in the delivery of digital health literacy for elderly in Cyprus. We therefore present the statistical data from the latest European Commission Flash Eurobarometer on European Citizens' Digital Health Literacy Results for Cyprus (2014) show important information on digital health literacy in Cyprus. The research is based on a sample of 501 Cypriot citizens and 26,566 citizens from 28 other European countries. Based on this report, almost half of the Cypriot population (45%) do not use the internet to search for health-related information, or they rarely do so (21%). In the cases that they do, 58% of the Cypriot population search for general information on health-

related topics or ways to improve their health. Therefore one of the barriers could be the overall low levels of using the internet to search for health-related information. Alternative barriers could be in relation to Cypriots lacking the need to search for health-related information (21%), especially now with the easy access to healthcare via the NHS-GESY, or lack of access to the internet (32%). This implies that a proportion of the population do not use online health-related research. Furthermore, reports that the internet is considered an unreliable source of information (43%), that it contains unclear/not understandable information (45%), that it lacks visual information (38%) and that it lacks tailored information matching their specific needs (35%) could also represent further barriers for the delivery of digital health literacy to the elderly.

Figure 8 The use of Internet for searching health-related information in Cyprus

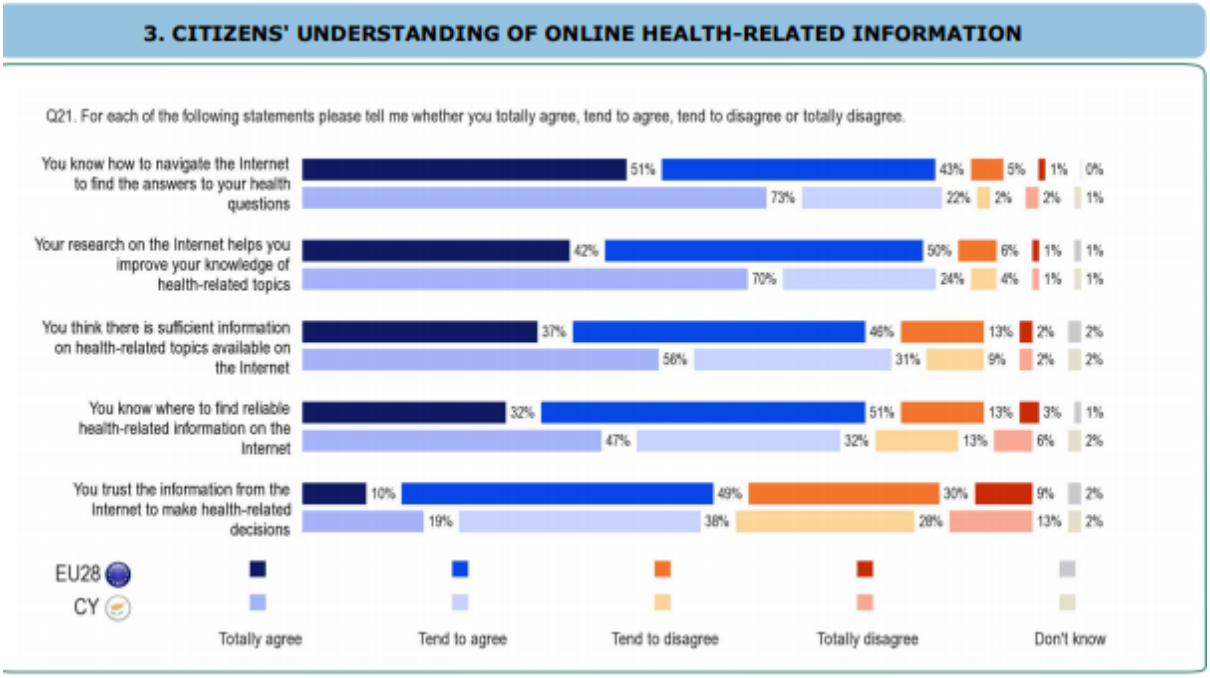


Source:https://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_404_fact_cy_en.pdf

Based on the Flash Eurobarometer on European Citizens' Digital Health Literacy Results for Cyprus (2014) a large majority of the Cypriot population (73%) expressed that they have the knowledge required to navigate the internet to find answers to their health questions, and most stated that their internet research helps them to improve their knowledge on health-related topics (70%). Also, a large proportion (56%) believes there to be enough information on health-related topics available on the internet and also know where to find reliable sources related to health-information. Additionally, most of them agree (19%) or tend to agree (38%) that the information available online is trustworthy enough to make health-related

decisions. This means that the Cypriots overall understanding of online health-related information would represent a strong facilitator in making the delivery of digital health literacy to these groups easier.

Figure 9 Understating of online health related information in Cyprus



Source:https://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_404_fact_cy_en.pdf

Furthermore, one of the targets of the Cyprus National Reform Programme (2012) is to promote e-Health by installing and operating the Integrated Health Care Information System in all hospitals, including drug management system and telemedicine, that will cover the key elements of the hospital procedures, to control both quality of service to patients and hospital cost. Based on this, an Internet portal will be created to provide private physicians access to patients' electronic health records, an Ambient Assisted Living (AAL) program will be developed, by firstly introducing it on a pilot basis, to a group of elder people that live in a remote area. If this priority comes into action this will be a facilitator to implementing digital health literacy among the elderly.

2.3.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

According to a CEDEFOP report on the upskilling needs of the adult population in Cyprus there is a high proportion of people in the older age groups and among unemployed and inactive people identified

as low-skilled (2019). Compared to the European average, Cyprus presents a very high share of adults with low computer and digital skills.

According to the Statistical Service of Cyprus (2018) below are figures listed in relation to internet use among low socio-economic groups in Cyprus:

- Among the unemployed group 82.6% reported to be frequent internet users.
- Among the low education group 53.8% reported to be frequent internet users.

There is indeed a difference between education level categories. As expected, high educated persons use the Internet more frequently than persons with lower education. In fact, the percentage of high educated people that used the internet regularly is almost twice as much the percentage of low educated people.

There is currently no evidence concerning the level of digital health literacy among low socio-economic groups in Cyprus. Similarly to older adults, research conducted on the association of health literacy and e-Health Literacy among carers of people with dementia used the eHealth Literacy Scale adapted for carers to measure eHealth Literacy. They also used the European Health Literacy Survey Questionnaire 16 (HLS-EU-Q16) (Pelikan, Ganahl, Van den Broucke, & Sorensen, 2019) and Single Item Literacy Screener (Morris, MacLean, Chew &Littenberg, 2006).

To our knowledge there are no reports specializing in the delivery of digital health literacy for people of low socioeconomic background in Cyprus. We therefore present the statistical data from the latest European Commission Flash Eurobarometer on European Citizens' Digital Health Literacy Results for Cyprus (2014) showing important information on digital health literacy in Cyprus. The research is based on a sample of 501 Cypriot citizens and 26,566 citizens from 28 other European countries. Based on this report, almost half of the Cypriot population (45%) do not use the internet to search for health-related information, or they rarely do so (21%). In the cases that they do, 58% of the Cypriot population search for general information on health-related topics or ways to improve their health.

Therefore, one of the barriers could be the overall low levels of using the internet to search for health-related information. Alternative barriers could be in relation to the Cypriots lack of need to search for health-related information (21%) or lack of access to the internet (32%). This implies that a proportion of the population do not use online health-related research. Furthermore, reports that the internet is considered an unreliable source of information (43%), that it contains unclear/not understandable information (45%), that it lacks visual information (38%) and that it lacks tailored information matching

their specific needs (35%) could also represent further barriers for the delivery of digital health literacy to low socio-economic groups.

Based on the Flash Eurobarometer on European Citizens' Digital Health Literacy Results for Cyprus (2014) a large majority of the Cypriot population (73%) expressed that they have the knowledge required to navigate the internet to find answers to their health questions, and most stated that their internet research helps them to improve their knowledge on health-related topics (70%). In addition, a large proportion (56%) believes there to be enough information on health-related topics available on the internet and know where to find reliable sources related to health-information. Additionally, most of them agree (19%) or tend to agree (38%) that the information available online is trustworthy enough to make health-related decisions. This means that the Cypriots overall understanding of online health-related information would represent a strong facilitator in making the delivery of digital health literacy to these groups easier.

2.4. Germany

In a recent study, regarding the DHL in the general population, three quarters (75,8%) of the respondents have poor digital health literacy and have great difficulty dealing with digital information. Due to the increased use of digital information during the pandemic, digital health literacy has improved during the corona pandemic especially among the younger ones.

But: Older people aged 65 and over (86.0 percent) and people with little education (86.7 percent) in particular have low digital health literacy and didn't improve their digital health competences due to the pandemic. Whereas internet pages on the subject of health are used by almost 2/3 of the population (but never by 35.6 percent), digital devices are never used by 68.5 percent of the population and health apps are not used by 79 percent. During the corona pandemic, the use of digital health information and communication options increased (Schaeffer D. et al., 2021).

2.4.1. Migrants

No data were found for DHL in Germany for migrant and refugee population

2.4.2. Older adults

Evidence shows that in Germany people aged 65 and older (86.0 percent) have low digital health literacy (ibid).

2.4.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

People with a low educational level (86.7 percent) have also low digital health literacy in comparison to the total German society (ibid).

2.5. Greece

The level of digital competence in Greece is in overall below the EU average. The country ranks 23rd out of 27 European Union member states in the Digital Skills Index (Pouliopoulos et al., 2018). According to the Strategic Action Plan 2019 Digital Skills for Digital Greece, 46% of people have basic digital skills, much lower than the average rate of the EU (57%).

2.5.1. Migrants

As for the migrant populations in Greece, with 1.3 million the total number of international migrant population in 2020, it seems to have some basic digital skills (Michalopoulos, 2019). According to available data, Syrian refugees comprised 48% of refugee arrivals in Greece until January 2016, and the majority were young (under 35), educated (half of them have university degrees), skilled, and technologically savvy. According to Filippo Grandi – UN High Commissioner for Refugees, "helping refugees maintain social networks and access information and essential services, mobile phones and internet access are as critical to refugees' safety and security as are food, shelter, and water" (UNHCR, 2016). It is true that among the first questions the new arrivals asked to aid workers was not where they could find food and shelter, but how to charge their phones and access Wi-Fi (Taylor, 2016).

Connectivity is a major issue for migrant populations because they want to communicate with their families via mobile applications, like Facebook or WhatsApp, or they want to plan their journey towards Europe. It is important to mention that asylum seekers can only book an interview with the Greek Asylum Office through Skype, a web-based phone service. In other words, connectivity gives them access to government services and materials or even the opportunity to search and apply for a job. Also, there is significant disparity between urban and rural refugees, with 20% of refugees living in rural areas having no connectivity at all (GSMA, 2017). Apart from that, cost is a significant barrier to becoming or staying connected. UNHCR research found that refugees spend up to a third of their disposable income on connectivity. Language barriers and low levels of digital literacy can create even more obstacles to using the internet and mobile applications (UNHCR, 2016).

Notably, when it comes to DHL measures, migrant populations generally score lower. Educational resources and information programs only partly reach migrants, often because of economic and language/social barriers. Migrants also have poorer access to care services and use less information, health promotion and disease prevention strategies. Numerous studies show that interventions aimed at increasing access to cancer screening, mental health services, diabetes education, smoking cessation, HIV programs and child immunization are less successful for migrant populations (Economou et al., 2017).

Current instruments to measure DHL focus on information gathering (i.e. questionnaires). Others pay attention to interactivity on the Web. To measure the complete spectrum of digital skills we need a digital health literacy instrument that measures operational skills, navigation skills, information searching, evaluating reliability, determining relevance, adding self-generated content, and protecting privacy, like the e-health literacy scale. Other ways to measure DHL are the clinical screening tests on reading comprehension, word recognition and numeracy, which identify difficulties when attempting to understand and use health information, including medical labels and instructions. They are applied at the individual level in face-to-face interviews and cover HL concepts. Direct survey also measures a person's ability to understand, access, appraise and use health information and health services. New scales applied to groups or populations can provide information to enable practitioners, organizations and planners to provide better services for people with limited health literacy and inform policy responses (WHO, 2013).

Although there are many ways to measure and to evaluate citizens' HL and DHL as well, in Greece there are no specific and available data about the extent of migrants' DHL, which means that there is need for further information in this field. However, the Digital Citizens Academy (see bibliography), developed by the Ministry of Digital Governance, which has long recognized the importance of cultivating citizens' digital skills in a digital transforming country, is an initiative worth mentioning. The Digital Citizens Academy aims to gather educational content that improves the digital skills of citizens and among others, it includes a well-designed and user-friendly tool for the self-assessment of Greek citizens' digital competence based on the European DigComp Framework, DigCompSat- developed by EU Science Hub, European Commission. This self-assessment tool addresses three key competency levels (basic, intermediate and advanced) and includes 63 self-reflection questions. One of the Digital Academy innovations is that recognizes that it is not enough simply to offer a modern and easy-to-use self-assessment tool. Therefore, it offers citizens customized personalized course proposals based on their self-assessment result, which they can attend if they want to improve their digital competence.

