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Preface

This issue is published by the Ferrara University Press, Ferrara (Italy) under the auspices of the School of Medicine (University of Ferrara). The issue contains original contributions or reviews presented - with some integration - during the international course on "Health and Immigration" held at Ferrara in September 2014.

The health of migrants is a critical issue for Europe. The main purpose of this course, organized as part of the European project EUNAM "EU and North African Migrants: Health and Health Systems" (leadership: Prof. Kari Hemminki, German Cancer Research Center, Heidelberg, Germany), was to depict the health status and disease, well-being, and use of health services among immigrant groups. The participants had the opportunity to assess the complexity of the migration dynamics and the health risks associated to changes in lifestyle and in social and cultural environments, learning appropriate care strategies and preventive measures to improve health for immigrants.

The course lectures, encouraging participation and exchange information among participants, have been conducted by experts from various countries in Europe and North Africa, providing not only essential knowledge but also the opportunity to share different experiences and visions.

The editors and the contributors hope that this issue will also be useful for anyone working to ensure the health of migrant and native population in the host country.

The Editors

SECTION 1

IMMIGRATION TO EUROPE

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Achievements of the EU immigrant health related project EUNAM

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Abstract – The studies conducted by EUNAM show that immigrants are a vulnerable population experiencing in some aspects discrimination and hardship similar to the socially weakest national population groups. Immigration has changed the disease spectrum, particularly in infectious diseases and recessive conditions such as sickle cell disease and familial Mediterranean fever. Importantly, health questions of immigrant cannot be separated from those of any human health issues.

Abstract – Gli studi condotti da EUNAM mostrano che gli immigrati costituiscono una popolazione vulnerabile, costretta a vivere in qualche modo la discriminazione e difficoltà simili a quelle dei gruppi socialmente più deboli della popolazione nazionale. L'immigrazione ha determinato un cambiamento nello spettro delle malattie, specialmente nelle malattie infettive e in alcune condizioni recessive quali l'anemia falciforme e la Febbre Mediterranea Familiare. E' importante sottolineare che le questioni inerenti la salute dell'immigrato non possono essere disgiunte da quelle generali relative alla salute umana.

1.Introduction

The EUNAM (EU and North African Migrants: Health and Health Systems) project delineated its task as "...it is important to survey wellbeing, health status, disease panorama and use of health services of immigrants compared to the native population; such analyses would be incomplete without casting a view on the same indicators and parameters in the country of origin". While the EUNAM application was prepared already 5 years ago, when the Euro-Mediterranean spirit was at its peak, EUNAM has been alert to follow the events within its domain when the optimism vanished and

ensuing events caused new types of immigration and health problems (Hemminki, 2014a). Kassar and Dourgnon have visited refugee camps and researched on illegal migration routes (Dourgnon & Kassar, 2014; Kassar & Dourgnon, 2014). Kassar has shown that North Africa is a transit zone for migration from Sub-Saharan Africa, currently and historically (Kassar *et al*, 2014)(17).

During its granting period EUNAM has met jointly twice annually and additionally in smaller groups discussing the thematic issues. In this final report we summarize the results and conclusions of the numerous scientific articles that EUNAM partners have published under the auspices of this funding scheme. We want to highlight the outcome by work-package (WP) described in the original work description.

2. Health and biological and psychosocial well being of North African immigrants in EU vs. natives and other immigrant groups (WP1)

Epidemiological data show that the generally good health status of immigrants ("health immigrant effect") declines after their arrival in the new country. Stress and factors linked to a new life-style can partly explain the deteriorating health status of the immigrant population and the emerging risks of diseases such as cardiovascular disorders, diabetes mellitus and asthma. The study by Moullan and Jusot (2014) discussed and provided new data on the concept of 'health migrant effect'. They presented the 'healthy migrant selection effect' which postulates that migrants have a better health status than their countrymen, because only those in the best health emigrate while unhealthy migrants may also be more likely to return in their home countries. This health selection at migration could explain the better health status of immigrants.

However, the results of Moullan and Jusot challenge the existence of a "health migrant effect" in Europe. Their study was based on large datasets from National Health Interview surveys from Belgium, France, Spain and Italy providing information on self-assessed health status. The results show a large health gap in favour of natives in Belgium and France and to a lesser degree in Spain. The exception was Italy where immigrants had a better health status than natives with respect to certain communicable diseases. They point out that the findings are consistent with the results of several recent studies on immigrants as compared to natives in Belgium, France and Spain. Their findings agree with the review and conclusions of Nielsen and Krasnick, who concluded that "In regard to self-perceived health, most migrants and ethnic minority groups appeared to be disadvantaged as

compared to the majority population even after controlling for age, gender, and socioeconomic factors" (Nielsen & Krasnik, 2010). The controversies about 'health migrant effect' are probably due to the definition of 'health'. At least upon entry into the new country migrants are physically healthy, but the stress of the new social environment negatively influences self-assessed health status.

Migration leads to lifestyle, psychological, and social environmental changes, which in turn may affect nutritional status. Nutrition is an important determinant of the immigrant's health status, socio-economic condition and biological characteristics. However, little is known about the differences in nutritional and health status in the immigrant populations in EU, even though the cultural differences between the homeland and the new country of residence may be profound. Italian surveys by the EUNAM team members revealed ethnic differences in weight status, adiposity pattern and blood pressure, relating to different cardiovascular disease risk profiles in ethnic groups (Toselli *et al*, 2008). Some immigrant groups were heavier and had a higher prevalence of abdominal obesity and hypertension than the other groups. Such findings call for further clinical and nutritional examinations of the immigrants. Appropriate care strategies and preventive measures need to be adequately developed to offer the perspective of improved health for the immigrant population

The results of an Italian study suggested that immigrants living in Bologna interact positively with their new environment (Toselli *et al*, 2014b). The overall situation of the immigrants was characterized by a low level of stress and discomfort and a medium level of well-being. Tunisians were the most stressed, with the highest level of discomfort and the lowest perceived quality of life. Tunisians are a group that has been living in Italy for a long time. The Roma and Kosovars, in spite of their higher unemployment, perceived a better quality of life and this perception was associated with the desire to remain in Italy. Almost all the Senegalese wished to return home, while the Tunisians and Moroccans were equally divided among those who wanted to stay in Italy and those who wished to return home.

Obesity is a recognised challenge and it is among the fastest growing health problems worldwide. Stress and rapid changes in lifestyle have often been associated with an increased incidence of obesity in immigrant populations. Increases in body mass index (BMI) and/or intra-abdominal adipose tissue are highly correlated with risks of cardiovascular diseases and many other chronic diseases. The alarming increase in the prevalence of obesity was documented in the studies by Toselli et al. with a focus on

North Africans and immigrant from this area (Toselli *et al*, 2014a). The overall results revealed a higher prevalence of overweight and obesity in females than in males in natives in North Africa and this pattern was also shown among immigrants. Literature reports have covered many populations and some have shown that almost half of some adult North African native and immigrant populations may be overweight or obese. Physical inactivity is higher than 20% in males and 40% in females in North African. The results underline a higher health risk in North African immigrants than in residents. Toselli et al. conclude that specific public health strategies should be adopted in immigrant populations of North African origin to control the obesity epidemic (Toselli *et al*, 2014a).

The theme of overweight with focus on children was covered in the review by Gualdi-Russo et al. and Toselli et al. (Gualdi-Russo *et al*, 2014c; Toselli *et al*, 2014c). They report that childhood overweight and obesity have increased at an alarming rate with the most vulnerable group being children with a migrant background. The accumulated data confirm that children and particularly girls of North African origin are more often overweight and obese compared to the native children. The trend is similar in urban areas of North African countries. Contributing factors include Westernization of eating habits and the lack of physical activity. Body image perception and beauty ideals among North African societies equate overweight and obesity with good health, higher social status, fertility and prosperity. Gualdi-Russo et al. point out the complex contributing mechanisms of acculturation in the host society and traditions of the country of origin which influence the issues of childhood overweight and obesity (Gualdi-Russo *et al*, 2012; Gualdi-Russo *et al*, 2014a; Gualdi-Russo *et al*, 2014b; Gualdi-Russo *et al*, 2014c; Toselli *et al*, 2014c). There is a societal need to target health promotion at risk groups advocating healthy diet and regular physical activity. The present review considered children but Toselli and Gualdi-Russo have shown that the same patterns apply to adult immigrants and they have recommended that social support may be an important means of stimulating physical activity, particularly in women (Toselli *et al*, 2014a).

The significance of physical activity for health goes beyond BMI. Epidemiological studies by the EUNAM partners from Sweden have shown that physical activity serves to protect against poor health, despite increased BMI and smoking (Faskunger *et al*, 2009). Immigrant women and men born in Arabic-speaking countries possessed an over-risk for coronary heart disease compared with Swedish-born individuals, even when the level of education and the employment status were taken into account (Koochek *et*

al, 2008). For elderly people who were occasionally physically active, the risk of all-cause mortality was 28% lower than for those who were physically inactive. Women and men who were physically active at least twice a week had a 41% lower risk of developing coronary heart disease than those who performed no physical activity after adjustment for all explanatory variables. The risk of reporting low levels of physical activity was significantly higher for women born in Southern and Eastern Europe and "all other countries", compared with women born in Sweden. The public health value pinpointing correlates of physical activity in different population groups is to influence their physical activity patterns and to target behavioural change programs (Gualdi-Russo *et al*, 2014c).

Mental and psychosomatic well-being of immigrant populations promotes their successful participation in the new society (Gualdi-Russo *et al*, 2014a; Toselli *et al*, 2014b). According to previous studies, factors negatively influencing mental health of immigrants were occupational and economic instability, cultural and social marginalization, family estrangement, pressure to send money to the family, racial discrimination, and lack of statutory documentation. In the present issue Toselli et al. covered psychosocial health issues among immigrants. They found that immigrants of different ethnic groups show heterogeneity in the risk of psychosocial disorders, but they are generally at a higher risk than the local population. The risk is higher in women and in those with a poor socioeconomic status. Acculturation and discrimination worsens psychosocial health. There is a need to collect detailed data on the psychosocial health among the various immigrant groups in Europe which could then be the basis of improvements.

The health of the children of immigrants is an important index of equality and well-being. Growth and development in infancy and early childhood are key indicators of an infant's health and long-term well-being. However, in a multi-ethnic society, evaluation of the growth of a child must take into account their ethnic origin. Since children of different ethnic groups may grow at varying rates, it is important to have appropriate group-specific information about growth and development. Moreover, ethnicity is an index of many factors, including environmental influences (such as nutrition) and cultural practices that can affect the outcome of birth and growth. The well-being and health of immigrant children is part of a broad issue of second generation immigrants and their assimilation into the society. The themes of child health, growth and psychosocial adaptation were reviewed by Gualdi-Russo et al. (Gualdi-Russo *et al*, 2014a). Age at menarche was lower in immigrant girls, while male pubertal progression

seemed faster in immigrants than in European natives. Negative effects on growth, health and psychosocial adaptation were noted among immigrant children living in low-income and disadvantaged communities. A higher morbidity associated with the minority status and low socio-economic situation. The authors call for adequate healthcare for disadvantaged immigrant groups.

Indicators relating to child bearing may be related to factors including social and physical well-being. Li et al. examined association between country of parental birth and small-for-gestational-age (defined as a birthweight of more than two standard deviations below the mean) in first singletons births (Li *et al*, 2012). The rate was higher in newborns with non-Swedish born than in those with Swedish born mothers (4.1 and 3.3%, respectively). Immigrants from Southern European countries, Africa, and Asia had higher risks of small-for-gestational-age in than those in the reference group, and the risks were even higher in compatriot parents. The results showed that the country of birth affected the risk of small-for-gestational-age. Maternity care should pay a special attention to pregnancies in certain population groups. The same authors studied preterm births among immigrants (Li *et al*, 2013a). Increased risk of particularly for very preterm birth was observed for mothers from Eastern Europe, Central Europe, Africa, and Asia. The increased risk disappeared in the second-generation female immigrants. Country of birth in mothers affected the risk of preterm birth; maternity care should pay special attention to women from certain population groups.

3. Disease panorama in immigrants compared to natives: guide to prevention and etiology (WP2)

Many studies have shown a relative decline in the health status of the immigrants compared to the native population. For example, the morbidity and mortality from coronary heart disease is higher among immigrants than in the majority population even when the results were adjusted for level of education and employment status. However, it has not been possible to draw definite conclusions as to whether these high-risk levels originated from the country of birth or whether they were the result of migration or the acculturation process, which has been a weakness in many epidemiological studies on migration.

Infectious diseases are an example on how immigration may dramatically change the disease panorama in receiving countries as reviewed by Khyatti et al. (Khyatti *et al*, 2014). Overall infectious disease

mortality has significantly decreased in most European countries. Tuberculosis has re-emerged in Europe and it is concentrated among migrants, specifically among those infected by drug-resistant strains. Migrants arriving from North Africa and sub-Saharan Africa carry higher rates of hepatitis C virus (HCV) and hepatitis B virus (HBV) than the host European populations. The prevalence of human immunodeficiency virus (HIV) infections in North African populations is very low, generally around 0.1% and thus the impact of North African migrants in European HIV infections is low. The hallmark of the HIV epidemic in Europe is the increase in the penetration of non-B strains and the circulation of several recombinant forms resistant to treatment. An important source of these is the migration from sub-Saharan Africa, and persons from that region are using North Africa as a transit point into Europe. Leishmaniasis is a re-emerging zoonotic disease in Southern Europe although not specific to migrant groups. Similarly to HIV, migrants from sub-Saharan Africa may be infected with malaria and represent a risk of malaria re-emergence in Europe. Khyatti et al. conclude that high migrant influx into Europe has resulted in changing patterns of communicable diseases which require a continuous surveillance. According to WHO guidelines, targeted screening followed by preventative vaccination can serve as an initial step. Integration of migrants into the local healthcare systems is a subsequent step allowing for long-term treatment and follow-up. Public health campaigns emphasizing prevention are considered essential for the mitigation of disease dissemination in the migrant pool and for second-generation migrants.

Immigration is influencing the pattern of recessive diseases in Europe, as reviewed by Anwar et al. (Anwar *et al*, 2014). Consanguinity is common in North Africa, reaching half of all marriages in some areas. As a consequence, recessive disorders are common in the region, sickle cell disease leading in prevalence, followed by thalassemia. With immigration they have spread to Europe and are likely to be further propagated because the habit of inbreeding is continuing in many immigrant communities. Sickle cell disease and thalassemia are well known to the European medical community but rarer recessive diseases endemic outside Europe are less familiar. An example is familial Mediterranean fever, which is common in the Eastern Mediterranean area and is emerging as the most common hereditary autoinflammatory disease in countries with immigrants from the Eastern Mediterranean area, including Turkey. Anwar et al demonstrate that historic movement of populations and current immigration are influencing the concept of ‘endemic’ disease. Diseases migrate with people and the European medical community needs to not only recognise the challenges of

infectious disease but also to be able to diagnose, treat, and help prevent emerging diseases.

Immigrant studies have had and will have an important contribution to the etiological understanding of disease causation in defining the causes as 'environmental' or 'inherited' (equal to genetic) (Hemminki *et al*, 2014). These concepts and the numerous Swedish immigrant studies on cancer (Hemminki, 2014a; Hemminki, 2014b; Hemminki *et al*, 2013a; Hemminki *et al*, 2014; Hemminki *et al*, 2013b; Hemminki *et al*, 2012; Mousavi *et al*, 2012a; Mousavi *et al*, 2013a; Mousavi *et al*, 2013b; Mousavi *et al*, 2013c; Mousavi *et al*, 2014; Mousavi *et al*, 2012b; Mousavi *et al*, 2012c; Mousavi *et al*, 2012d) were reviewed Hemminki et al. (Hemminki *et al*, 2014). A disease appears to be environmentally caused if the risk changes much upon immigration and if it changes between immigrants and their offspring. A stable disease risk may indicate a strong genetic contribution. The classical cancer studies on Japanese immigrants to USA and multinational immigrants to Australia showed that the incidence in common cancers changed to the level of the new host country in one or two generations. These findings were fundamental to the understanding of the environmental aetiology of human cancer. Studies in Sweden have shown that the second generation immigrants, those born in Sweden, already have adopted the Swedish cancer incidence. Many immigrants had arrived as young couples to Sweden, whereby their Sweden-born children have a completely indigenous genotype of their parents. Such data led the authors to conclude that the childhood environment, rather than genotype, is very important in setting the individual's cancer destiny.

In the review by Hemminki et al. some extreme differences in cancer incidence among immigrants were highlighted, including high risks of liver cancer in East Asians and Africans, nasopharyngeal cancer in Southeast Asians and North Africans and mesothelioma among Turks (Hemminki *et al*, 2014). Also the known high risks in developing countries for liver, esophageal, stomach and cervical cancers were observed among immigrants. The causes for these high-risk cancers are ascribed to microbial infections, nutritional imbalances and toxins. Cervical cancer was not increased among immigrants from developing countries; in fact the risks were very low probably due to the sexual habits of the immigrant groups. North African immigrants had an overall cancer risk 20% lower than Swedes. The risks of prostate, testis, skin cancers, and of melanoma are very low but, in contrast, the risks of liver, pancreatic, oral and male lung cancers were higher compared to Swedes. Male pancreatic cancer in North African

immigrants was more common than in any immigrant group for unknown reasons.