Healthcare providers and intercultural mediators undertake the primary responsibility for improving HL and facilitating the accessibility to health systems. For this purpose, the usage of simple language in both verbal and written communications is necessary. Visual aids, such as simple illustrations, images, informational graphics and videos, can also help migrant populations to better understand health information (ACP Decisions, 2019).

Making use of available technologies, such as patient portals, telemedicine solutions, and mobile applications can help health providers to connect more effectively with these populations and may ultimately contribute to improved HL levels. More particularly, patient portals can provide access to critical

health information, such as test results and treatment instructions, telemedicine can be used to assess and treat underserved patient populations, such as those with limited mobility or who live in rural areas. Last but not least, mobile apps offer patients multiple options for learning about or managing health issues, while smartphone apps can collect personal health data to be shared with physicians, provide general health information, and assist with preventive lifestyle strategies.

2.5.2. Older adults

According to research, senior citizens over 65 in Greece represent 20,7% of the general population and by the next decade it is estimated to be one-third of the world's population. As digital competence is so important nowadays, one of the major issues is the familiarity of older people with new technologies, the way they used and for which purpose. The traditional generations gap is more obvious in the field of technology, as younger people are considered to be "digital natives" and the older "digital migrants" (Prensky, 2001). In 2018, more than 35% of those aged between 65 and 74 had never used the Internet; this is the highest rate of all age groups (Age Platform Europe, 2020). Furthermore, Eurostat's reports about the level of seniors' digital literacy in Greece demonstrate that 65% of the population have low digital skills and those aged 55-75 have much lower than the average rate of EU's senior citizens, which means that Greece has an important digital deficit (Eurostat, 2020).

Technology may involve the use of most simple everyday electrical appliances (TV, kitchen, vacuum cleaner, dishwasher, etc.) or other more complex machines (ATMs, PCs, mobile phones etc.) premising the ability to properly use them. According to the sample of a research consisted of 300 people (134 men and 166 women) aged 65-85+ years from the geographical divisions of Macedonia, Thessaly, Central Greece, Attica and the Peloponnese, women were more familiar with everyday electrical appliances compared to men. 94% of women used washing machine, 67% vacuum cleaner, 87.2% electric iron, 98.5% with electric stove and 54% wireless phone. Almost all the respondents answered that they were able to handle the TV. Moreover, few participants used ATM machines and the reasons were the difficulty of handling the keyboard, the lack of knowledge about their operations and the fear of being robbed during the transaction (Roupa et al., 2010).

The findings concerning the familiarity of participants to mobile phones demonstrate that elderly men (93.4%) used them more often than women (59.4%). However, knowledge of mobile use is limited in achieving calls and in some cases, sending messages. That is why there is no extensive use of services and opportunities offered by mobile phones. In contrast, older adults from countries, where technology is highly developed, are more familiar with the use of advanced phones, compared to those living in countries where technology is in early stages and is under development.

Greece is part of the Action Network Measuring Population and Organizational Health Literacy (M-POHL, 2019). (Concerning dementia, the Greek Ministry of Health has adopted a national action plan since 2017 and there is also a Greek national observatory for dementia (Ministry of Health, 2017).

Although, measuring the levels of DHL among older adults is in the top of priorities with the aim to facilitate inclusion of this population and develop training programs to enhance DHL skills, little to no work has been done in Greece, as it is mentioned above. The eHealth Literacy Scale- eHEALS (see bibliography) is the most frequently used instrument measuring the level of DHL among older adults. Other measurement instruments are the DigComp Framework and the Mobile Device Proficiency Questionnaire (MDPQ) (Oh et al, 2021). Instruments are usually assessed according to their ability to incorporate the competence areas of digital literacy as defined by the DigComp Framework (see bibliography): (1) information and data literacy, (2) communication and collaboration, (3) digital content creation, (4) safety, and (5) problem-solving ability, or attitudes toward information and communication technology use. The current digital literacy instruments targeting older adults have both strengths and weaknesses, relative to their study design, administration method, and ease of use.

The biggest barriers for the delivery of DHL in older adults are their lack of familiarity with e-services and the physical challenges they experience as well. Health aside, knowledge about technology is also very important to capability, and lack of this is a factor that stops many seniors from having access to e-healthcare services. According to Eurostat, in the EU, 87% of people aged 75 years and over have never been online (Eurostat, 2020). Most technology designed for healthcare relies on the ability to see, hear and read, which means that due to health conditions, a significant chunk of society are missing out on healthcare opportunities. 9% of seniors at the age of 75 or over have severe visual impairments, and 18 % have severe hearing limitations in the EU (Eurostat, 2020). It is a common place that seniors often struggle with reduced reactivity, making it harder to keep up with fast-paced technology, i.e. platforms that use notifications. Shame and embarrassment may prevent older adults from asking for help too.

As it has already been mentioned, DHL plays a growing role in how individuals manage their health and interact with the health care system, so it is of primary importance to mention some facilitator factors that would make the implementation of DHL training easier for older adults. In the first place, online tools would enable individuals to connect with others sharing similar health interests, participate in interventions, or find health services. So, it is required to develop other types of technology literacies, such as computer literacy and information literacy, before e-health literacy. Furthermore, the definition of a digital competence framework would facilitate adult educators in planning and proposing flexible training courses that meet the needs of their multiple target groups (Valentini, 2020).

2.5.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

The majority of the people who belong in low socioeconomic groups do not know which are the provided e-health services in the country they live. The indicators show that 51% of non-active economically people 16-74 have the basic digital skills (58% in EU). It is worth to pinpoint that only the 61% of the employees and 53% of unemployed are merely digital competent. Also, considering the generation gap, 72% of people who belong to 65-74 ages are digital illiterate (41% in EU 28) and only 7% have some basic skills. Digital skills trigger the discrimination gap between the general population and the vulnerable socioeconomic groups (Greek Ministry of Digital Governance, 2020). A study of European Disability Forum demonstrates that 54% of disabled people have never used any digital tool. Similar situation exists, also, in other social groups such as refugees and migrants, who are in danger of dual exclusion (social and digital) (Digital Economy and Society Index, 2020a).

The numbers of people who use digital technology in their everyday life, have been increased, especially in 2020 during Covid-19 pandemic. Statistical analysis demonstrates that, from 10.4 million of people in Greece, 8,3m are internet users (79%) and 6.3m are social media users (59%) (DESI, 2020b). Although, individuals that belong to low socioeconomic groups have trouble with occupying and using digital technology. These elements show that almost 30% are people who have non/limited digital literacy and exploit digital technology for their basic needs such us communication (Paidoussi, Eustratoglou, 2020).

In Greece, the level of digital health literacy in low socioeconomic groups remains low in comparison to the other countries of European Union. The percentage of the general population that takes advantage of digital healthcare services, remains in 10% which is lower than the average percentage of the other EU countries. Specifically, in 2017 measurements, the results indicate that 47% search for medical information through digital websites, but from this rate only 30% who belong to ages 65-74 can use digital healthcare service properly. This element underlines that socioeconomic discrimination impedes the accessibility in e-health system (Deloitte, 2020).

In the EU context for a digital economy and society, there are many initiatives from national and private organizations in Greece that aim to foster this effort. The Greek Ministry of Health legislated this law, Article 51(4) of Law 4238/2014, has established the creation of an Electronic Health Record (EHR) for all Greek citizens. An EHR contains a short medical history of every citizen, as part of the medical record, as well as data, predictions and information of any kind relating to the conditions and the clinical progress of a patient throughout the treatment. The "*Social Insurance eGovernance- IDIKA*" has been assigned with the development of the system of patient summaries and is planning to develop the system within two

years. Since 2009, the Social Security Number (AMKA) has been established obligatorily as the employment and social security identification number of all citizens in Greece (National Report for Greece, 2014).

Moreover, there are many sources that people can use in order to have access to digital health services. The Greek Ministry of Health has organized a multitasking website which includes all the necessary information about healthcare services. In addition, for the people who have no access to internet, there are useful phone call numbers for immediate assistant. Some of them are 1065 SOS for people who suffer from dementia and the national network of telemedicine supported by OTE (see bibliography). Telemedicine is, also, an important practice because its focus is on vulnerable socioeconomic groups who live in remote areas and do not have adequate medical treatment. In this framework, both COSMOTE and Vodafone Hellas foster this telemedicine process through the development of Telemedicine Networks improving the daily life of people living in the country's remote areas (see Good Practices). Accordingly, 50+Hellas (see bibliography) is a community organization in Athens, Piraeus with the goal to activate people aged 50 and over at social, economic, cultural and educational level. The program has three dimensions: informing, raising awareness, educating seniors. Its value actually is the training of 50 and over in programs related to active aging and digital ageing skills.

However, there are many obstacles that restrict the DHL process in low socioeconomic groups. First of all, people in these groups are not familiarized with the contemporary digital skills. This fact -most of the times- leads to growing socioeconomic disparities and constrains the level of healthcare treatment. Despite the digital inequality, another barrier is the low-income housing. Due to the financial difficulties, many houses cannot afford the internet equipment which is necessary for digital activities. People from higher-income households are more likely to own a computer than those from lower-income households. At the same time, a much higher percentage of lower-income households rely solely on smartphones for internet access compared with more affluent households (DESI, 2020b).

Consequently, social status of these groups affects the level of HL and accessibility. Their living conditions do not allow them to address with health problem and ensure an adequate medical treatment. Additionally, another element is related with reductions in public health spending. Based on statistical analysis, only 61% of the national healthcare expenditures is provided by national authorities and the other 39% from private organizations. This fact corresponds to 7.8 % of national GDP figures (Economou et al., 2017). It is also important to pinpoint the lack of staff training around the digital services in order to be able to inform the other social groups.

The global adult education community has a great responsibility to identify innovative ways to reduce the DHL gap that can lead to social exclusion, as well as to enhance the inclusion of potentially

vulnerable target groups (elderly, migrants, patients and their families) and the development of new skills that can lead to better social and health care, first for the individual and then for the community. With this mind, it is vital to find ways to make the DHL training easier.

The first solution should be the definition of a digital competence framework in the health sector. To be more certain, this will facilitate adult educators in planning and proposing flexible training courses that meet the needs of the multiple target groups of the adult education sector. Secondly, the development and experimentation of modular and blended training paths, mapped on the previous framework is considered that will advance DHL at a European level and particularly focusing on the proliferation of virtuous processes of collective awareness, peer learning and crowdsourcing. Furthermore, the adoption of innovative applications and the development of digital tools will reform the "patient's experience", improve the medical treatment and ensure the equal access for everyone. The formation of telemedicine enhances the virtual consultations, online orders for medicine, smart monitoring kits, homecare sessions (Valentini, 2020).

2.6. Italy

The situation of health literacy in Italy, obviously influenced by the level of general information literacy, is quite worrying: a significant proportion of citizens in fact have difficulties in reading and understanding health information; in accessing, understanding and applying health information necessary to make decisions to maintain health, prevent illness and find the right treatment in case of illness; in actively participating, together with doctors, in the decision-making process regarding health treatment and therapies to be undertaken; in knowing health rights and if necessary acting according to consumer rights; in orienting oneself in the health system to obtain the services one needs.

Low levels of health literacy affect all social groups, but particularly the most vulnerable, namely those with limited education, the unemployed or those on low incomes.

Low health literacy has several negative social consequences: in addition to patients' poor knowledge of their own health conditions, often due to a lack of understanding of the information given by health professionals, it increases the likelihood that patients themselves will be hospitalised, leading - among other things - to higher health care costs; it reduces the use of preventive services it encourages the inappropriate use of drugs (prolonging the duration of the illness and wasting expensive drugs); it encourages an increase in the number of diagnostic tests, the underestimation of follow-up with the consequent creation of more dangerous situations or complications, an increase in hospitalisations and the

greater use of emergency care that could otherwise be avoided; it encourages the refusal of vaccines, delays in booster shots and the non-completion of vaccination cycles.

All this, in a nutshell, means that poor health literacy pays off in terms of lower quality of life for citizens, higher mortality, and higher costs for the National Health Service.