Cancer diagnostics have been relatively uniform over the past 50 years (Hemminki *et al*, 2014). Thanks to the International Agency of Cancer (IARC) in Lyon, quality-guaranteed cancer rates are available from various parts of the world and these are presented in the books 'Cancer Incidence in Five Continents'. Yet, as discussed by Hemminki et al. cancer incidence data are lacking for most countries of the world and examples are shown for Egypt and Morocco on how the introduction of local cancer registries may proceed. IARC has complemented its efforts on global estimates on cancer incidence and mortality by the GLOBOCAN database (globocan.iarc.fr). The database provides contemporary estimates on major types of cancer at a national level for 184 countries of the world. It should be emphasised that GLOBOCAN data are based on estimates and the users are asked to note that "The sources of data are continuously improving in quality and extent, estimates may not be truly comparable overtime and care should be taken when comparing these estimates with those published earlier. The observed differences may be the result of a change in the methodology and should not be interpreted as a time trend effect". Hemminki et al. discuss the use of immigrant data to extrapolate to the incidence in the country of origin. A successful example was the noted high risk of testicular cancer in Chilean men in Sweden which was later confirmed when Chilean cancer registry data became available.

Even if we currently have reasonable estimates on the global cancer incidence, international standards in diagnostics are less developed for many other diseases. Diagnostic criteria may not be uniform within a single country and even for developed countries population-based incidence figures may not be available. Thus, international incidence data are not reliably known for a large variety of diseases and it is difficult to conclude anything about environmental and genetic causation (Hemminki, 2011). In some countries, such as Sweden, all hospitalizations are available since 1987 in the Hospital Discharge Registry. Thus diseases requiring hospitalization can be obtained from this source (Gilliver *et al*, 2014; Koochek *et al*, 2008; Li *et al*, 2014; Li *et al*, 2013a; Li *et al*, 2013b; Li *et al*, 2012). The additional advantage for Sweden is that the birth country of every individual is known.

The Swedish EUNAM partners have used the Hospital Discharge data in immigrant studies, for example, to examine whether there is an association between country of birth in first-generation immigrants and hospitalization for rheumatic diseases, and to further study whether any such

associations remain in second-generation immigrants (Li *et al*, 2009). First-generation immigrants from Iraq had a higher risk of rheumatoid arthritis than native Swedes who were the reference group. The risk of systemic lupus erythematosus was increased in immigrants from Iraq and Africa; these raised risks persisted in the second generation. These findings suggested that both genetic and environmental factors are involved in the aetiology of specific rheumatic diseases. Using the same source of data the Swedish team analysed whether there is an association between country of birth in first-generation or second-generation immigrants and hospitalization for an inflammatory bowel disease (Li *et al*, 2011). The incidence was decreased in the first-generation immigrants and the pattern partly remained in the second generation. However, some groups of second-generation immigrants had higher risks of Crohn disease and some others of ulcerative colitis. The data may imply poor adaptation of the gastrointestinal immune system in the offspring of immigrants.

The Swedish partners carried out a nationwide study on the association between immigrants' country of birth and hospitalization for type 2 diabetes (T2D), and, further, whether any such association remained in second-generation immigrants (Li *et al*, 2013b). First-generation African men and women showed a relative risk about 3.0, followed by Lebanese men and women. Asian and Chilean women tended to have increase risks. However, the risks appeared to disappear in the second-generation, prompting the authors to conclude that the risk factors were mainly environmental.

Gilliver et al. reviewed Swedish studies on mental disorders and suicide risk among immigrants (Gilliver *et al*, 2014). The summarised studies showed increased risks of common mental disorders, such as depression and psychotic disorders, in immigrants to Sweden compared to native Swedes. Moreover, the results showed notable differences between different immigrant groups and between males and females. Risk of suicide was increased in some immigrant groups, but decreased in others. The authors concluded that targeted qualitative and intervention studies could facilitate efforts to develop and implement preventive methods for immigrants at high risk for mental ill health. Li has shown results on autism related to neighbourhood effects, including immigrant dense areas in Sweden (Li *et al*, 2014).

4. Health care utilization by immigrants compared to natives (WP3)

The EUNAM reviews demonstrate that migrants are more susceptible to problems associated with somatic, emotional and mental health arising from their vulnerability and cultural obstacles in the host country. Yet equality of need for health care among immigrants and natives does not necessarily translate into equality of use, as there may be various invisible barriers to health care. Differences in use of healthcare may result from lack of access or language barriers. For example, if immigrants do not use the medical system in the same way as the native population, they may not know of their diseases in the first place. In addition, if immigrants are less likely to be treated for some conditions, they could die more quickly and, paradoxically, have a lower prevalence of these conditions than the surviving population. It is also possible that data quality may differ between immigrants and the native population. The foreign-born are also less likely to have adequate health care and insurance coverage, and may not be familiar with the many phases of the health care system.

EUNAM partner Dourgnon at IRDES, Paris, has conducted French population heath surveys on representative population sample showing that immigrants have a lower rate of access to private practice ambulatory care of both general practitioners and specialists compared to the rest of the French population. These differences pertain to immigrants' relative disadvantaged social conditions, including education, income and access to complementary insurance. Most of the observed differences disappeared once the socioeconomic characteristics were adjusted in the analysis. The survey showed a more contrasted situation in terms of preventive care; immigrants more often declared being vaccinated but more seldom used screening tests.

A relevant and timely addition to the EUNAM summary is the 'Grenada Declaration', originating from the 2014 meeting of the European Public Health association' (http://www.eupha-migranthealthconference.com/?page_id=1766). It has implications to many aspects of immigrant health but particularly to health care utilization on which the implemented economic austerity policies in many European countries may limit the access of immigrants and lead to further inequality.

5. Population well being and health care in North Africa with time trends (WP4)

The health care infrastructure has suffered for decades due to medical brain drain, i.e., emigration of health professionals, including physicians and nurses. Most affected have been low and medium income countries, particularly from Sub-Saharan area but also from North Africa. The emigration has weakened directly medical services and indirectly the quality of medical training. Moullan investigated the impact of foreign health assistance and observed a significant negative effect of foreign assistance on the medical brain drain (Moullan, 2013). Thus, emigration rates of doctor increased in proportion to the amount of health aid received by recipient countries. However, health aid played a key role in the improvement of vaccination, treatment and prevention which may reduce death rate. These positive effects may eventually decrease physicians' emigration rates and weaken the vicious circle of physicians drain.

In most developing countries, urbanization is a major factor involved in the high prevalence of obesity. Although Africa is the least urbanized continent, its population is becoming increasingly urban and its cities are growing at unprecedented rates. Despite widespread poverty in North African cities, there is easier access to cheap foods with high fat and sugar contents among the urban poor than among the rural population. A more industrial diet has been replacing their traditional diet. Although total energy intake is higher in rural areas, it has a lower contribution from fats and animal products. Calorie expenditure is also higher in rural people due to agricultural work and lower use of transportation systems; by contrast, urban people ride motorcycles, cars or buses. Therefore, urbanization, aging and the socioeconomic level have been considered the main determinants of low physical activity levels in North African populations. Accelerated urbanization and altered dietary and lifestyle patterns have caused a progressive increase in cardiovascular risk factors such as obesity, hypertension, diabetes and hypercholesterolemia.

Contrary to what occurs in developed countries where low socioeconomic status (SES) and poor neighbourhoods are associated with a higher prevalence of obesity and chronic diseases, an inverse or low SES-high adiposity association has been reported in Africa. Female fatness is a cultural symbol of beauty, fertility and prosperity. Women with low educational levels do not recognize the risks and health consequences associated with overweight and obesity, since fatness is considered desirable and perceived as related to higher social status.

Nevertheless, very few studies have examined these associations over time, making it difficult to assess the socioeconomic differences in the rate of progression to overweight and obesity in urban Africa.

The EUNAM review by Toselli and co-workers could conclude about the prevalence of overweight/obesity in North African adults that there is a consistent difference between men and women, women showing higher frequencies of overweight and obesity than men (Toselli *et al*, 2014c). The literature data show that the highest prevalence of obesity is reached in Egyptian females. This could be related to cultural values, since North African populations favour larger body size among women as a sign of fertility, healthiness or prosperity. Among males, Egyptians again show the highest values of overweight and obesity. Despite the limited literature data available, an increasing trend over time in the prevalence of obesity was observed in North African countries, especially in Egypt. Obesity is higher in females than in males and in urban people than in rural ones, in agreement with populations in other parts of Africa. Accelerated urbanization and changes in dietary and lifestyle patterns (especially physical inactivity) have contributed to the increased prevalence of obesity, hypertension, diabetes and hypercholesterolemia, and thus the risk of cardiovascular diseases in North African populations. It has been reported that diets in low- and medium-income countries are converging on what is often termed the "Western diet", characterized by a high intake of refined carbohydrates, added sugars, fat and foods of animal origin.

In North African populations, the reduced work-related energy expenditure in the more labor-intensive occupations, changes in transportation, leisure and domestic production have led to reduced physical activity (Toselli *et al*, 2014c). The transition from agricultural labor (production and subsistence) to salaried labor that occurred toward the end of the 20th century in many developing countries decreased the physical activity of women more than men. Throughout both North and Sub-Saharan Africa, obesity and physical inactivity in both sexes is associated with high social status, fertility, good health and prosperity. Furthermore, gender differences in cultural (regional) habits can intensify the gender differences in obesity.

In the last twenty years, an increase in overweight and obesity in children and adolescents has been observed in both developed and developing countries. In developed countries, children of immigrants seem to be particularly at risk. For EUNAM, Gualdi-Russo and co-workers surveyed the literature regarding North Africans living in North African countries and as immigrants in Europe has highlighted an increasing

prevalence of overweight and obesity in children and adolescents of both groups (Gualdi-Russo *et al*, 2014c; Toselli *et al*, 2014c). In several European countries the prevalence of overweight and obesity is higher among children of Moroccan and Middle Eastern/North African immigrants than the native children of both sexes. The prevalence of overweight and obesity seems to be higher in North African female children and adolescents than in males both in Europe and in North African countries, suggesting that girls are particularly at risk.

Socio-cultural factors, in particular, should be viewed as the origin of the observed trends in increasing childhood overweight and obesity in immigrants of North African origin and in children living in North African urban areas (Gualdi-Russo *et al*, 2014c). First of all, the westernization of eating habits leads to higher energy intake and a predisposition to weight gain. Body image perception and beauty ideals among North African societies can exacerbate the problem, as overweight and obesity are not perceived as a threat to health but are considered desirable and are associated with good health, higher social status, fertility and prosperity. Another major predisposing factor is the lack of a health-conscious exercise culture among North African societies. Children and adolescents are unaware of the benefits of physical activity and its role in preventing obesity. The lack of exercise is particularly diffuse among girls of North African descent. This fact, besides revealing an important aspect of the status of women within the society and their place in the public space, is likely at the origin of the higher prevalence of overweight and obesity found in girls living in North African countries and as immigrants in Europe. It seems, therefore, that childhood overweight and obesity among North African immigrants in Europe are conditioned by factors linked to acculturation in the host society (the acquisition of Western eating habits) and other aspects maintained from the country of origin (e.g. body image perception, low physical activity, women's status and their place in society).

Psychosocial wellbeing may not be objectively compared between societies (5, 36). When assessing psychosocial difficulties among immigrants living in Europe, one needs to consider the difficulties faced by populations living in North African countries. People who live in countries where there is a lack of access to mental health services are less likely to be diagnosed and poor access to services could affect the rate at which depression is diagnosed. This could explain the low recorded rate of depression in countries with political conflicts and instabilities, such as Tunisia, Libya and Egypt, as well as the stigma acquired due to mental or psychological disorders. It has been found that people suffering depression

numbered more than 5 % in the Middle East, North Africa, and sub-Saharan Africa. The prevalence of depression in women was double that in men.

In order of medical research to properly serve the North African population research ethics need to be in place. Conducted research must comply with laws and other requirements for research that involves human subjects. The overview by Marzouk et al revealed that noticeable efforts have been made to regulate research ethics in certain countries in the Middle East (Marzouk *et al*, 2014). They have complied with the majority of protections mentioned in the international guidelines related to research ethics. Accordingly, the composition and functionality of the internationally registered research ethics committees comply to the international guidelines. There is growing awareness of research ethics, extending to teaching efforts to undergraduate and postgraduate medical students.

6. Disease spectrum in North Africa now and then (WP5)

Communicable diseases such as human immunodeficiency virus (HIV), malaria, tuberculosis (TB) and hepatitis viruses, pose a worldwide public health problem in both developing and developed nations resulting in significant mortality (Khyatti *et al*, 2014). The North African region is no exception to this rule, with half of reported deaths being directly attributable to communicable diseases. The history, presence and future of infectious disease in North Africa has been reviewed for EUNAM by Khyatti and co-workers (Khyatti *et al*, 2014). Vaccination programs seek to reduce prevalence levels, yet many North African countries exhibit intermediate or high prevalences for many bacterial, zoonotic, viral, and parasitic diseases. Due to pathogen adaptability, the NA region is now faced with the persistence or stagnation or even the resurgence of certain diseases, in particular, TB, hepatitis, HIV, meningitis and leishmaniasis. Migration via North Africa to other destinations adds another level of complexity in disease spread and impacts the health of the local population. Adequate monitoring and preventative strategies must be in place so as to mitigate the negative impact on NA residents' health and reduce the burden on future generations.

Understanding and combating the spread of disease is among the most serious challenges we face today. Due in part to the adaptability of pathogens, re-emerging diseases such as TB and previously unrecognized diseases, such as hepatitis C and HIV, have emerged as new threats. There is also a situation for leishmaniasis endemic for visceral and major outbreaks for cutaneous forms in the region. Leishmaniasis is expected to increase due

to global and ruralization of suburban space and the zoonotic cutaneous leishmaniasis would pose more problems in the future unless significant control measures are taken. The role of migration movements in NA countries is of increasing importance, regarding their influence on the infectious diseases map both in the region and in the world. Suitable strategies are needed to address the health needs of immigrants and to protect the health of native populations, in order to preserve the progress resulting from decades of fighting against infectious diseases.

There have been cancer registries in Algeria and Tunisia the data from which have been included Cancer Incidence in Five Continents. New registries have been established in Egypt and Morocco and the incidence of cancer in the North African region can be assessed based on these data (Hemminki *et al*, 2014). According to the Casablanca Registry in Morocco, the 5 most common cancers in women were breast (ASR 35.0/100,000), cervix (15.0), thyroid (6.7), colorectum (5.8), and ovary (5.3). Cervical cancer is relatively common in Morocco. Mutation analysis of the related human papilloma virus (HPV) mutations suggested a predominance of European lineage strains among Moroccan HPV 16 isolates; this raises the possibility that HPV16 variants have a preferential role in progression to malignancy and could be associated with the more aggressive nature of cervical cancer (34). In Moroccan men the ranking was lung (25.5), prostate (9.6), bladder (8.7), colorectum (8.1) and non-Hodgkin lymphoma (7.2). There are some special features of cancer incidence in North Africa. Nasopharyngeal cancer is endemic in Western North Africa with one of the highest rates in the world but largely limited to Morocco, Tunisia and Algeria. It showed a 3-fold male excess. The age-specific incidence displays a little peak in the teens followed by a steady increase to reach a maximum at age of 65-69 for men and age 70-74 for women. The high incidence is believed to result from the interactions of genetic, viral infection (Epstein Barr virus) and environmental factors, including diet at a young age. There is a strong but opposite North African east-west gradient of decreasing incidence for bladder and liver cancers which are common in Egypt and rarer in Algeria and Morocco. Causes for the high incidence are Schistosoma hematobium and hepatitis B and C infections, respectively.

Consanguinity is common in North Africa and the estimates range from 40% to 49% of all marriages in Tunisia and 29% to 33% in Morocco (Anwar *et al*, 2014). As a consequence, recessive disorders are common in the NA region and we give some examples. Thalassaemia and sickle cell disease/anaemia constitute the most common inherited recessive disorders globally and they are common in NA but with immigration they have spread

to Europe and to other parts of the world. Another example is familial Mediterranean fever, which is common in the Eastern Mediterranean area. The reason why consanguinity is related to recessive disease is the fact that consanguinity imply sharing of genetic heritage because of marriage between close relatives originating from a common ancestor. With limited natural selection, recessive genes may become more frequent in an inbred compared to an outbred population.

North African and Middle Eastern populations share disease alleles that cause recessive diseases as reviewed for EUNAM by Anwar and co-workers (Anwar *et al*, 2014). For example, the Tunisian population shares founder mutations with other North African and Middle Eastern populations for 43 inherited conditions. Founder chromosomal segments described in Tunisian patients with Meckel syndrome (characterized by renal cystic dysplasia), sickle cell anaemia and Xeroderma pigmentosum (XP) group A are identical to those described in Algerian patients. The founder mutations leading to adenomatous polyposis of the colon and the hepatocerebral mitochondrial DNA depletion syndrome are reported on the same haplotypes between Tunisian and Moroccan patients. In Tunisian, Algerian and Moroccan patients share haplotypes for autosomal recessive non-syndromic optic atrophy, Rare lymphocyte syndrome and for the major founder mutation p.R228X in XPA: beta-thalassaemia and familial Mediterranean fever were discussed earlier

7. Lessons for prevention in North Africa, EU and the world (WP6)

Despite the alarming effects of obesity on health, economy and society, national strategies to combat obesity do not exist in North African countries. Thus far, obesity has not been recognized as a major public health priority, and convincing policy makers about the need to prioritize action to prevent obesity will be a crucial first step.

In general, all immigrant groups participate in sporting activities less frequently than the native population. This can be ascribed partly to cultural differences in sports participation among ethnic groups and between men and women, as women participate in sports less frequently than men. Since overweight and obesity reflect an energy imbalance, the main areas of intervention are dietary intake and energy expenditure, for which the main modifiable component is physical activity.