Several instruments have been developed to measure health literacy and explore how health outcomes relate to health literacy, but only a few of them have the purpose or have been used to measure health literacy at the population level. To measure health literacy in an adequate way for the Italian public, a team composed by professionals from University of Florence (Italy) and University of Lucerne (Switzerland) conducted a research in Florence and its surrounding, in order to validate the Italian version of the short form (HLS-EU-Q16) and of the short-short form (HLS-EU-Q6) of the HLS-EUQ47. Indeed, the Health Literacy Survey (HLS-EU) conducted in 2012 using a new measurement tool developed from the conceptual model of Sørensen et al., included 47 items which were excessively time-consuming for some health literacy researches. The team administrated the survey randomly among the Italian population, pointing out remarkable results about the health literacy level.[8]

Another instrument used for measuring the health literacy level in Italy was the eHealth Literacy Scale, an 8-item self-assessment tool to evaluate eHealth literacy. The aim of the study conducted by University of Udine (Italy) is to provide an Italian validation of the scale (IT-eHEALS), in a population of Italian adults. A web-based survey was conducted among Italian adults collecting variables regarding to sociodemographic characteristics and Internet use for health-related purposes. Internal consistency and dimensionality of the 8-item scale were evaluated using Cronbach alpha and Principal Component Analysis (PCA). In total, a sample of 1135 respondents was collected, of which 868 (76%) completed the IT-eHEALS and were included for further analysis. The internal consistency of the IT-eHEALS was good, while the PCA confirmed the scale unidimensionality (eigenvalue=4.9 with 61% of variance explained). The results show that the IT-eHEALS is a valid scale that can be used to measure eHealth literacy in Italian adult. Nevertheless, the study presents some limitations, limiting the generalizability of our results. Further studies are needed to evaluate the relationship between digital health literacy and its impact on population health.[9]

[8] https://www.researchgate.net/publication/333929625_Measuring_health_literacy_in_Italy_a_validation_study_of_the_HLS-EU-Q16_and_of_the_HLS-EU-Q6_in_Italian_language_conducted_in_Florence_and_its_surroundings

[9] https://www.epicentro.iss.it/ben/2018/luglio-agosto/2

Regarding the digital health literacy in the Italian system, there are two main barriers: digital illiteracy of both health workers and population and lack of investment in digital health services and cybersecurity to ensure the security of health data on digital media. As far as the first barrier is concerned, the low level of digital skills competences particularly concerning the vulnerable groups (migrants, older adults and people living in poverty) does not allow them to access to the digital health services provided by the public institutions. More information about the digital skills competence level for each target group is reported below.

With reference to the second barrier, there are critical issues both in healthcare (lack of resources for training the new skills of health professionals; inability of health policy actors to invest in initiatives for the purchase and development of new equipment and/or software applications aimed at information and communication technology innovation) and in the digitalisation of health services (technical problems resulting in the malfunctioning of the telematic platform used, patient/doctor relationship not well defined, reliability and updating of data).

In order to overcome the above-mentioned barriers, lines of action should be adopted to promote and raise awareness of the innovations and operational functions of apps/software, to make health workers and citizens literate, and to provide adequate and timely information for the prior and informed adherence of the patient. Such measures are especially needed for foreign citizens, older adults and people from socio-economic disadvantaged groups who have more difficulty in accessing digitized health services.[10]

2.6.1. Migrants

The digital skills level of migrants in Italy is rather low, both for economic reasons that do not allow them to access the web and buy appropriate devices, and for lack of training opportunities tailored to their needs. Particularly, the migrant' category who meets more difficulties to get basic digital skills is represented by the migrant' parents who are not always able to support their children in their use of Internet as they themselves do not always have the appropriate skills, knowledge and experience. Existing information on Internet use of children is not appealing to them and sometimes not understandable because of the language use (that is not user-friendly and culturally relevant).

[10] https://sna.gov.it/fileadmin/files/workshop_seminari/0_2021/Conferenza_Ripensare_la_PA/AreaII_Realizzare_la_trasformazione_digitale/Uni_Cassino.pdf

Moreover, the migrants living in our country normally do not participate in activities organized by mainstream society which can provide them support to cope with their educational challenges regarding the Internet use and the basic digital skills needed to participate in the digitized era.

2.6.2. Older adults

According to the ISTAT 2019 data, the level of digital skills of the Italian citizens generally is not particularly high. 42% of citizens do not have basic skills and more than one million Italians (3.4%) do not have any digital skills at all. 29% of Internet users aged 16-74 have high digital skills, while 26% reach basic skills. The percentage of the population with at least basic digital skills stops at 15% in the 65-74 age group. 51% of the working age population do not use the Internet, do not have digital skills, or do not reach the basic level.

Compared to the services used, the use of the Internet for messaging (91%) and calls and video calls prevails, while banking services (46%) and payment services (40%) are below 50% penetration. The level of interaction with the public sector is still very low (29%), with considerable gaps between Regions and Municipalities of different sizes (Minister for Technological Innovation and Digitalization, 2020).

As far as older adult digital skills are concerned, in 2019 44,6% of people between 65 and 74 years old used the Internet, compared to 28.8% in 2016. The situation has improved thanks to the increase in computer and in mobile phone use by older adults which has boosted their digital literacy by means of the activities they perform through mobile apps or sites, starting with consulting the weather and news, using WhatsApp, sending emails and using social networks, and producing photos and videos (ISTAT, 2021).

2.6.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

People from socio-economically disadvantaged groups living in poverty have lower e-skills than ordinary citizens, either due to lack of income or limited access to educational opportunities offered by the country to develop their digital skills.

Many families living in poverty cannot purchase digital tools such as personal computers and tablets; other families have only one device that must be used by all members. The latter category mainly includes families with three children and more, where digital inequality represents a form of educational poverty on top of existing poverty.

Another aspect that limits the development of digital skills of people living in poverty is the cost of accessing the Internet and related services. Indeed, those who live in a socio-economically disadvantaged household are less likely to use the Internet to access information, either to read news and be updated on

what is happening in the world, or to understand, inform, deepen and enrich their knowledge. Although in 2015 the right to access the Internet was also officially included in European legislation (EU Regulation 2120/2015), in Italy there are still 15% of households with at least one member aged between 16 and 74 who do not have access to the Internet, mainly due to an economic issue. This figure finds further inequalities within the Italian territory, where households with greater economic difficulties are concentrated in the southern Italian regions.

2.7. Spain

2.7.1. Migrants

The migrant population makes a greater use than the native population. However, their use is very different; Migrant population uses the Internet mainly to communicate with relatives who are in their country of origin, through the use of social networks and mobile phone. On the other hand, Spanish population use of the internet for other purposes, such as economic transactions, looking for goods and services, or to communicate with public administrations (de Oteyza and Gómez, 2016).

Despite the fact that, migrant population makes use of mobile phone and the Internet, their use is focused on maintaining social networks, and not on searching for information online to solve daily problems (Caridad et al., 2014).

At the European level, the indicator DESI stands out (Digital Economy and Society Index) which shows the level of the population of a country in relation to digital training and the existence of professionals of ICT (Telefónica, 2020). On the other hand, at the national level, the project "IMPOLIS: Indicators for measuring the impact of ICT policies towards social inclusion", has developed a model to measure the impact of ICT policies taking into account the different groups at risk of exclusion, in order to guide inclusive and sustainable actions (Caridad et al.,2014).

Specifically, in Spain there is eHEALS scale for measuring digital health literacy, which has 8 items measurable through a Likert-type scale whose scoring ranges range from 1 (strongly disagree) to 5 (strongly agree)[11].

[11]More information in [Paramio Pérez, G., Almagro, B. J., Hernando Gómez, Á., & Aguaded Gómez, J. I. (2015). Validación de la escala eHealth Literacy (eHEALS) en población universitaria española. *Revista española de salud pública*, *89*(3), 329-338.

http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1135-57272015000300010 and [Rojas Gualdrón, D. F., & Useche Aldana, B. (2013). Alfabetización digital en salud: un análisis del constructo en la escala" eHealth Literacy Scale-eHeals" traducida al español. *RevistaeSalud. com*, *9*(36).]

This Spanish version of the eHealth Literacy scale is for the general population but it can be applied in population at risk of exclusion, such as the migrant population and elderly.

Table 13 Main barriers to digital health literacy in migrants in Spain

Barriers	**References**
- Not having a computer or internet access. - Not knowing how to use these two tools (computer and internet). - Ignore the telematic procedures and how to use new technologies. - Groups with a low socio-economic with ignorance of the language of the native population. - The use made by immigrant associations of ICT is rather low. - Little use of the Internet in the associations of migrants.	Parra &Vásquez, 2020.
- They do not want to learn due to lack of time. - They do not use ICTs because they do not know how to access	Caridad-Sebastián et al., 2014.

Source: Own elaboration

Table 14 Main facilitators for training in digital health literacy in migrant population in Spain

Facilitators for health digital literacy	**References**
- Migrant people who knows the use of the Internet - To know how to use it	-De Oteyza, M. O. G., and Gómez, R. R. (2016).
- Functions carried out by digital training entities at the national level (State Secretaries of Digitalization and Artificial Intelligence and Technology Companies of Spain) to:	-Telefónica, F. (2020).

✓ Development and promotion of plans to improve digital training for citizens. ✓ The Coordination of digital transformation in Spain. ✓ That the population has the necessary means to develop digital training skills.	

Source: Ownelaboration

2.7.2. Older adults

Regarding the group of older people, the level of digital skills is low, and this is largely due to the fact that older people do not have technology in their homes, and also do not have the necessary knowledge to use it. In any case, those that have them use the internet mainly to contact family and friends. Studies also show that older people with secondary and university studies make use of the internet in a higher percentage than those without studies (Agudo et al., 2012). In addition, some studies have shown that the older a person is and the more complex the device, the lower the use of ICT (Alcalá, 2016).

As mentioned previously, there is a digital gap according to demographic characteristics of population, in particular with respect to age (Alcalá, 2016):

- There are no significant differences regarding the use of mobile phone.
- Little use of a computer (only 38.1% of the population between 65-74 years old)
- Little use of the internet (less than 35% of elderly population uses the internet)

No evidence has been found of the level of digital health literacy in the elderly population. However, older people are increasingly incorporating the use of social networks into their usual activities, highlighting the WhatsApp application followed by Faceboook and Twitter. There is a predominance of use by women over men (Muñoz and barbero, 2018).

Table 15 Barriers to digital literacy in older adults in Spain

Barrierstodigitalliteracy	**Referencias**
Age: olderpeopledonotfindanypurposeinusingICT	Juste et al., 2015
Low predisposition to use ICT: Lack of motivation and interest in ICT	Juste et al., 2015
Online phobia: Rejection of new technologies	Montañaetal., 2015
Fear of breaking technological devices by not knowing how to use them	Juste et al.,2015
Training courses not adapted to the needs of elderly population	Juste et al., 2015

Low educational level: As the educational level is lower, older people have less of these resources to use ICT	Aguado and Pascual, 2012
They do not have technological resources in their homes: most of them access to the Internet from public spaces	Aguado and Pascual, 2012

Source: Ownelaboration

Table 16 Drivers or facilitators for the implementation of digital health literacy training in older adults in Spain

Drivers	References
Show the benefits that technology can bring to their lives, to attrach attention of elderly towards the use of ICT	Juste et al., 2015 Alcalá, 2016
Create effective ICT training programs, taking into account the characteristics of the elderly population. Face-to-face courses with appropriate methodologies and trainers sensitive to their needs.	Juste et al., 2015 Agudo et al., 2012
Provide financial aid to people over 65 so that they can have technical resources and internet access.	Agudo et al., 2012

2.7.3. People from low socioeconomic groups and living in poverty and in risk of exclusion

The population at risk of poverty and social exclusion are also at risk of digital exclusion due to the lack of access to ICT. That causes greater misinformation and ultimately fewer personal opportunities (Aguilera, 2010 and Encabo, 2017).

There is no evidence in Spain on the level of digital health literacy in this population. However, we can conclude that it is low. Economic and educational limitations lead to less knowledge about ICTs and the impossibility of having them.

Table 17 Barriers to digital literacy in people from low socioeconomic groups in Spain

Barriersto digital literacy	References
Lack of confidence in one's ability to learn about ICTs	Aguilera, 2010
Difficulty in identifying training proposals aimed at this population and useful for it	Aguilera, 2010
Non-constructive learning methods. The use of the academic method based on the theory does not allow them to solve their problems and needs.	Aguilera, 2010
Limitations in displacement and availability to attend courses	Aguilera, 2010
Economic limitations to pay for the courses	Aguilera, 2010 and Gimeno, 2012

Lack of an environment that inspires trust and security, where the population feels welcomed and treated with respect and consideration, without feeling that their ability to learn is in doubt.	Aguilera, 2010

Source: Ownelaboration

Table 18. Drivers for digital health literacy in people from low socioeconomic groups in Spain

Drivers for digital health literacy	**References**
Design training programs that allow mental barriers to be overcome, through the development of training programs that favor visible results and progress for people and favor the construction of confidence in the learning capacity of the participants	Aguilera, 2010
Develop training proposals based on their interests. They must be useful so that people can benefit from them in their daily lives both in the personal and professional fields.	Aguilera, 2010
Learning must be constructive, that is, focused on solving needs and problems.	Aguilera, 2010
The training offer must be located as close as possible to the people (in the neighborhood) to overcome the limitations of time and travel.	Aguilera, 2010
Training must be affordable for the population with the least economic resources.	Aguilera, 2010
The training must take place in environments that inspire confidence and security for them, for example, in associations.	Aguilera, 2010

Source: ownelaboration

3. Professionals who are involved and responsible for health

3.1. European level

Meaningful implementation of digital health interventions should be based in two important factors, besides the willingness of vulnerable groups to support this approach. These factors are the technology acceptance from the side of healthcare professionals and the ability of healthcare professionals to implement, evaluate and operate these technologies for the best possible outcome (Ross et al., 2016). Thus, digital health literacy is becoming a prerequisite advantage for future healthcare professionals.