As overweight and obesity in childhood are associated with serious health risks, it is important to target the most at risk groups (i.e. daughters of immigrants) with health promotion messages and lifestyle intervention

strategies aimed at preventing overweight, e.g. promotion of a healthy diet, information on the health risks linked to overweight and obesity and on the role of physical activity in weight control.

The Swedish data on the country of parental birth and pregnancy outcome indicators of small-for-gestational-age and prematurity suggested increased risks particularly for mothers born in Africa and in Asia. The authors recommended that maternity care should pay a special attention to pregnancies in certain underserved population groups including immigrants from defined areas.

Changing patterns in communicable disease transmission and emergence in Europe require a constant surveillance but remains non-harmonized between EU member states. Communicable disease among migrants is an issue that must be tackled on multiple fronts by the EU governments, public health agencies, and health institutions. The WHO describes four Axes in the Global Action Framework (2010) which delineate a comprehensive outline for public health authorities, including increasing awareness, creation of evidence-based public health policies, vaccination prevention strategies, and screening. Targeted screening for migrants arriving from highly endemic countries can serve as a front-line defense that identifies the groups most at risk for increasing national prevalence levels, while also being cost-effective in nature. This can be followed by preventative vaccination programs, which seek to concentrate resources on those who need it most. A successful integration of migrants into the local health care system ensures that disease cases are diagnosed and treated, which helps to define the proportion of national incidence cases that are directly attributable to migrants. Next, the creation of partnerships between public health agencies and local health facilities in order to ensure the management and follow-up of migrant cases once they have integrated the health care system, an essential aspect for communicable diseases with long latency periods. Finally, the diffusion of national educational campaigns as a form of transmission prevention, which target migrants and second-generation children of migrants at risk of contracting a disease when traveling back to their home country.

The incidence rates for most cancers are low in developing countries, but for a few cancers the rates are very high. These include liver, nasopharyngeal, esophageal, stomach and cervical cancers. The causes for these cancers are usually known and they are related to microbial infections, nutritional imbalances and toxins, and the risks of these cancers tend to be high in first generation immigrants in EU. Cancer rates are high in EU for most cancers in agreement with most developed countries. The reason for

the high risk is referred to as ‘western lifestyle’ and ‘affluence’ but more precisely the reason is probably excess energy intake. Overweight and obesity are risk factors for many cancers, as discussed elsewhere in this special issue. An important conclusion from the reviewed (Swedish) immigrant studies in which a large proportion of the present immigrant population had entered Sweden in their early 20s is that the cancer pattern or destiny is set before age 20 years. Those who lived in a low-risk country until adulthood remain at low risk and, vice versa, youth in a high-risk country destines a high risk for the rest of one’s life. This is highly relevant for cancer prevention which should target early years of life. In the same vein, the growing problem of obesity and excess energy intake in the developing countries will predict increasing cancer rates in some segments of the population which had traditionally low rates of cancer.

The Swedish on hospitalization for type 2 diabetes demonstrated increased rates in first-generation African men and particularly women born in Asian and Chile. However, as the risks appeared to disappear in the second-generation, he authors to conclude that the risk factors were mainly environmental. The authors speculate that socioeconomic disadvantage plays a role in the development of diabetes among the immigrant groups at risk. The assumed risk factors include obesity, dietary fat intake, smoking, and low levels of physical activity, of which obesity and lack of physical activity have been a repeated theme in EUNAM survey. An important message is that these are modifiable risk factors but preventive measures need a special targeting at vulnerable immigrant groups.

EUNAM has discussed consanguinity in North Africa, and some of its deleterious consequences in indigenous and immigrant populations. The distribution of founder mutations is the result of historical migratory movements and many common disease alleles in the current NA have origins elsewhere but the disease burden in NA is largely the result of inbreeding. NA has been a main source of European immigrants and the disease alleles have been introduced to the national gene pools. However, for recessive diseases the most frequent disease manifestations are in inbred immigrant populations. It remains unclear how well European health care providers are able to cope with the imported diseases. The example of periodic fever syndromes showed that a new disease may be introduced into immigrant-dense countries with little notice by the medical community. Diagnostics of recessive disease require demonstration of specific mutations in target gene. Thus knowledge of the common founder mutations in ethnic immigrant populations is required and diagnostic tests used in NA could be applied.

8. Conclusions

The EUNAM project was possible because EU granted special funds for immigration studies which were specifically earmarked for heath studies on North African immigrants. The North African and the Eastern Mediterranean areas have historically been the main sources of immigrants to EU but internal migration in EU has probably exceeded the movement from outside more recently. For example, close to 70% of the migrants to Germany in 2013, totalling 1.2 million, came from other EU countries. Even if the EU legislation guarantees some basic rights to those moving within the EU, many migrants still face the same problems that the non-EU migrants experienced earlier and one would need to learn from this experience. As the massive internal movements are very recent the social consequences are not yet known. In any population, migrants are always a minority and national funding for immigrant questions is very limited. EU should therefore open dedicated funding opportunities on migrant health-related themes.

The survey conducted by EUNAM show that studies in immigrants have advanced our understanding of disease aetiology and epidemiology in many ways (10). In the course of these scientific considerations, it has become increasingly clear that immigrant health issues are no different from those of natives as these are germane to human health.

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Migration dans l'espace méditerranéen: Histoire et perspectives [Migration in the Mediterranean: History and perspectives]

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Abstract - The origin of the migratory fact goes back to colonization; migration of North Africans to Europe was long regarded as an economic factor in regulating the labor market in the Maghreb and Europe especially in France. But this fact has grown with decolonization and he took other irreversible forms with globalization. However, this regulation has become structural and emigrants who dared to cross the Mediterranean found themselves prisoners of their first decision and emigration became final. The migration is thus the result of the creation of this unavoidable and irreversible multidimensional space of mutual interests, it can be also the result of dependence that dates back centuries and is transformed and changes forms but give the same results. Fernand Braudel calls the Mediterranean sea as "movement space." A space for exchange, conflict and mixings. The south coast actually considered as a major drift region to the north coast was also an immigration area that has received people in distress from Andalusia, Italy, Spain, Malta and all other Mediterranean islands. Migration is a fact that can be explained by the "multidimensional" story that links the origin countries and host ones. The concept of space is a very sensible explanation beyond the geographic boundaries to reach its political, economic, human, social, cultural significance The evolution of the world has shown that the migration issue is beyond the scope of the market for employment. Egyptian migration to Europe is different from Maghrebian one. Since the first migrants from the late nineteenth century and the first decades of the twentieth, were students. Egyptian migration job to Europe is a very recent migration and dates only two decades. This migration was intended mainly to the Gulf countries and it was the highest number of migrants in all sectors in these countries.

Abstract – L'origine del fenomeno immigratorio risale alla colonizzazione; la migrazione di Nord-Africani in Europa è stata a lungo considerata come un fattore economico nella regolazione del mercato del lavoro nel Maghreb e in Europa, particolarmente in Francia. Ma questo fenomeno è andato accrescendosi con la decolonizzazione e ha assunto altre forme irreversibili con la globalizzazione. Tuttavia, questo andamento è divenuto strutturale e gli emigranti che hanno osato attraversare il Mediterraneo si sono trovati prigionieri della loro prima decisione e l'emigrazione è divenuta definitiva. La migrazione è quindi il risultato della creazione di questo spazio multidimensionale inevitabile e irreversibile di interessi reciproci; può essere anche il risultato di una dipendenza che risale a secoli prima e si trasforma e cambia forma ma con gli stessi risultati. Fernand Braudel chiama il Mar Mediterraneo "spazio di movimento". Uno spazio di scambio, conflitti e mescolamenti. La costa sud, considerata effettivamente come un'importante regione di deriva verso la costa nord, è stata anche un'area di immigrazione che ha ricevuto persone in difficoltà da Andalusia, Italia, Spagna, Malta e da tutte le altre isole del Mediterraneo. La migrazione è un processo che può essere spiegato con la storia "multidimensionale" che collega i paesi di origine e quelli di accoglienza. Il concetto di spazio è una spiegazione molto sensata, al di là dei confini geografici, per raggiungere il suo significato politico, economico, umano, sociale, culturale... L'andamento del mondo ha dimostrato che la questione delle migrazioni va ben oltre gli scopi del mercato dell'occupazione. La migrazione egiziana verso l'Europa è diversa da quella magrebina. Infatti i primi migranti, dalla fine del XIX secolo ai primi decenni del XX, erano studenti. Il processo di migrazione egiziana verso l'Europa è molto recente e risale solamente a due decenni fa. Questa migrazione era destinata principalmente ai paesi del Golfo ed è stato il più alto numero di migranti in tutti i settori in questi paesi.

1. Introduction

Tracer l'historique du fait migratoire qui date déjà de plusieurs décennies, est un sujet qui reste toujours d'actualité. Sujets à une grande polémique, les chercheurs sont souvent appelés à faire des mises au point et retracer cette histoire qui n'est pas arrivée jusqu'à maintenant à avoir l'unanimité ou un consensus des chercheurs et des spécialistes. Cette polémique ne cesse de grandir à chaque fois qu'il y a des élections au Nord ou des accidents mortels dans les plages du Sud.