Physicians, surgeons, physician assistants, pharmacists, pharmacy technicians, medical assistants, nurses, physical therapists, occupational therapists, dentists, midwifes and psychologists are the first ones to come in mind when healthcare professionals are considered as means of delivery of digital health literacy among vulnerable populations. However, carers of people living with disabilities or dementia could

efficiently support the training of vulnerable groups. In addition, it would be beneficially that digital health skills should be implemented in the medical education since medical and paramedical students that are more likely to invest time to train both themselves and the targeted group to prepare their future work environment and curriculum. Moreover, it would be beneficial if healthcare organizations' administration staff is able to promote digital health literacy among vulnerable groups.

Health professionals could support the training by taking advantage of their direct contact with patients. They are able to collect, use and share the information needed by listening to their needs in addition to the difficulties the vulnerable groups face. Thus, health professionals can support the proper design of the training material based on true evidence and facts. Moreover, they could motivate and advise patients on how to use digital health services and to communicate with them when they need using digital health solutions (Kujala et al., 2018).

In order to support the delivery of health literacy and digital health literacy among vulnerable populations, barriers referring to both the health professionals themselves but also the organizations they are working for should be overpassed. Health professionals usually lack of time or believe they have no free time due to increased working burden, thus a tailored, convenient and flexible way of digital health support should be implemented. A vast majority also is not confident for their digital knowledge and skills and they have worries about not being "experts". Health professionals are not usually supported through formal training and certificates. Additionally, they are concerned about any implications for their roles, job security and service quality, since they usually lack the permission to use digital technologies at work.

At the organizational level barriers include the lack of proper equipment and poor Internet access. Furthermore, there are concerns about data security through the use of digital health services. Also, organizations underestimate the benefit of continuous staff upskilling, since they lack of resources, partnerships and other assets to support the digital transformation and cannot identify staff who lacks essential digital skills (Stone et al., 2020).

Unfortunately, health professionals usually work in a context that is not supportive for the delivery of digital health literacy in vulnerable groups. Healthcare organizations are challenged due to increased work burden derived from the gradually aging population, multi-morbidity, the increase of preventable non-communicable diseases and healthcare workforce shortages (Union, 2014; Wagner et al., 2019). Healthcare workforce shortages derive from the ageing of the workforce, difficult working conditions, poor lifelong learning, skill mismatches, weak career development and insufficient social recognition (Wiskow et al., 2010). Eventually, healthcare workforce shortages lead to burn-out 82% of healthcare professionals (Michel &Ecarnot, 2020; Wagner et al., 2019). Burn-out results in high emotional demands, work-privacy

conflict, role conflicts and diminished social relations (Wagner et al., 2019). Additionally, there is unequal job positions distribution between physicians and nurses, the two most represented professionals in healthcare organizations.

Health professionals are giving a battle under the lack of funding resources that can promote new job openings and implementation of emerging technological innovations (Michel &Ecarnot, 2020). Therefore, it is a paradox that health care professionals are reported to be skeptic and unwilling to implement digital technologies in their work routine (Machleid et al., 2020).

3.2. Belgium

The Solidaris survey in 2017 within the French speaking Belgians shows that having confidence in the person who transmits health information is necessary to be able to adhere to it and act accordingly. The surveyed group clearly has most confidence in health information provided by specialist doctors and general practitioners. In the right order follow the pharmacists, hospitals, and academic actors. This confirms the authority status of these medical professions and the importance of the close relationship and trust that patients have with health professionals. In the order these medical professionals are followed by the institutions: firstly, the health insurance funds and only thereafter come public authorities such as WHO, the Belgian and finally European authorities. After these come groups described as 'peer groups' such as patient associations, family, and friends. With the survey they could observe less confidence in internet forums and school environments. Less confidence or even mistrust is felt towards commercial actors, journalists, and even more towards political parties. Overall results show that 63% of respondents believe that only the doctor should give advice on their health. The doctor therefore remains the reference for health messages. This figure of authority seems even stronger among certain categories of the population, especially among the lower educated, the more disadvantaged socio-economic categories, and among people with a lower health knowledge (Solidaris, 2017).

According to the survey of Samyn et al. (2020) 65% of people aged 60 to 84 first addresses their general practitioner with questions about their health, 21% speaks to their partner first, 8% to a family member, 2% to a friend, 1% first consults their pharmacist about health questions, 2% to someone else, and no one mentions speaking to a neighbour first.

Belgium counts many isolated initiatives in the field of health literacy, developed by different organizations, e.g. health insurance funds, NGO's, local associations. However, a general policy is lacking. KCE, the federal knowledge centre for health care, published a report (2020) in which they analyse several

foreign action plans in order to lay the base for the development of a potential Belgian action plan for health literacy (Rondia et al., 2020).

The authors of the KCE report (Rondia et al., 2020) describe three levels where action is needed. Firstly, there is the individual interaction between citizen/patient and healthcare provider. On this level it is essential to focus actions on the provision of reliable, accessible, and high-quality information. In addition, they should encourage everyone to prevention and (self) management of their health. Such actions should consider specific characteristics of target groups to be effective and address the most vulnerable groups. As a consequence, efforts are needed to bridge the existing digital gap in this fast-evolving digital age.

Healthcare professionals should be aware of their patients' limited health literacy and adapt their communication to avoid possible negative outcomes (Vandenbosch et al., 2016). Healthcare providers need to become aware of their essential role. Raising awareness within the healthcare sector should probably be the very first step in Belgium. Healthcare providers should also further develop their communication skills. A potential tool can be the 'health literacy universal precautions' which some countries already apply. It consists of assuming that all patients possibly don't or misunderstand their health conditions or what they should do, and thus the healthcare provider should confirm that everything is well comprehended. The communication techniques (like Teach-back, Ask-tell-ask, Teach to goal, Ask me 3, Chunk & check, ...) that come with this practice could be included in the training of all healthcare professionals. Approaches in the relation between patient and healthcare professionals like patient-oriented care and shared decision-making processes are increasingly incorporated in healthcare training, but further integration in practice is still needed, especially considering the level of health literacy. After all, providing information is not sufficient. Healthcare providers should be trained to be aware of and address the power imbalance between themself and their patients. This is needed for real empowerment, to support patients in feeling secure and confident to apply their knowledge.

Secondly, actions also need to address health organizations (hospitals, health insurance funds, ...). These need to develop conditions in which health literacy can improve. Training of all employees is essential: healthcare providers and non-healthcare providers. To be sure that measures taken meet the needs of the users, patient's associations could be involved.

Thirdly, politics should draw the lines for an improvement of health literacy with a policy that transcends the different sectors. In other words, a Health in All Policies as it is named by WHO. In Belgium this is a complicated issue considering the different governments in charge (Rondia et al., 2020).

Rondia et al. (2020) conclude that there already exists a lot of expertise in health literacy in Belgium. Now it comes down to identifying the driving forces, evaluating existing initiatives and thinking together how we can improve them. We would add to not forget to include digital health literacy at an early stage.

However, not only healthcare providers, health organizations or policy, but also well-trained staff in health education and promotion play an important role. It is paramount to improve the provision of reliable information through all kinds of communication channels as well as supporting local community-based initiatives. This to raise awareness within patients/citizens, their relatives, the organizations, or communities they are part of, about their rights, roles, and responsibilities in health matters (Rondia et al., 2020).

In some countries citizen's panels or groups of experts by experience are consulted for improving the relationship between healthcare professionals and patients (Rondia et al., 2020). Health insurance funds are being more and more aware and try to integrate health literacy in their health promotion endeavours. All kinds of measures and initiatives of health or other organizations would become more effective if federal and local health authorities would support them by integrating them into policies, procedures, and quality standards (Rondia et al., 2020).

In Brussels, many organisations are daily confronted with the digital gap. Social services are the first to be affected. Local professionals who are close to isolated and vulnerable people express that they are not sufficiently equipped to fight against this digital divide. They feel powerless (LUSS, 2019).

Public digital spaces are places where digital equipment is made available to everyone and support people in the use of the internet. In its inventory report Luss (2019) underlines that these public digital spaces are actors in digital mediation who have a lot of experience. Some of them are well connected with the most vulnerable groups, but this is not always the case. However, they can play a longer and more qualitative support role than many small social actors can currently do. It is important to equip these actors in the associative sector to help them fight against the digital gap. LUSS emphasizes the importance of networking. All actors should be encouraged to work in partnerships and to collaborate with all actors to meet the specific needs of the general public (LUSS, 2019).

3.3. Cyprus

While the health and social care sector makes up 10% of total employment in the EU, estimates forecast an increase by more than 830,000 new jobs, which together with replacement needs means 8 million job openings in the next 10 to 18 years. Additionally, to satisfy the needs of healthcare organisations to successfully deploy new digital technologies, such as artificial intelligence, that improve the quality of care and increase efficiency in Member States' health systems, the demand for basic and advanced digital

skills will grow significantly by 2030. This reveals a significant skills gap that will only be aggravated due to demographic ageing and the rise of chronic diseases. Filling this gap is crucial to guarantee a high level of resilience and fairness of national welfare systems across the EU.

Doctors registered at Gesy could raise awareness of the iHERE and other related courses available, as well as personnel who works with refugees/migrants during their registration and entry. Health promotion is an important aspect that should happen as part of the country-induction "package", in the different organizations who provide social assistance. Again, under the integration guidance documents by UNHCR (2018), it mentions to provide health education opportunities for refugees at the Kofinou Reception Centre, as well as to refugees residing in the community, via local municipalities. Health education needs to include reproductive health and family planning issues. Furthermore, is it worth noting of the Project Phoenix in Cyprus is a migrant-led European NGO and social enterprise dedicated to systemic change of the inclusion ecosystem. They are currently running a pilot project in Cyprus which has the highest rate of asylum-seekers per capita, in the EU, with a focus to reduce inequalities and seek long-term change. Through their intensive fellowship program, they can encourage the empowerment of their fellows in health via the promotion of health-related programs such as the iHERE. The successful professionals and entrepreneurs can act as role models within their communities and host countries.

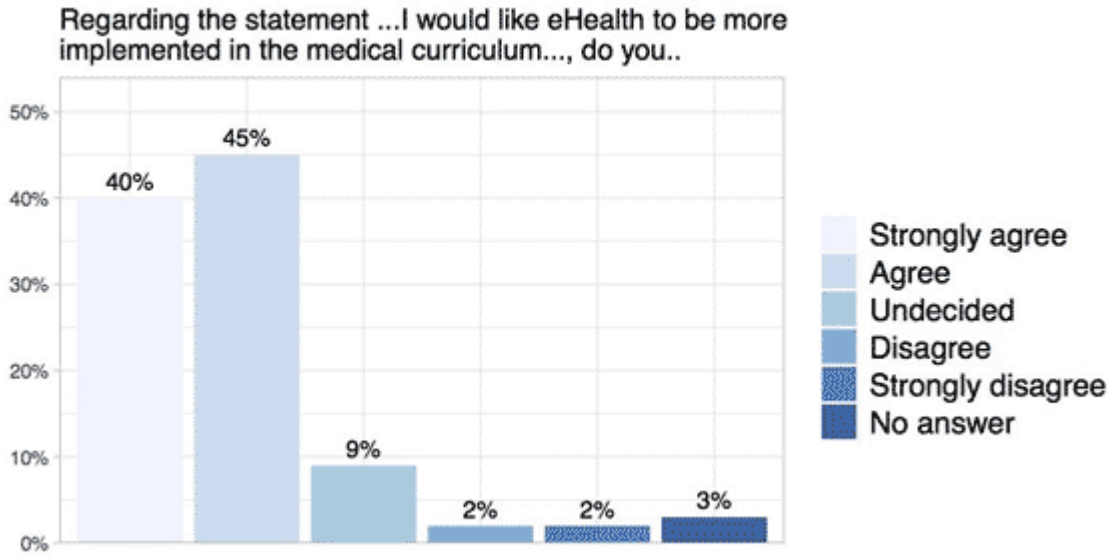
Doctors in Cyprus would benefit from intercultural sensitivity training and specific training on the challenges of the migrants and refugees. We could have a general database with all the MOOCs, specifically to health, available to refugees/migrants and encourage their patients to browse and take the courses. The databases addressed specifically to refugees/migrants containing MOOC courses should be promoted by all organizations supporting their integration and health. One aspect that is troubling is that migrants/refugees have yet to get access to the newly-created system of GESY, so that might be a barrier for the HCP raising awareness via the proposed methods.

In spite of the prevailing enthusiasm, there are serious challenges to the sustainable implementation of eHealth interventions in healthcare systems, especially in clinical settings. Important factors for the meaningful implementation of digital health interventions are (1) the overall technology acceptance of health professionals and (2) healthcare professionals (HCP)' ability to operate those technologies and critically evaluate their value [4]. Thus, digital health literacy is becoming a prerequisite competency for future HCPs. However, we could argue that HCPs do not need to assess the validity of the MOOCs because these are developed based on extensive research and experts on health education.

Long-term solution, eHealth in medicaleducation and training: In 2018 a survey conducted by the European Medical Students' Association (EMSA, 2018) found that 82% of the participating medical students received in total only 5 or fewer hours of eHealth training during their studies. The vast majority of respondents (85%) want more eHealth in their medical curriculum. Moreover, the survey results show a positive attitudeamongmedicalstudentstowards digital healthasthemajorityseesmore and mainlyadvantages in theuseof mHealth, telehealth and bigdata. We need to start to support the workforce of tomorrow to gain the necessary knowledge and skills for working in a digitized healthcare system. Therefore, respective courses need to be implemented in medical education.

Study details

- Cross sectional online survey
- 459 polling returns
- 38 countries in the WHO European Region
- Even distribution between study years 1-6
- Main age group: 18 – 24 years (n = 344, 76%)



Promoting cultural- and diversity-sensitive approaches to health care, and building a culturally competent health workforce should be an important step forward towards minimizing health inequalities. Cultural-sensitivity training across the health care sector should be provided for all professionals from initial training through to continuous professional development. Training should include modules on developing awareness of unconscious stereotyping and of how cultural practices and related assumptions about others

can lead to marginalization and increased inequities. The health literacy responsiveness of health services depends on a culturally competent workforce and provision of readily accessible information, for example in multiple languages and via outreach initiatives. This is essential to reduce barriers to utilization of health services and reduce the gap between community needs and support provision (Health Promotion for Improved Refugee and Migrant Health, 2018). Whether such training courses for doctors are offered via the GESY remains to be assessed.

3.4. Germany

In Germany for the delivery of DHL training, physicians, social workers and psychologists. In terms of migrant and refugee population cultural mediators are also an important part, working closely with migrant and refugees.

3.5. Greece

Medical care is not just about treating and curing those who suffer from a disease. It also includes the provision of useful health information about preventing and managing a disease or the familiarization of patients with the usage of new technologies in health in order to facilitate in this way, their accessibility to a wide range of information. Actually, there are many types of Health Professionals (HP) with different level of education -regarding their field of expertise-, who work in a growing number of healthcare areas and could support the training of vulnerable populations on DHL (EuroHealthNet, 2019). More particularly, the training on DHL requires not only the skills of doctors, nurses or digital providers, but also the skills of other allied health professionals, including general practitioners, social workers, psychologists, occupational therapists, medical technologists who provide a range of diagnostic, technical, therapeutic, support services in connection with health care and are responsible to improve the wellbeing of people.

In this framework, HP could support vulnerable groups' training on DHL by consulting them on the usage of valid digital health applications and the interpretation of the generated data. It is a fact that these populations are less aware of issues of privacy, health data use, and data protection and are also more likely to experience digital exclusion. Nowadays an increasingly health information is collected, disseminated and transformed through online platforms, including websites and social media, forums, or blogs. This means that HP should enhance awareness and trust in technologies, develop individuals' critical thinking and create a judgement-free environment. Given these facts, HP when communicating with vulnerable groups should customize their training and adopt culturally sensitive educational practices (Kreps & Sparks, 2008).

Moreover, HP should give more time to clarify the information and repeat the instructions in a plain language in order to ensure that their patients have a clear understanding of what they are saying, as doctor visits usually have time constraint and come with a variety of information. In this way, an interpreter or even the presence of a friend or relative could facilitate the comprehension of health information provided during the appointment. In the terms of telemedicine, a new arising field developed in order to ensure that the needs of the most vulnerable patients are addressed, HP could assist those with limited telehealth literacy as they conduct their clinical visits, providing culturally and linguistically appropriate information to patients and communities. It is worth mentioning that with regard to telemedicine, Greece's national health authority has a Chronic Care Management strategy and a Health IT strategy, both adopted in 2008 (Momentum, 2018).

Strategies and initiatives need to be implemented so as to prepare doctors, nurses and other HP to embrace the importance of health -digital- literacy and to use available resources to enhance relative skills among vulnerable populations. Databases such as Univadis (available in Greece, includes educational scenarios), PubMed, askMEDLINE (see bibliography) and others as well, constitute dynamic educational and information tools, as they allow HP to have fast and safe access to lots of data.

The digital platform "Epocrates" and the mobile application Netter's Atlas of Human Anatomy (see bibliography) aim to inform and educate HP on health issues. More than one million HP rely on Epocrates to instantly access the most current safety, diagnostic, and treatment information when they need it most. Also, the simplified content enables patient's engagement. The anatomy atlas could also improve the HL training of vulnerable groups, as it associates normal anatomy with an application of that knowledge in a clinical setting and offers a strong selection of imaging to show what is happening three dimensionally in the human body. Including over 500 beautifully colored and easily understood illustrations, it teaches the complete human body with unsurpassed clarity and accuracy. As it comes from the above, Virtual Reality (VR) provides knowledge and capacity building opportunities and allows to bridge the gap between health professionals and patients (Kyaw et al., 2019).

HP are broadly divided into primary, secondary and tertiary tiers of service delivery, depending on the patient's health condition (Allianz Care, n.d.). Primary care is often the first point of medical consultation, usually provided by professionals such as general practitioners, dentists, pharmacists at a doctor's office, health center or at Urgent Care center. Medical specialists and other health professionals, who typically don't have initial contact with patients, provide secondary care. For example, a primary care physician might refer a patient to a cardiologist or other specialty. Patients being treated requiring a higher level of care in a hospital may be considered to be in tertiary care. Health providers and equipment at this

level are highly specialized. Tertiary care services include such areas as cardiac surgery, cancer treatment and management and other complicated treatments or procedures (Torrey, 2020). The common denominator for all the sectors in healthcare is the holistic approach to patient care.

During the past few years and mainly during COVID-19 pandemic, a multitude of digital health services has been introduced, in line with EU priorities, to control and improve services in a secure manner. These include online health records, ePrescription and eReferral for primary care, eConfirmation for insurance status verification, eReimbursement, eAppointment for booking doctors' appointments for primary care, and a business intelligence system (Bi-Health) that automates online retrieval of operational data for the Greek Ministry of Health (Katehakis et al., 2018). However, despite digital health provides opportunities to enhance the quality, efficiency and safety of primary healthcare, the adoption of digital tools and technologies has been slow, partly because of poor digital health literacy. A capable, digitally literate workforce is necessary for primary healthcare systems to take full advantage of these technologies.

3.6. Italy

The health of the Italian population is generally good and life expectancy is the second highest in the EU after Spain, but gaps persist by socioeconomic status and region.

The Italian health system is characterised by a decentralised, regionally based national health service. The central government channels general tax revenues for publicly financed health care, defines the benefit package (known as the livelliessenziali di assistenza, 'essential levels of care') and exercises overall stewardship.

Each region is responsible for the organisation and delivery of health services through local health units and public and accredited private hospitals. The health service covers all citizens and legal foreign residents. Coverage is automatic and universal, and care is generally free for hospital and medical services. Irregular immigrants have been entitled to access urgent and essential services.

3.7. Spain

For the migrant population, the essential professional is a cultural mediator, both in the health services and in the community.

- knows how to communicate with them.
- It can be the bridge between health professionals and the population, through the promotion and development of health literacy programs (Flecha et al., 2013)[12].

[12] More information in: [Flecha Fernández de Sanmamed, A., Ruiz Eugenio, L., & Vrecer, N. (2013). La alfabetización en salud y el empoderamiento de las comunidades. *Scripta Nova: revista electrónica de geografía y ciencias sociales*, *17*(427-5).]

For the population at risk of poverty and / or social exclusion, the figure of the social worker stands out. Therefore, socio-health coordination should be guaranteed.

Health professionals are able to advise patients according on to their needs and on the use they can make of technology to obtain information about their health (Calvo-Calvo, 2013).

Table 19 Health professionals' ways of support in digital health literacy in Spain

Waystosupport	**Howto do it?**	**References**
- Training in digital health literacy. -Educate citizens about literacy and digital skills. -Use an adapted language to the specific needs of each person. It is necessary that the new knowledge is communicated effectively, that is, that it reaches the interested people and is understood. - Promote e-inclusion: that people are able to access online programs without difficulties -Offering effective healthcare adapted to the ICT paradigm, which represents an opportunity for continuous improvement of the healthcare profession. Improvement: ✓ management. ✓ innovation. ✓ communication. ✓ research. ✓ coordination. All of this makes it possible to achieve optimal health care and improve the quality of care.	-Acquire and develop knowledge, skills and attitudes about digital health and the use of ICT. -Being guides, advisers and facilitators in the correct use of digital technology to patients, who require it during their care processes. -The healthcare professional must have skills in scientific communication, and this requires training, dedication and discipline on their part.	-Fernández, 2019. -Delgado et al., 2020. -Calvo-Calvo, 2013. Alcalá, 2016

Source: Own elaboration

Among the needs of health professionals in supporting digital literacy, there are a lack of technology training, in those who are older, lack of time, lack of interest, shift changes and the thing that it might cause an excess workload in professionals in relation to ICT if they do not have prior knowledge (Delgado et al., 2020).

In order to face these needs, the implication, approval and promotion of the institutions in the acquisition of health literacy will be necessary, offering professionals different strategies such as training courses or flexibility in schedules (Delgado et al., 2020).

In addition, it is necessary for institutions to adapt to the transition by adapting their spaces and equipment, to guarantee professionals and patients the correct access and use of ICTs (Marín, 2010).

Table 20 Context in which health professionals work

Context in which health professionals work			
Features	**Problems**	**Solutions**	**References**
Diferentagents: ● Users ● Professionals ● Companies	● Repetition of clinicalreports. ● Delays in administrativeprocessing. ● Long waits for patient care.	Improvement of health infrastructure incorporating ICT.	-Sainz, 2011.
Decentralization: transfer of competences in health from the National government to the regional one	Social and health inequalities between the Autonomous Communities.	Existence of a complex administrative network that coordinates the National, regional and local levels.	-Sainz, 2011. -Torres, 2019.
Principle of universality, equity, solidarity, and public financing.	The health resources available are not adequate to the demands that exist.	Adapt the health system considering ICTs to facilitate management in the emergence of new needs.	-Torres, 2019.
Social and demographic changes: • Populationaging. • Longerlifeexpectancy. • Newpathologies. • Changes in lifestyles.	Constant increase in health demand.	Improvement and future sustainability of the health system through ICTs: ● Tele-nursingincludes the: -hometelecare -hometelecontrol, -telealarm -teleconsultation -telediagnosis -telecontinuitycare	-Dominguez, Francisco and Domínguez, Mª Rosario, 2010.

		-teleinformation (to health portals or to the support of health alert and emergency networks) • Digitalmedicalhistory. • Teletraining. • Tele Teaching.	
Importance of medical over social aspects.	Risk of socialexclusion.	Include the importance of social determinants in health care. • Living place. • Education. • Occupation. • Wealth.	-Labrador, 2012.
Lack of digitalliteracy	Risk of social exclusion so that medical care is no longer based on the doctor-patient relationship model	Training in digital literacy for both health professionals and groups at risk of social exclusion to create greater trust between doctors and primary care patients; increase the autonomy and decision-making capacity of patients.	-Fernández, 2019. -Oliver-Mora and Iñiguez-Rueda, 2017.