Il peut paraître que le retour à l'analyse de l'origine du fait migratoire est dépassé. Mais analyser l'évolution du fait migratoire reste toujours

d'actualité et nécessite un suivi continu. *Surtout* que la portée de cette analyse dépasse largement les limites de l'académique est de la recherche pour apporter de l'eau au moulin des politiques. De ce fait, cette analyse ne peut pas être le fait des historiens, ou des sociologues, ou des politologues mais c'est une analyse pluridisciplinaire qui s'impose.

L'origine du phénomène migratoire remonte à la colonisation, la migration des Maghrébins vers l'Europe était pendant longtemps considérée comme un facteur conjoncturel de régulation du marché du travail au Maghreb ou en Europe particulièrement en France. Mais ce fait a pris de l'ampleur avec la décolonisation et il s'avère qu'il a prit d'autres formes irréversibles avec la mondialisation.

Cependant, cette régulation est devenue structurelle et les émigrés qui ont osé traverser la méditerranée se sont trouvés prisonniers de leur première décision et leur émigration est devenue définitive.

Le fait migratoire est ainsi le résultat de la création de cet espace multidimensionnel incontournable et irréversible d'intérêts mutuels, il peut être aussi, le fruit de la dépendance qui remonte à des siècles et qui se métamorphose et change de formes mais conduit aux mêmes résultats.

Fernand Braudel qualifie la méditerranée « d'espace mouvement ». Un espace d'échanges, de conflits de brassages. La rive Sud considérée aujourd'hui comme principale région de migration vers la rive Nord était aussi une zone d'immigration qui a reçu des populations en détresse d'Andalousie, d'Italie, de l'Espagne, de Malte et de toutes les autres Iles méditerranéennes.

Le fait migratoire est un fait qui trouve son explication dans l'histoire « multidimensionnelle » qui relie les pays d'origine et les pays d'accueil. La notion d'espace est une explication très judicieuse qui dépasse le cadre géographique pour atteindre sa portée politique, économique, humaine, sociale, culturelle... L'évolution du monde a démontré que la question migratoire dépasse le cadre du marché de l'emploi.

Si la migration des Maghrébins fût une migration qui a trouvé son essor après quelques années de la fin de la colonisation, celle des égyptiens vers l'Europe est particulière. Puisque les premiers migrants de la fin du XIX siècles et les premières décennies du XXe, étaient des étudiants. La migration égyptienne d'emploi vers l'Europe est une migration très récente et ne date que de deux décennies. Par contre, elle était destinée essentiellement vers les pays du golfe, et elle a constitué le nombre le plus élevé de migrants dans tous les secteurs dans ces pays.

2.Aperçu sur la migration avant guerre

La constitution de l'espace migratoire contemporain est le résultat de l'histoire contemporaine de toute la région. Cette histoire a pris son essence depuis le dix-neuvième siècle, période pendant laquelle le Nord a exercé d'une manière irréversible sa main mise sur le Sud d'une manière générale et sur le Maghreb plus particulièrement.

Cet espace s'est créé suite à la pénétration du capital français et de l'influence politique qu'ont exercé les puissances coloniales surtout française sur le Maghreb. Les transformations profondes des sociétés, des économies, des valeurs…. ont été les lointaines causes du fait migratoire contemporain. L'espace multidimensionnel créé par la présence française au Maghreb ne peut qu'aboutir à un échange humain résultat de la mobilité dans les deux sens.

La migration vers les autres pays européens a été pour longtemps marginale, et n'est apparu que relativement tard. En dehors des maghrébins, les populations des autres pays de la rive Sud ou Est de la méditerranée, n'ont pas choisi particulièrement l'Europe, mais ont migré vers l'Amérique latine ou bien vers l'Afrique sub-saharienne.

- *La migration Nord-Sud*

La présence des populations d'origine Européenne n'apas vu le jour seulement suite à la colonisation, en effet, elle datait d'avant le dix-neuvième siècle. Bien qu'il ait été toujours très difficile de mesurer le nombre d'étrangers et le nombre d'européens au Maghreb, seuls quelques statistiques nous ont permis d'avoir quelques chiffres. Ainsi en Tunisie, nous savons que « les nouveaux venus arrivaient sans passeports, ils ne manifestaient aucun empressement à se faire enregistrer auprès de leurs consulats, les consuls de Naples et d'Angleterre ne connaissaient que très approximativement le nombre de leurs ressortissants » (Ganiage, 1960).

Carrefour entre le Nord et le Sud, le Maghreb, a connu un brassage humain et culturel des plus distingués. Se situant entre l'Afrique sub-saharienne et l'Europe, il a été pendant longtemps un passage obligé pour le commerce et les échanges humains dans la région. En faisant partie de cette région le Maghreb a connu, bien avant la présence militaire et coloniale, une présence européenne voir internationale. Cette présence s'est consolidée surtout lors des périodes de prospérités qu'à connu le Maghreb, ce qui a était à l'origine de la création de villes et de quartiers entiers d'Européens, l'exemple de Casablanca et de La Goulette en sont témoins. D'autres part, le Maghreb a constitué une terre de refuge pour plusieurs milliers de personnes et de familles qui venaient aussi bien du Livourne, de La Sicile que de Malte

voire d'autres régions plus lointaines telles que l'Afrique sub-saharienne, la Russie …

Par ailleurs, la crise de la paysannerie Italienne a entrainé après quelques décennies une vague de migration vers les côtes Tunisiennes et l'Est algérien. Une migration similaire des Espagnols vers le Maroc et l'Ouest Algérien s'est développée presque à la même période.

Les Ports de la Goulette, de Tanger, d'Alger, d'Oran connus pour être les portails des invasions espagnoles et turques, deviennent très actif vers la fin du XVIII siècle, en recevant des familles entières de pêcheurs et de maçons. Ces nouveaux immigrants ont constitué une communauté à part, ils ont créé « des villages » dans plusieurs villes côtières, avec églises, coutumes et traditions siciliennes, Sardes, Maltaises ou Espagnoles.

- *La migration méditerranéenne vers le monde*

Avec la découverte du nouveau monde et surtout avec l'ancrage des populations d'origine européenne dans les deux Amériques, de nouvelles opportunités se sont présentées aux populations en crise ou bien à la recherche de nouvelles richesses. Tous les pays européens ont contribué au peuplement des nouvelles terres, notamment les italiens, les allemands et les irlandais.

Plusieurs raisons ont été à l'origine de cette vague de migration intense.

- La transition démographique européenne caractérisée par un taux de croissance sans précédent dans l'histoire de l'humanité
- Les changements économiques qui ont engendré de plus en plus de croissance de la capitalisation
- Crise de la paysannerie essentiellement en Angleterre, Italie et Irlande (famine)
- Les multiples opportunités que représente le nouveau monde.

On estime « qu'entre 1846 et 1932 plus de 55 millions d'individus ont quitté l'Europe en direction de l'Amérique, 34 millions vers les USA, 5 vers le Canada, 7 millions vers l'Argentine et l'Uruguay, 4 millions vers le Brésil. Parmi les pays qui ont contribué le plus figurent, la grande Bretagne et l'Irlande avec 18 millions de personnes, l'Italie avec 11 millions et l'Espagne et le Portugal avec 7 millions. Des flux importants étaient aussi en provenance d'Allemagne avec 5 millions, et les pays nordique Suède et Norvège, avec 2 millions d'habitants» (Livi Bacci, 1998).

Par ailleurs, cette migration ne s'est pas faite seulement vers l'Amérique, d'autres régions du monde ont connu l'arrivée des Européen, notamment l'Australie, l'Afrique, 5 millions ont émigré vers la Sibérie et 3 millions vers l'Asie centrale Soviétique.

Tableau 1 - Flux de sorties totaux et moyennes annuelles des pays européens et de l'Italie 1876-1915 (en milliers).

Période	Flux totaux		Flux annuels moyens	
	Ensemble de l'Europe	Italie*	Ensemble de l'Europe	Italie*
1876-1880	1555	154	311	31
1881-1885	3357	320	671	64
1886-1890	3784	670	757	134
1891-1895	3437	751	68	150
1896-1900	2892	828	578	166
1901-1905	5569	2770	1114	554
1906-1915	13252	5853	1325	585
1876-1915	33846	11346	846	196
1901-1915	18821	8623	1255	574

*****Emigration totale hors d'Europe **.**
Source : Sonnino et Nobile , 1988. Questione demografica e grandi migrazioni, in La Storia, Vol. VI, p 315-355.

On note aussi que parmi les 55 millions de migrants vers les Amériques, 28% essentiellement parmi les italiens sont revenues en Europe, après un séjour dans le nouveau monde.

Tableau 2 - Nombre de retours des migrants.