Source: Ownelaboration

4. Training opportunities, projects or platforms regarding digital health literacy for vulnerable populations

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
Belgium	Website	permanent	French speaking population of Belgium	information on health, diseases and their prevention, validated by general practitioners	mongeneraliste.be
Belgium	Video	permanent	Belgian population	Information videos about eHealth consent	https://www.youtube.com/watch?v=lyJQfE7pkJA https://www.youtube.com/watch?v=e2ok0c8vYCU
Belgium	Inventory	2019	Belgian population	Inventory of IT tools in health care in the context of the e-health plan of the Belgian governments	https://www.luss.be/themes/e-sante/
Belgium	Info sheet for professionals + tutorial videos	Permanent since 2018	Belgian French speaking population with low digital health literacy	Culture &Santé created a LISA sheet which is a tool to help professionals build the capacity of people to assess the quality of health information found on the Internet.	https://www.cultures-sante.be/nos-outils/fiches-lisa/item/497-fiche-lisa-n-3-comment-accompagner-un-groupe-a-evaluer-l-information-pour-la-sante-sur-le-web.html
Belgium	Short film	permanent	Sensibilisation of health and social professionals	Raising awareness, with the short film 'I come from another planet'. This illustrates the problems of people who do not have access to or cannot use the digital world	https://www.youtube.com/watch?v=CNCFP-a7vA8
Belgium	Platform	Permanent	Social actors who work with disadvantaged groups	supports social actors (organizations which work with disadvantaged groups, actors for socio-professional integration…) in guiding their target groups that are experiencing problems with digitization.	https://www.123digit.be/nl/
Belgium	Document	permanent	Belgian population	Ideas for reflection and animation, starting from examples linked to the Covid-19 epidemic. This publication proposes to strengthen one's critical eye on the information heard or read using a few methodological keys.	https://www.cultures-sante.be/nos-outils/outils-promotion-sante/item/567-quelques-cles-pour-evaluer-l-information-en-lien-avec-ma-

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
					sante-l-exemple-de-la-covid-19-pistes-de-reflexion-et-d-animation.html
Belgium	Website	permanent	Belgian population and professionals	INAMI/RIZIV (National Institute for Health and Disability Insurance) commissioned the Belgian Center for Evidence-Based Medicine (CEBAM) to develop this independent website. It offers reliable and accessible information on health. In particular, it offers thematic patient guides for the public, as well as clinical practice guides, more intended for professionals.	www.Infosante.be or www.gezondheidswetenscap.be
Belgium	Website/platform	permanent	Belgian population and health professionals	Mobile health Belgium is an initiative of the Belgian Federal Government. It is a platform bringing together mobile health applications recognized as medical devices and intended for patients, healthcare professionals or healthcare institutions.	https://mhealthbelgium.be/nl/
Belgium	Website/videos/comics	permanent	Belgian (French speaking) population with low level of (digital) health literacy	Making health information accessible to everyone is a public health issue, to which BD Santé responds. This project takes the form of pictorial tools accompanied by simple words aimed at better understanding and supporting people to take care of their health. The comics, posters, videos and the image bank available aim to facilitate understanding and dialogue, for patients, caregivers, parents and professionals alike.	http://santebd.org/ And SantéBD - YouTube
Belgium	Interactive (board)game	Still in development	Belgian (Dutch speaking) population with low (digital) health literacy	Revision of the already existing board game 'GezondenWelSpel' and addition of a digital section. This game is developed by the Flemish Community Health Centres and provides people with low health literacy insight in the Belgian health system in an accessible way, in order to lead them to simple and reliable (online) health information that meets their needs and requirements.	https://www.kbs-frb.be/nl/Activities/Grants/2019/2019J517082321337
Belgium	app	Still in development	Primary care providers who work with non-native speaking parents	Support primary care providers to work on a demand-driven and tailor-made basis through a multilingual app with high-quality health information with non-native	https://www.kbs-frb.be/nl/Activities/Grants/2019/2019J517082321337

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
				speaking parents with young children and thus to ensure that they better understand and can use the information.	
Belgium	Digital tool	Still in development	Health care organizations	Develop an online tool to evaluate health literacy in primary care organizations; offering validated improvement methods; and an inspiring practical brochure "Health-wise organizations in primary care"	https://www.kbs-frb.be/nl/Activities/Grants/2019/2019J5170823213374
Belgium	Website			A website translated in 13 different languages with spoken word and images about the following themes: body, family planning and pregnancy, infections, sexuality, relationships and feelings, rights and law. Created by Sensoa for people with low health literacy and foreign language and/or tool for health staff	www.ZANZU.be
Cyprus	Erasmus+ Project 'MEET: - Meeting the health literacy needs of immigrant populations'	2013-2015	Immigrants	The project MEET aims to strengthen the recognition of diversity and multiculturalism and include migration-related competences in the health care services by adapting and developing an innovative community health education model and a professional development programme for social and health service providers. E-Training available.	http://migranthealth.eu/index.php/en/
Cyprus	Erasmus+ eLILY Project: 'E-Health Literacy skills among carers of older people and people with Dementia'	2018-2021	Professionals working with older adults	This project aims to provide a blended training programme (class sessions and elearning course) for carers of frail older people and people with dementia	https://elily.eu/

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
Cyprus	European Commission Report - Executive summary of HEALIT4EU	2014	General population	This is a state-of-the art report into: intervention studies on health literacy that are performed in EU Member States, policies, programmes and actions that are being initiated and implemented in EU Member States, and the possibility to estimate health literacy levels using a prediction model	https://ec.europa.eu/health/sites/health/files/health_policies/docs/2015_health_literacy_summary_en.pdf
Cyprus	Erasmus+ Project ' Games4seniors - Tablet-Based Cognitive Gaming Platform for Seniors'	2018-2020	Senior people with permanent health issues (diabetes, mild level dementia, physical injury)	The project aims to develop a tablet-based cognitive gaming platform for older people to use in group. It will encourage the use of multiple cognitive strategies and difficulty will increase as performance improves. The tablet-based gaming platform will be developed to deliver cognitive stimulation in the form of a training program, which aims to increase general cognitive and social function.	https://games4seniors.eu/
Belgium, Italy, Spain, UK, Estonia, Denmark, Sweden	Project (H2020)	2016- 2018	Elderly	35 open access online courses (MOOCs) in seven different national languages	https://cordis.europa.eu/project/id/727474 https://ehma.org/research-projects/past-projects/ic-health-improving-digital-health-literacy-europe/
Cyprus, Greece, Italy, France, Belgium and Croatia	Project	2018-2020	Elderly	Traditional forms of learning (usually printed materials, i.e. handbooks, guidelines, handouts) need to be used in seniors' training in combination with new, modern ones (digital tools, open educational resources, e-learning platforms), depending on the individual's features and level of exiting ICT skills.	http://proadas.eu/el/%ce%b1%cf%81%cf%87%ce%b9%ce%ba%ce%ae-%cf%83%ce%b5%ce%bb%ce%af%ce%b4%ce%b1/ https://play.google.com/store/apps/details?id=eu.proadas

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
					https://www.facebook.com/proadasproject
Spain, Greece, Germany, Netherlands, France	Project	2015-2019	Migrants	• An integrated knowledge-based information agent platform • Standalone modules or services, e.g. speech synthesis, face and gesture generation, etc. • Modules provided under commercial, open source or freeware licenses	http://kristina-project.eu/en/the-project/kristina-short/
Spain	Program	2015	Migrants	e_Saludable App This App was made in order to develop a community intervention program, in Health Literacy, culturally competent, ad hoc, based on scientific evidence and identified needs, to improve access and use of the services of the Andalusian System of Health so that users can promote and maintain good health.	http://appesaludable.com/index.php
Spain, Greece, Germany, Italy	Project	2020-2021	Migrants	The Consortium will design training materials and an online platform for implementing a training methodology. This will include a "peer to peer" training where migrants will train peers.	https://www.iat.eu/presse/2020/digital-health-literacy-for-migrants-10122020.html
Cyprus	Erasmus+ Project 'eHealth Eurocampus'	2017-2019	Professors and students in the field of health education towards the elderly	The eHealth Eurocampus supports the development of innovative teaching material and activities that will improve the relevance and quality of higher education in the field of eHealth by adapting curricula to labour market needs, while providing students with skills of entrepreneurship through innovative and learner-centred methods.	http://ehealtheurocampus.eu/
Cyprus	GUIDed Assisted-Living and Social	2020-2023	Primary end-users are older adults living independently in their own homes.	The project will integrate existing open-source technologies, platforms and tools, as well as assemble a smart AR-enabled platform based on existing fully customizable hardware boards to offer a set of simple, plug-and-play, assisted-	https://www.guided-project.eu/

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
	Interaction Platform (GUIDed)			living (AL) services. Real users including primary (older adults), secondary (family members, healthcare professionals and network) and tertiary (i.e., care organizations) users will be involved throughout the project progress and assist in system design, integration, testing and evaluation.	
Germany	Project		Migrants	The aim of the project at the Faculty of Health Sciences at Bielefeld University is to gather in-depth information on health literacy among people with migrant backgrounds and create a basis for developing specific interventions directed at this target group.	https://www.bosch-stiftung.de/en/what-we-do
Greece	Smartphone educational application for people who are dealing with: mild cognitive impairment with significant deficits, early-stages of dementia. The iOS version has been funded by Alzheimer Athens. This initiative addresses to health providers dealing with	03/2017-03/2018	Older adults, people with dementia	The application is available for android and iOS smartphones / tablets and allows health professionals to learn simple techniques of non-pharmaceutical interventions and use them to help people with dementia (at home or at non-specialized structures in the field of dementia, such as public structures for the elderly), when they cannot attend a Day Center for people with dementia for various reasons.	https://alzheimerathens.gr/dianoia/

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
	dementia (family and professional caregivers) - Health professionals working in the field of dementia				
Greece	Telemedicine units	2016	Residents and visitors of distant islands of the Aegean	EDIT is part of the 2nd Health Region project implemented by OTE Group in 2016, having as subcontractor Intracom Telecom. After 4 years of successful operation, OTE and Intracom Telecom decided the expansion of EDIT from 43 to 22 additional islands of the north and south Aegean. Of the overall 28 new telemedicine stations to be installed, 26 will be located at the island Health Centres, one at the EKAB (National Emergency Aid Centre) air medevac centre in Elefsina and one at the Detention Centre of Kos. 90 home monitoring systems will be created in the framework of the project for patients, whose transfer to the island Health Centres is difficult.	https://www.cosmote.gr/cs/business/en/new_ethniko_diktio_thleiatrikis.html
Greece	Eu – Erasmus + project together with Austria, Cyprus, Greece, Italy, Portugal, Turkey e-learning platform and mobile application	2018-2021	Older adults	It is actually a training programme to facilitate elderly people's access to electronic health services. The project involves the development of an innovative information technology tool, its associated services, the dissemination of results on pedagogical practices for quality lifelong learning. This tool, namely an educational online platform, supported with an application, will be distinguished by its attractiveness and high accessibility through the internet. The network's background and experience with digital health literacy learning and action, communication, creativity, problems solving, collaboration, visioning, experimentation as well as the cutting-edge information technology experts could	https://iheal.eu/about/

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
				greatly sustain the design and development of this transformative, participatory learning environment as well as expand the prospects of digitally mediated social interaction for sustainable learning in the future.	
Greece	Feel mobile app, Feel emotion sensor, Feel Provider, Educational Material	2015 - ongoing	People with long-term stress	Feel is an emotion sensor and mental health advisor. The goal is to track user's emotions using physiological sensors (skin conductance, heart rate, and skin temp) in a wristband. This data will then be filtered through an algorithm to provide user with personalized recommendations for mental health support and coaching. The Feel mobile app connects to user's wristband and responds in real-time to changes in his/her emotional state by providing practical advice, tools, exercises, and resources. This program also includes custom action plan and weekly, 15-minute online sessions with dedicated mental health expert, as well as online educational tools and resources that help users learn self-management skills to build resilience and long-term positive emotional habits.	https://www.myfeel.co/
Italy	MedLIT - Alfabetizzazione digitale per rafforzare le competenze di donne migranti, rifugiate e richiedenti asilo - Project-training:	Project duration 01/11/2017 – 31/10/2019	refugee, asylum seeking and migrant women	Developing innovative learning tools to increase media and digital competences of low – skilled/low qualified refugee, asylum seeking and migrant women. Improving media and digital literacy skills of low – skilled/low – qualified refugee, asylum seeking and migrant women encouraging them with effective awareness raising actions.	https://cesie.org/en/project/medlit/
Italy	DISC - Digital Skills for Integration and Active Citizenship	Project duration	Public authorities | Migrants | Civil society organisations	Improving the e-skills and competences of people with a migrant background	https://cesie.org/project/disc/

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
		31/12/2018 – 30/11/2021		Strengthening the role of higher education institutions and schools as open learning environments for e-skills, while promoting intercultural dialogue between local and migrant communities through digital tools. Providing teachers and educational staff with inclusive teaching tools. To generate local, regional and European networks to disseminate good practices of educational integration, ultimately having a positive impact on communities and societies by increasing their cohesion and promoting a better integration of migrants into the labour market.	
Italy	G-START - Governance, Salute, Territorio, Accoglienza per Richiedenti asilo e Titolari di protezione: sperimentazione di un modello	August 2019-August 2020	Public authorities | Migrants | Civil society organisations	The general aim of the project is to ensure health protection and promote prevention paths for Asylum Seekers and Holders of International Protection (RTPI), with particular attention to cases of psycho-social vulnerability, improving access, quality, effectiveness and continuity of socio-health care for them, and promoting the active role of RTPI in appropriate and informed access to services.	https://www.prevenzioneonline.info/it/g-start
Italy	Pending	May 2021-June 2021	Professionals working within the Territorial Health Services with a focus on Primary Care, Proximity and Community Services: Primary Care Medicine, Maternal and Child Operative Units (MHUs), Consultatories, Paediatrics, Nurses, Psychologists, Psychiatrists, Psychotherapists,	Pending is a project aimed at preventing, treating and rehabilitating the psychological distress of asylum seekers and holders of international protection in the Provinces of Salerno and Avellino. In order to deepen, through a geopolitical look, the knowledge on the social and cultural contexts of origin of the main migrant communities present in the Province of Salerno. The meetings will also analyse the implications concerning the concept of health and the approach to health care.	https://www.pendingprogetto.it/