Pays de provenance	**Pays de retour**						
	Suède	**Royaume-Uni[(a)]**	**Belgique[(b)]**	**Pays-Bas[(c)]**	**Italie[(b)]**	**Espagne**	**Total**
Etats-Unis	132	3030	9	-	1978	8	5157
Argentine et Brésil	-	-	-	-	1332	214	1546
Australie et N^{elle} –Zélande	-	329	-	-	-	57	386
Autres pays	6	1102	6	148	26	996	2285
TOTAL	138	4461	15	148	3336	1275	9373

[(a)] Passagers débarqués (nationaux ou étrangers), [(b)] 1886-1915, [(c)] Des colonies néerlandaises
Source : **Sonnino et Nobile , 1988 .**

Tableau 3 - Les principaux couloirs migratoires dans le monde (2010).

	Origine	Destination	N de migrants	% du nombre total de migrants S-N
S-N				
1	Mexique	Etats-Unis	12 189 158	12.8
2	Turquie	Allemagne	2 819 326	3.0
3	Chine	Etats-Unis	1 956 523	2.1
4	Philippines	Etats-Unis	1 850 967	1.9
5	Inde	Etats-Unis	1 556 641	0.7
N-N				
1	Allemagne	Etats-Unis	1 283 108	4.0
2	Royaume-Uni	Australie	1 097 893	3.5
3	Canada	Etats-Unis	1 037 187	3.0
4	Corée (Rép de)	Etats-Unis	1 030 561	2.8
5	Royaume Uni	Etats-Unis	901 916	2.5
N-S				
1	Etats-Unis	Mexique	563315	7.8
2	Allemagne	Turquie	306 459	4.3
3	Etats-Unis	Afrique du sud	252 311	3.5
4	Portugal	Brésil	222 148	3.1
5	Italie	Argentine	198 319	2.8

Source : Organisation internationale pour les migrations, Etat de la migration dans le monde, 2013, Le bien-être des migrants et le développement, 2014.

3. La migration du Sud de la méditerranée vers le Nord

Nous rappelons que la migration du Sud et de l'Est de la méditerranée vers le Nord n'a jamais été une migration répandue. Plusieurs raisons étaient à l'origine de cette situation.

- Le manque de main d'œuvre en Europe occidentale était compensé par la migration intra-européenne
- Les pays du Sud n'avait pas encore connu, la transition démographique, et le taux de croissance naturel de la population assurait à peine le renouvellement de la population.
- L'administration coloniale sous l'influence des colons, n'avait pas d'intérêt à laisser partir une main d'œuvre à bon marché.
- Les populations du sud non pas encore atteint une certaine maturité leur permettant d'intégrer le marché de travail international.

- Un large fossé culturel séparait encore les deux rives, ce qui n'encourageait pas les gouvernements des pays du Nord à puiser dans les colonies.

Tableau 4 - La migration de proximité (2010).

S-S	Origine	Destination	Nombre de migrants	% du nombre total de migrants S-S
1	Ukraine	Fédération de Russie	3 662 722	4.9
2	Fédération de Russie	Ukraine	3 524 669	4.7
3	Bangladesh	Inde	3 190 769	4.2
4	Kazakhstan	Fédération de Russie	2 648 316	3.5
5	Afghanistan	Pakistan	2 413 395	3.2

Source : Organisation internationale pour les migrations, Etat de la migration dans le monde, 2013, Le bien-être des migrants et le développement, 2014.

Il faut remarquer que sur ce point, on parle seulement des pays hautement industrialisé qui ont atteint une étape avancée économiquement et démographiquement, notamment, la France, l'Angleterre et l'Allemagne.
Il faut rappeler que l'immigration maghrébine en Europe en générale, et en France en particulier n'est qu'une immigration relativement récente, si on la compare aux anciennes immigrations intra-européennes. L'émigration maghrébine a émergé après la deuxième guerre mondiale et n'a pris son essor qu'après les années soixante.
La présence maghrébine en Europe et particulièrement en France était négligeable avant la guerre 14-18. « Une enquête officielle révèle la présence de 4000 à 5000 algériens dans les mines du Pas de calais et les usines de Marseille et de Paris » (Chevallier, 1947). Avec la guerre, la France a vu ses marchés traditionnels de main d'œuvre se rétrécir, elle s'est alors retournée vers son marché d'emploi colonial longtemps réservé aux colons dans les pays colonisés. Ainsi, pour permettre l'afflux des ouvriers surtout algériens, « Le 15 juillet 1914, le parlement français vota une loi supprimant les permis de voyage pour les ouvriers algériens… En 1918, on comptait 68000 ouvriers algériens, mais environ 173000 avaient été mobilisés sur le front » (Withol Dewenden),
On trouve d'autres sources qui évoquent d'autres chiffres mais elles vont toutes vers la consolidation du nombre des maghrébins. Puisque le nombre des maghrébins monte brusquement pendant la guerre, « atteignant 220000

travailleurs, dont 132000 Nord africains qui sont recrutés et mis à la disposition des établissements militaires et industriels » (Chevallier, 1947). Cet effectif était constitué essentiellement d'algériens, le nombre de marocains et de tunisiens était beaucoup plus bas.
Cette nécessité de recruter des ouvriers et des soldats sur le marché des pays colonisés, a été à l'origine de la création par le ministère de la guerre en 1916 d'un service spécial des travailleurs coloniaux. D'un autre côté, pendant la même année, le ministère du travail créa un service de la main d'œuvre étrangère composé d'un service central, de bureaux en province et aux postes frontières, de contrôles régionaux, de missions à l'étranger sur le modèle du service mis en place par le ministère de la guerre.
Cependant, malgré cette présence temporaire d'ouvriers et de paramilitaires maghrébins, leur nombre restera pour longtemps négligeable par comparaison aux autres nationalités tels que les italiens, les polonais, espagnols… Quant à l'Algérie et en dépit de sa relation spécifique avec la France, seuls 22114 de ses ressortissant se trouvaient en France à la fin de la deuxième guerre mondiale.
En dehors des maghrébins, seuls les turques avait une présence en Europe. Il faut remonter à l'histoire pour comprendre la tradition de migration des turques essentiellement vers l'Allemagne. Cette histoire remonte à l'entente signée en 1888 entre l'Empereur Guillaume II et le Sultant Abdulhamid.
Cette entente a établi les soubassements des relations politique, économique et culturelle entre l'Allemagne et la Turquie, mais elle n'a pas aboutît à un déclenchement d'un processus migratoire.
Sans rentrer dans les détails, il faut conclure que les populations du sud de la méditerranée ne tenaient pas à migrer. Et les migrations, si on peut les appeler en ces termes, se faisaient dans un passage dans l'espace du sud, entre régions et « pays » limitrophes.

4. Aperçu sur la migration après-guerre jusqu'à 1974

Cette période se caractérise par l'augmentation du rôle des gouvernements européens dans le recrutement et l'établissement d'une politique d'immigration. Car à partir de cette période, le rôle de l'immigration aussi bien en France qu'en Allemagne est devenu aussi bien un rôle de régulateur du marché de l'emploi que de régulateur de l'équilibre des structures démographiques. Notamment « au lendemain de la libération, démographes, économistes et hommes politiques s'accordent pour penser que la France a besoin d'une immigration étrangère importante. Dans une période qui marque le début de la planification, l'Etat va tenter de définir et de mettre en œuvre une véritable politique de l'immigration » (Costa-Lascoux, 1989).

Dans ce cadre le 2 Mars 1945, le général De Gaulle informait l'assemblée consultative qu'un grand plan était tracé « afin d'introduire, au cours des prochaines années avec méthode et intelligence, de bons éléments d'immigration dans la collectivité française » (Withol-De Wenden, 1988). Cette action fût le premier pas qui a instauré cette nouvelle politique qui vise à rééquilibrer le marché du travail et la situation démographique malmené par les deux guerres. De ce fait, l'émigration est devenue plus que jamais une composante fondamentale de la nouvelle politique de reconstruction et de développement en France. A partir de cette date, l'Etat a organisé « la production d'une stratégie d'action sociale, coordonnant à travers une réglementation publique ou l'attribution de ressources des décisions appliquées aux grands problèmes de la politique d'immigration que sont, outre la gestion des flux, le traitement égalitaire ou discriminant qui est appliqué par l'ensemble des autorités publiques concernées aux ressortissants autorisés à séjourner légalement »(Patrick Weil, 1988). Bien que cette action n'est pas toute à fait nouvelle, elle a le mérite qu'elle indique le commencement d'une politique de contrôle de l'immigration en prenant en charge le recrutement des travailleurs étrangers.

A partir de cette période, toutes les sources se concordent sur l'augmentation très sensible des maghrébins en France. Néanmoins, le nombre des maghrébins a évolué différemment d'un pays à un autre. La situation des algériens a progressé massivement et régulièrement suite à l'établissement du principe de la libre circulation. Le nombre des marocains en dépit d'une progression, est resté très bas. Celui des tunisiens est tellement bas que malgré une nette progression relative après la guerre leur nombre est resté durant toute la décennie presque insignifiant, et il était constitué essentiellement d'étudiants.