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
			Pharmacists, Counsellors, Professional Educators, Social Workers.	Translated with www.DeepL.com/Translator (free version)	
Italy	FOOTPRINTS	23/07/2018 - 30/12/2020	Addressees: direct: staff and socio-health workers of the Regions and Autonomous Provinces indirect: the entire migrant population	Italian Society of Medicine of Migration (SIMM) will coordinate the design of training and implementation of regional interventions for the definition of a document for the coordination of operational modalities on public health aspects concerning migrants.	https://www.simmweb.it/progetti
Italy	TRAIN4M&H - PROVISION OF TRAINING FOR FIRST-LINE HEALTH PROFESSIONALS AND LAW ENFORCEMENT OFFICERS WORKING AT LOCAL LEVEL WITH MIGRANTS AND REFUGEES AND TRAINING OF TRAINERS	March2018-March 2019	Public authorities | Migrants | Civil society organisations	The project provides training for four groups of professionals: health professionals, public safety workers, social workers and coach trainers in the context of 32 European countries. This training should be geared towards supporting the skills of professionals in working in frontline and first-phase reception contexts for migrants and refugees.	https://www.simmweb.it/progetti/929-train4m-h-provision-of-training-for-first-line-health-professionals-and-law-enforcement-officers-working-at-local-level-with-migrants-and-refugees-and-training-of-trainers
Italy	FARI 2 – Formare Assistere Riabilitare inserire	November – December 2019	citizens seeking or holding international protection	The courses aims to provide effective responses to the physical and mental health needs of asylum seekers and beneficiaries of international protection, including minors, present in the Lazio Region.	https://www.programmaintegra.it/wp/migranti-e-sanita-grazie-al-progetto-fari2-corsi-di-alfabetizzazione-sanitaria-su-tutto-il-territorio-di-roma/

Country	Type (platform, project, training, other)	Time & duration of the project	Target group(s)	Description (include if available training materials used)	Useful links
Spain	Virtual Course Access to Information Sources and Management of Social Media		General population	The course aims to identify, use and disseminate the available knowledge about the sources of information in health. The purpose of this course is to acquire the knowledge and skills necessary for the management of health information and the use of social networks	https://www.paho.org/ict4health/index.php?option=com_content&view=article&id=9686:digital-literacy&Itemid=188&lang=es https://www.campusvirtualsp.org/?q=user%2Flogin&destination=node%2F14913
Spain	Guía "Prevención del VIH a través de las nuevas tecnologías de la información y la comunicación".		Professional and volunteer staff involved in HIV prevention and care for people living with the infection	The aim of the guide is to show how technology and its practical application can improve and complete the work of health professionals in caring for people with HIV	http://www.sidastudi.org/es/registro/d25f0804346658b1013469dd88500007
Spain	"Juntos contra el aislamiento digital"	4 yearsapproximately	Healthprofessionals	Its objective is to facilitate people and entities the application of digital initiatives in health that respond to their concerns and needs	https://www.sherpas20.com/10-comunicacion/salud-digital/juntos-contra-el-aislamiento-digital.html https://www.sherpas20.com/images/docs/InformeSherpa.pdf

Country specific conclusions and recommendations

4.1. Belgium

In the survey of Solidaris (2017) it is pointed out that the most important criteria of qualitative health information are: 1. Easy to understand, 2. Adapted to my personal needs, 3. Reasoned with nuance, and 4. Clear and decisive.

Lambert (2020) describes the need to provide reliable information that everyone understands, that is as inclusive as possible and takes into account differences in language, culture and other exclusive factors such as the digital gap. Access to the electronic medical record or e-health for everyone is an interesting idea but requires adequate health literacy.

On the other hand, an improvement of health care systems is required to be adapted to the different needs and value systems of the population, to improve their understanding and decision making about their personal health. Lambert (2020) – within the Christian health insurance fund – pleads for better training of health professionals in health literacy and make them more sensitive to their own responsibility for their patient's health literacy. Thereby suggesting to develop skills to communicate and interact adequately with patients during their training, to integrate health literacy into certification and accreditation programs, to start from existing knowledge of patients, to use simple language and to provide language assistance for patients who speak a foreign language to speak. Even so, care facilities should put an effort in improving health literacy by working together with other organisations and develop tools for better communication and access. Acquiring more knowledge within the group of people with low health literacy is one of the conditions for improving their health literacy.

One of the important determinants of health is social relations. Therefore, it is needed to approach health at a community level, transcending an individual approach. From this point of view, in a lot of the existing international recommendations and action plans the focus on community health and mutual collaboration is still limited. Inevitably, this all needs to be accompanied by a wider debate about social determinants of health. It is undeniable that inequalities on a socio-economic and educational level need to be reduced to be able to improve health literacy (Lambert, 2020).

Solidaris (2017) underlines that health information on the internet can be a driver for health promotion, but with further development it also can contain the risk of emphasizing health inequalities if there are no measures taken to promote the development of the internet within groups with low digital skills. It is therefore of great importance to keep in mind the important role of doctors in supporting patients who desire to emancipate themselves in health matters. As it has been proven, the intervention of the health professional in the application of health measures reinforces the patient's therapy compliance. The Internet then becomes a precious "tool" in the patient-doctor relationship.

The Internet has a great potential in emancipating people regarding their health and can in turn contribute to reducing social inequalities in health by improving (digital) health literacy.

The KCE report (Rondia et al., 2020) suggests in its recommendations for Belgium to:

"- Encourage the development and dissemination of training modules on health literacy and communication skills and techniques for all healthcare professionals; set up a nationwide network for knowledge exchange on this topic.

- Develop tools and guidelines to adapt public health information, campaigns and projects to the needs of the targeted public. Patients and citizens should always be involved as experts to ensure that the developed documents and tools really meet the needs.

- Generate an interest in health literacy in the civil society and the associative sector but make it clear that only providing clear and understandable information is not sufficient.

- Integrate health literacy-friendliness into policies, procedures and quality standards for all healthcare institutions and organisations. Encourage the use of practical toolkits for self-assessment of the level of organisational health literacy within healthcare settings (and in primary care).

- Encourage collaboration with patients' organisations and citizens' panels to explore ways to strengthen relationships between healthcare institutions and users ".

In their search for needs and challenges in (digital) media literacy within welfare organizations, Nijs and Drooghmans (2019) came to these 5 recommendations:

1. Welfare organizations must continue to provide sufficient access to digital media tailored to their target groups.
2. Clients of welfare organizations must be supported to participate digitally and to be resilient online.
3. Digital media literacy must be part of the DNA of every welfare organization.
4. Employees of welfare organizations must be more professionalized to work qualitatively in improving digital media literacy.
5. Welfare organizations should inform each other and exchange about digital media literacy.

Empowering people in accessing their own electronic health-record is gaining importance. This suggests the need for individuals to have sufficient eHealth skills, and therefore adequate digital literacy. Rondia et al. emphasize in their report (2020) that "it is insufficient to provide access to electronic patient records if citizens do not have sufficient skills or competences to deal with these digital tools or if they cannot make distinction between reliable and poor health-related knowledge and information". Nonetheless, improving digital health literacy is not only a matter of individual responsibility and empowerment, but should be included in the politics of 'health in all policies' on a societal level.

According to Mannaert, representative of Culture & Santé (2018), there are a number of opportunities in the increasing use of digital technologies in health: improved access to data and services (instantly, 24/7, portability, deterritorialization, ...), promotion of another potentially more universal form of language versus classical writing (visual, video, voice recognition, text reading function, ...), self-management of one's health, and creation of new communities (support groups, activators of citizen participation, ...). But he also summarizes possible threats: shifting of responsibility from the collective or the institution to the individual (individualizing logic), liberal paternalism and risk of social disqualification, creation of new inequalities at the margins, creation of an anxiety world because of information without filter or mediator and a constant connection, and fear for sharing personal data. Possible actions that could contribute are proposed: create a school program covering all dimensions of health literacy, create collective learning spaces throughout the life in a perspective of proportionate universalism, adapt technologies and content to socio-cultural realities, maintain and develop face-to-face contact, and act collectively on the determinants of social health inequalities.

In their thematic file about digital health literacy Culture & Santé (2021) point out that there is a lot of manipulated information, particularly on digital platforms and social networks. Given this, one dimension of digital health literacy becomes a major issue, namely the evaluation of information. The skills that people have to make judgements about information, to estimate its reliability, to select it, to distance themselves from it or not, will influence their attitudes towards their health, particularly their mental health, not least in the current Covid-19 crisis and its 'infodemic'.

LUSS (2019) strongly suggests that there should be more formal collaboration between the health sector and digital actors. The health and social services sector are in contact with isolated and vulnerable people. However, this sector is not familiar with digital actors. There is a need to study the issue more widely through further research. Developing collaboration between the social sector, the health sector and the actors fighting against the digital gap is an axis that would undoubtedly contribute to limiting the digital gap in European e-Health projects.

4.2. Cyprus

Despite the lack of research in Cyprus about the health literacy level across the island and in different populations, we believe that migrants/refugees in Cyprus remain of a higher health exclusion risk and poorer outcomes than the general population, as per many reports, because of their underemployment and fewer opportunities they have for integration within the Cypriot society.

The Office of the United Nations High Commissioner for Refugees reports that, globally, the number of forcibly displaced people, 68.5 million, including 25.4 million refugees (Adhanom et al., 2019). Many refugees and migrants lack access to health care services, including health promotion, mental health services (in particular those for post-traumatic disorders, which affect many refugees

and migrants), disease prevention, treatment and care, as well as financial protection. Barriers to accessing health care services differ from country to country; they may include language and cultural differences, high costs, discrimination, administrative hurdles, inability to affiliate with local health-financing schemes, adverse living conditions, occupation or blockade of territories and lack of information about health entitlements. Although nationality should never be a basis for determining access to health care; legal status often determines the level of access, as appropriate within national insurance schemes and health systems, without revoking the principle of universal health coverage as set in international agreements. Refugees and migrants may, in some circumstances, fear detection, detention or deportation and may be subject to trafficking or slavery.All these conditions make seeking care and self-care difficult. Additionally, these experiences can precipitate negative mental health outcomes (Adhanom et al., 2019). The Director General of the WHO, Tedros Adhanom, renewed its commitment to promoting health for refugees and migrants through a mix of short-term and long-term public health interventions (Adhanom et al., 2019). So far the majority of the health promotion efforts, although country-dependent, were the ones provided by the state or supporting NGOs in the relevant countries, without any mention in the overarching policy documents about self-care, self-health promotion and empowerment using digital means. However, it is becoming more prominent that digital skills and digital education are an important tool of health promotion within the migrant/refugee population (which is diverse with extremely dynamic needs, as their personal situation associated with their legal status changes over time). Globally, many studies and research papers have been written about the health issues and challenges of migrant/refugees, but very few standardizations exist with regards to measurements of health literacy, digital health literacy and digital literacy (all of which are closely linked), across the general population in the different European countries, let alone the vulnerable groups of migrants/refugees. Digital health literacy measurement tools vary across countries, but Cyprus does not have one as part of its overall digital strategy. So, despite the key challenge remains where we cannot ascertain the breadth of digital health literacy in the absence of a measurement tool, it has been recognized that we have a significant digital skills gap that will be further aggravated due to demographic ageing and the rise of chronic diseases. To satisfy the needs of healthcare organisations to successfully deploy new digital technologies, such as artificial intelligence, that improve the quality of care, we need to pull a significant investment into enhancing their digital health literacy within the vulnerable populations, that way bringing the gap for healthcare equity and meet our targets for the Sustainable Development Goal (SDG) 3: Equal access to healthcare for all.

The success of iHERE and other digital health literacy programs is dependent upon engagement with major stakeholder organizations in Cyprus that are interested and responsible for the social and health welfare of the population. As mentioned with the elderly and the low socioeconomic groups, a

blended-learning program is the most appropriate. One key take-away message from focus groups and interviews, as well as supporting literature, stressed that migrants and refugees are a very diverse population that will naturally have diverse needs (Buchmann & Mason, 2016; UNHCR 2016). A report was written assessing the free digital learning (FDL) opportunities for migrants and refugees to better understanding the challenges and opportunities for developing digital solutions to tackle educational access and learning possibilities for the recent influx of refugees and migrants in Europe (Colucci et al., 2017). According to it, focus group participants asserted that FDL offers should consider their specific learning needs, their skills (general and digital literacy, language, formal education background) and their learning environment (infrastructure, access to digital technologies and time available for study) (Colucci et al., 2017).

They also found that those who were younger, had higher education experience and higher digital literacy were generally more open to FDL, irrespective of gender. Younger children, youth and migrants with a lower educational level had less familiarity with digital learning. The interviews indicated that those designing FDL offers are increasingly aware of the need to cater to specific learning needs and environments. The Jamiya Project, for example, is providing European 'SPOCs' (small, private, online courses) in Arabic to refugees in camps, as a means to access higher education, notably as many do not have the English language skills to follow any number of existing MOOCs. The initiatives under the UNHCR Learn Lab umbrella also target camps, notably embedding the FDL offer in a number of support services for those that may have experienced trauma, for example. Employing "offline" digital solutions in the context of unstable learning environment is something to bear in mind when designing courses for refugees. For instance, 'traditional' MOOCs use videos, while the bandwidth access in refugee camps and conflict zones may not be adequate to view them. Although MOOCs are usually split into short learning sessions, it is often difficult to keep them shorter than ten minutes. The ICT4Refugees study cited in the Literature review reaffirms this notion (Mason and Buchmann 2016). The study endorses a very basic/low-tech design. Various reports and interviews asserted that to circumvent bandwidth problems, flexible options for the delivery of FDL (e.g. taking MOOCs offline) should be explored. Given that many refugees, in camps and elsewhere, have mobile phones, free mobile learning has been seen as a good way to make FDL more accessible. Integration with communication tools is important and participants recommended that course providers use WhatsApp Messenger as part of their communication; they have found Whatsapp to be the most feasible means of communication for the virtual mentoring element of the programme (Colucci et al., 2017).

In summary, we should keep in mind when designing apps for refugees in camps of the challenges they face such as lack of connectivity, fragile learning environments, lack of infrastructure, the need to provide targeted course content to fragile students and security concerns. Students in

camps need academic, cultural and, potentially psychological support and courses to be aligned with on-site tutoring and to ensure that language of learning content is at least in Arabic. Certifications do not matter much to the students who do not yet have their refugee status to proof their formal credentials. Although plenty of FDL provide certificates and badges, it is not yet clear how students utilize those certificates for employment and integration purposes (Colucci et al., 2017).

Older adults. The elderly suffer from poor to no access related to online health-related tools, lack of efficient digital health literacy initiatives as well as lack of support in this area. Further there are lack of available transportation to healthcare services for the elderly as well as the poor levels of care and mental empowerment of people with senile dementia and Alzheimer's disease. What is more, the low levels of digital skills among this group would mean that there is a need for a generic improvement in digital skills, prior to building their skills on digital health literacy.

Despite the statistical figures demonstrating that among the low socioeconomic groups, the unemployed groups and the low education groups in Cyprus are reported to be frequent internet users (82.6% for the former and 53.8% for the latter) it has also been indicated that, compared to the European average, Cyprus still presents a high share of adults with low computer and digital skills. Furthermore, there has been no evidence reporting the levels of digital health literacy among the low socio-economic groups in Cyprus.

On an initial basis the delivery should be conducted using a blended learning approach such that the elderly have the necessary 'live' guidance from potential facilitators to be able to improve their digital health literacy skills.

For the older age group, one of the facilitating factors would be in the context of the Cyprus National Reform Programme (2012) and through the Ambient Assisted Living Program which includes facilitators implementing digital health literacy among the elderly. Therefore, e-health facilitators, health and social care professionals, informal caregivers (i.e. family members) and members of elderly care organizations could support digital health literacy training activities to the elderly.

Low socio-economic groups. Again for this group, the delivery of training should be blended considering the high share of adults with low computer and digital skills. Therefore, the approach here should be 'live' guidance from potential facilitators to be able to guide this group towards enhancing their digital skills and then towards advancing their digital health literacy skills.

For the low socio-economic group the facilitating factors would be in relation to their individual knowledge and literacy in regard to e-health literacy. This is in accordance with the Flash Eurobarometer on European Citizens' Digital Health Literacy Results for Cyprus (2014) which indicated that a large majority of the Cypriot population both have the knowledge required to navigate the internet to find answers to their health questions and that their internet research helps them to

improve their knowledge on health-related topics. However, it should be noted that these statistics are in relation to the overall population and there is no specific reference to the low socio-economic groups.

4.3. Germany

The results of the HLS-GER 2 show the importance of a differentiated, target group-specific development of interventions to promote health literacy and improve information. This is particularly important in times of the corona pandemic, in which the different vulnerable groups are confronted with larger and different challenges when dealing with health information (Schaeffer D. et al., 2021).

4.4. Greece

In all European countries, including Greece, there are private bodies and multi stakeholder partnerships that aim to develop and increase both HL and DHL among the general population or in specific target groups. Although, health providers, policymakers and academic institutions promote (e)Health interventions and technologies as the key to increase the quality, accessibility, and affordability of health services, they do not always take into consideration the major barriers that vulnerable populations face at implementing digital health technologies. As a result, the general level of DHL in Greece compared to other European countries, remains insufficient. The main reason is that there is no National Strategy on health literacy issues in Greece. This is depicted by the limited available data in country regarding the Greek citizens' level of HL and DHL.

During such a fragile and delicate phase in the history of humanity - like the one we are experiencing due to the Covid-19 pandemic- it is time to be created a National Health Strategy that recognizes the importance of HL and promotes the development of digital skills. In fact, although the issues of the development of digital skills and the promotion of a critical attitude towards information conveyed through social networks are not new to the panorama of training needs of adult learners, it is sufficient to spend a few minutes online to become aware of the urgent need to activate concrete actions in order to increase citizens' awareness on socio-health issues and, in particular, to guarantee DHL for all those who, for various reasons (age, language, education), are completely disarmed both on the technological and on the communication front.

After the formulation of an overall and inclusive National Digital Health Strategy, it needs to be identified in what way digital tools can support this process and how the digital health promotion can be achieved. For this purpose, the establishment of mandatory tailored training programs on digital skills from early education to professional development programs seems to be necessary due to the growing demands of a rapidly aging population and the diverse communities. In this context, is recommended the integration of a digital health course in higher education that introduces students to the emerging and multidisciplinary field of digital health and the role and application of digital health technologies including mobile applications, wearable technologies, health information systems,

telehealth and telemedicine. Additionally, the creation of a digital repository that includes a collection of online up to date health education resources and examples of good practices could be supportive for the healthcare workforce, and consequently for the "patients' experience". Finally, in regards with the "Digital Access" initiative , launched in early 2021 by the Greek Education Ministry providing an important sum of money social vulnerable groups (low income families, people with migrant background etc.) in order to buy digital devices for educational purposes, is suggested the development of a relevant program aiming to provide support to older adults (aged 60 and above) and migrant populations and vulnerable population as a whole by the provision of devices that will include guidelines regarding digital health services.

4.5. Italy

People with a low level of health literacy, who occupy the most disadvantaged positions in the social stratification, as well as having accumulated in the course of their lives experiences that have worsened their state of health, as we have seen above, are today less well equipped to defend themselves against Covid-19.

In the case of the epidemic we are currently experiencing, the structural health disadvantage that usually affects people with fewer social, cultural and economic resources is thus also present. This is a fundamental question of social justice which, unfortunately, has never aroused interest in political debate. The pandemic could be a good opportunity to bring this particularly unacceptable form of social inequality to the attention of public opinion, urging legislators to take action to reduce it.

By strengthening eHealth and health information infrastructure in recent years, Italy increased its focus on performance measurement. Following the structuring of the regional recovery plans, the government moved towards a better monitoring of hospital performance to ensure that the Essential Levels of Care are being delivered to the population. Public providers are obliged by law to report different performance indicators, such as waiting times and quality measures, as part of a 'health services chart' published nationally. On accreditation grounds, these reporting practices were adopted by private providers as well, enabling the public and government to closely monitor and assess the quality of services delivered to the population.

In order to overcome the digital health literacy barriers, lines of action should be adopted to promote and raise awareness of the innovations and operational functions of apps/software, to make health workers and citizens literate, and to provide adequate and timely information for the prior and informed adherence of the patient. Such measures are especially needed for foreign citizens, older adults and people from socio-economic disadvantaged groups who have more difficulty in accessing digitized health services.

4.6. Spain

With respect to the elderly population, the level of digital literacy in health is low, observing a generation gap with respect the use of ICTs. This level increases as the level of studies of older population increases. Among the main barriers that they find, there are the lack of computer and internet resources in homes, the low predisposition to use ICTs, the fear of damaging the devices by not having adequate training for their use, and training courses not adapted to their characteristics and needs. With regard to the facilitators that could mitigate these barriers, the benefits of ICTs could attract older people to their use, create training programs adapted to their needs and characteristics, as well as provide financial aid for older people that cannot have computer and the internet.

With regard to the migrant / refugee population, they make greater use of both ICTs and the Internet with respect to the native population. However, it is mostly limited to maintaining social links with family members of the country of origin through the use of social networks and the telephone, as well as carrying out economic transactions. The level of digital literacy would, therefore, be low, and in this sense, studies confirm a low capacity of the migrant population in solving practical problems of daily life through the Internet.

Among the main barriers that prevent digital literacy in the migrant population, there is not that much a lack of access to ICTs and the Internet, but the lack of knowledge about telematic procedures, the lack of knowledge of the language of the native population, and the lack of time to learn how to use ICTs. Regarding facilitators, it is important that entities in the field of digital training at the national level, private companies and the third sector (technology companies), develop actions that favor the improvement of the digital training of citizens and the coordination of digital transformation in Spain. Finally, taking into account the economic difficulties faced by this population group, it is necessary to carry out measures aimed at favoring the acquisition of computer means that allow to do digital training.

Finally, with regard to the population at risk of poverty and / or social exclusion, they have fewer opportunities to learn about ICTs, as well as to acquire them, which prevents them from being trained in digital matters. Among the main barriers, it can be highlighted the lack of confidence that they present in their own learning capacity, the difficulty in identifying the training proposals that are useful to them, lack of time, and economic limitations that prevent them from having computer and learning resources.

Facilitators that would allow to overcome these barriers could be the design of training programs adapted to their characteristics and needs, allowing constructive learning and empowering the population in terms of their learning capacity, and being located as close as possible to the people

to overcome time and travel constraints. Moreover, training must be affordable so that its cost does not pose a barrier to learning

General conclusions and recommendations

Digital health literacy is an asset for individuals' empowerment, since it ameliorates their quality of life. Unfortunately, not all of people are digital health literate. People at risk of digital exclusion are among the most vulnerable populations in Europe (migrants and refugees, older people and people from low socioeconomic status) as far as digital health literacy concerns.

Socially vulnerable groups share common needs and face common issues that should be overpassed to have a successful digital health implementation. Upon embracing the basic digital skills needed, people from vulnerable groups should feel confident searching through digital means for health-related issues. To achieve that, they should be trained according to their needs and expectations. People from vulnerable groups need to feel familiar with the information found. Expectations are eliminated when information found is hard to understand.

It is proposed to include training materials that address some common issues in all vulnerable groups regarding DHL, e.g. what is health literacy and digital health literacy, how to find online reliable health related information, health promotion using the internet, navigating the health system through the internet. Apart from this it is proposed to have also specialized modules according to the needs of each target group.

For migrant and refugee population, the suggested content is:

- Navigating the healthcare system – rights & responsibilities for accessing the health care system, how to obtain social security number etc.
- Common Health issues
- Staying active using the internet specific information

For older adults, the suggested content is:

- Development of digital skills e.g. how to use the internet and ICT devices
- Common health issues
- Staying active using the internet specific information
- Social media and privacy

For people from low socioeconomic groups , the suggested content is:

- Development of digital skills
- Common health issues
- Staying active using the internet specific information

Regarding the development of the training modules, it is suggested to include simplified to the point information which gives the possibility of direct contact with a healthcare professional. In addition, audio and visual means would produce a more successful output of the information found.the training material should be designed according to the needs of each group. It should be patient-centered and it could be delivered remotely, without the physical presence of the user. Technical support should also be available. Training material could be delivered through electronic media including, smartphones, tablets, laptops but also older technology means such as CD-ROMs or DVDs. Additionally, training delivery through lectures sent by email or given in real-time through webcast would be effective.

The training material would pave the way for delivery of digital health literacy success upon certain conditions. First of all, financial resources for proper infrastructures should be available. Vulnerable groups usually feel isolated and they are at risk of social exclusion. Therefore, they need to feel that the training material will provide personalized help and instant communication when needed. They need to believe that if they are appropriately trained, they would avoid extra costs and time. They should always feel that the information found is of highquality. Additionally, the training material should ensure that their new skills will facilitate their life and that it will be easy for them to use and learn. Lastly, since we focus on vulnerable groups at risk of exclusion, privacy policies should be applied for the delivery of training material and the following collection of statistical data.

For migrant and refugee population, training materials should include information translated into their language and according to their cultural behaviors. Audiovisual materials, e.g. videos, podcasts, infographics are the most preferrable to be used. For older adults, training materials to be more efficient should be older-user friendly, adjusting also the included information. Offline guidance with online learning and visual and acoustic resources are also suggested. Last but not least, for the people from low socioeconomic groups, it is recommended to have also offline guidance blended with online learning, training to be affordable or free of access, information and content according to their needs and expectations, while material should include facilitated guides on overall literacy.

In general, digital health services should gain the trust of their users. People from vulnerable groups should feel that the information found is not unreliable or commercially oriented. Also, they need to feel that they are able to find whatever information they need about a health-related topic yet simplified. Moreover, people seeking health-related topic digitally would be more satisfied if information found was tailored to their specific needs.

Besides the information itself, healthcare professionals and people that could be involved to the delivery of digital health literacy should ensure their high-quality training and equipment in order to facilitate users' attempts to exploit their new skills. Additionally, they should implement the goal of

delivering digital health literacy to their daily professional routine instead of perceiving that they should do it only if they have time. Furthermore, healthcare professionals should give their services without being obstructed by social discriminations and stereotypes. To achieve all that, health system organizations should ensure a wealthier workplace environment, with enough workforce and enough resources for the implementation of infrastructures needed.

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