Tableau 5 - La part des Maghrébins dans la Pop Etrangère dans les recensements français de (1946-1962).

	1946		**1954**		**1962**	
	Nbr	%	Nbr	%	Nbr	%
Algériens	22114	1.3	211675	12.0	350484	16.2
Marocains	16458	0.9	10734	0.6	33320	1.5
Tunisiens	1916	0.1	4800	0.3	26559	1.2
Total	40488	2.3	227209	12.9	410363	18.9

Source : CARIM 2005

Juste après la guerre, la place des algériens dans la population immigrée en France a fortement augmenté. Cette augmentation est expliquée par la forte demande qui a émergé en France et « le souci de la part de l'administration coloniale de prévenir de nouvelles révoltes politiques semblables à celle du 8 mai 1945, comme l'extension du chômage consécutive à l'introduction massive du machinisme dans l'agriculture pouvait le laisser craindre » (Talha, 1989). D'autre part, l'augmentation du nombre des algériens est dû ensuite à l'attribution le 20 Septembre 1947 de la citoyenneté française à la population algérienne, ce qui a engendré une forte vague d'immigrants « de ce fait, entre 1949 et 1955,180000 algériens musulmans s'installaient en France contre 160000 de toutes nationalités… les accords d'Evian prévoyaient encore, à la suite de demandes françaises, la libre circulation entre la France et l'Algérie pour les ressortissent des deux pays. Jusqu'en 1974, les responsables de la politique d'immigration française n'eurent de cesse de renégocier cette clause des accords d'Evian ou de favoriser l'immigration portugaise mais aussi tunisienne ou marocaine pour freiner l'arrivée des algériens » (Weil, 2000).

Toutefois, malgré cette progression, la part de la population algérienne n'a pas dépassé jusqu'au déclenchement de la guerre de libération, 12% de la population immigrée totale en France. Juste avec la guerre d'Algérie, la nature de l'immigration a changé et un mouvement de retour s'est amorcé.

Pour les marocains, plusieurs sources se concordent à dire que les premiers grands mouvements étaient sans aucun doute le fait de militaires démobilisés après la guerre. Puisque, « La démobilisation dans la métropole de nombreux militaires a sans doute contribué grandement à déclencher un nouveau courant d'immigration provenant des tribus arabes ou arabisées » (Devillars, 1945). Les marocains comme les autres Maghrébins appartenaient à la première armés formées essentiellement au Maghreb. Car pour ces soldats « ils sont nombreux à se faire libérer en France. Une simple promesse d'embauche... Suffit à l'autorité militaire. D'autres, rapatriés par l'armée, reviennent clandestinement en France dés qu'ils le peuvent » (Devillars, 1945). De cette manière s'est constitué le noyau central de la communauté marocaine immigrée en France. Ce même noyau accueilli à leur arrivé en métropole en libérateur, sont restés nostalgique de la France. Les récits qui mêlaient la réalité à l'imaginaire racontés par les anciens combattants sur leurs bravoures et sur « les lumières » parisiennes, ont poussé les moins jeunes à tenter une expérience d'immigration. Certes, ce n'est pas seulement ce facteur qui était à l'origine de l'émigration maghrébine principalement vers la France.

Quant aux tunisiens, leur nombre comme on l'a déjà mentionné, était très bas pendant la période d'après-guerre et jusqu'à la signature du

protocole d'indépendance. Il ne dépassait pas les 5000 personnes. Même les soldats tunisiens qui ont participé à la deuxième guerre mondiale sont rentrés en Tunisie. Le recensement général de 1946, avance le chiffre de 1916 personnes avec 1754 de sexe masculin et 162 de sexe féminin. Néanmoins « les statistiques du ministère de l'intérieur montrent que la population tunisienne résidante en France en 1951 était de 868 personnes seulement dont la plupart poursuivaient leurs études dans l'enseignement supérieur et technique, leur nombre a atteint 1070 personnes en 1954 » (Taamallah, 1980). Cependant, les chiffres du recensement de 1954 nous indiquent que le nombre de tunisiens en France était de 4800 personnes avec de 3619 hommes et 1181 femmes. Juste après l'indépendance « on a observé un départ de la Tunisie vers la France de 9448 personnes …un net ralentissement s'est produit à partir de 1960 avec seulement 2618 cas. Mais le mouvement reprend en 1961 avec 6626 départs et 8946 départs en 1962 » (OTE, 1985). Toutes les études se concordent à dire que cette immigration est le résultat de tunisiens de confession juives ou de personnes qui avaient d'une manière ou d'une autres des liens étroits avec l'administration coloniale ou des colons. De ce fait, et en raison des événements exceptionnels de l'époque, les immigrés tunisiens de cette période avaient un niveau d'instruction relativement élevé et «ils comptaient parmi eux moins d'ouvriers que les autres nationalités (algériens et marocains) et ces ouvriers étaient plus qualifiés, il y avait aussi proportionnellement, plus de cadres moyens et d'employés » (Singer-Kerel, 1983).

Mais comme résultat, entre 1957 et 1962 le nombre de tunisiens a augmenté de 453% formant ainsi, 1,2% de l'ensemble des immigrés en France. Après cette période de tâtonnement l'immigration tunisienne en France a rejoint proportionnellement celles des algériens et des marocains.

Tableau 6 - L'immigration en Europe de l'Ouest dans les années 1970.

	R.F.A	**France**	**Belgique**	**Suisse**
Espagne	270,000	589,925	51,485	97,860
Grèce	395,000	10,125	14,050	8,000
Italie	590,000	588,740	188,430	531,500
Portugal	55,214	694,550	4,280	2,000
Turquie	653,000	18,325	12,250	9,651
Yougoslavie	594,000	65,220	2,930	20,800
Algérie	1,985	754,462	3,740	-
Maroc	10,921	194,296	24,560	-
Tunisie	9,918	106,845	1,640	-
% d'étrangers	5.55%	6.87%	7.39%	15.7%
% de Méditerranéens dans la pop étrangère	76%	86%	42%	69%

Source : CARIM 2005

Les années soixante était une période faste de l'immigration maghrébine en Europe d'une manière générale et particulièrement en France. Des protocoles d'accords entre les différents pays européens et les pays maghrébins ont été signés. Des milliers de personnes ont pu suite à ces accords immigrer, mais la grande majorité des personnes que nous qualifions aujourd'hui d'immigrés était le résultat d'initiatives personnelles ou comme résultats de réseaux communautaires. Néanmoins, bien que l'immigration maghrébine paraisse avoir les mêmes caractéristiques, elle ne manque pas de différences ne serait ce que du point de vu de la répartition géographique.

En raison de la nature de l'immigration maghrébine en Europe d'hommes jeunes célibataires, la répartition de la population par sexe a montré un déséquilibre frappant entre les hommes et les femmes. Puisqu'à l'époque ou tous les maghrébins sont recensés dans la rubrique Africains (sujets ou protégés français ou sujet et protégés français d'Afrique du Nord), le nombre des femmes était presque insignifiant. Cette présence symbolique a perduré jusqu'à la moitié des années soixante pendant laquelle une présence féminine a commencé à émerger.

Tableau 7 - Répartition par sexe de la population maghrébine immigrée en France.

	Hommes	**%**	**Femmes**	**%**	**Total**
1946	39545	97.67	943	2.32	40488
1954	211371	93.02	15838	6.97	227209
1962	338901	82.58	71472	17.41	410373
1968	456780	73.73	162700	26.26	619480
1975	770175	69.35	340275	30.64	1110450

Source : Elaboré à partir des chiffres des recensements généraux de la population française.

En 1974, à la veille de la décision de l'arrêt de l'immigration, le nombre des maghrébins en France a dépassé le million d'habitants. Ce chiffre était atteint suite à plusieurs « vagues » de migration. Si pour les algériens, les années d'après-guerre et jusqu'à la guerre de libération étaient des années qui ont vu un mouvement très élevé quoi que souvent rotatif. Pour les marocains et après quelques années pour les tunisiens les années soixante étaient les années pendant lesquelles une forte a été observé une augmentation de leur effectifs.

Entre les années (1946 -1954) la croissance annuelle moyenne des algériens était de 100% par an cette croissance s'est très vite fléchit pendant la guerre de libération pour atteindre 8.19% par an en moyenne entre (1954-1962), de 7% entre (1962-1968) et de 7.26% entre (1968-1975). Cependant l'évolution de l'immigration marocaine était pour les mêmes périodes respectivement de moins 4.34% par an suite au retour des anciens combattants au Maroc. Néanmoins la deuxième moitié des années cinquante a vu le nombre des marocains progressés lentement avec 21.64% par an entre (1954-1962), 33.5% entre (1962-1968) et de 22.30% entre (1968-1975) pour atteindre le nombre de 226025 personnes au moment où la France arrête officiellement l'immigration.

La progression des tunisiens. était plus lente en valeur absolue. Néanmoins, cette progression était de 24.11% par an entre (1962-1968) et de 18.88% entre (1968-1975) pour permettre à la population tunisienne immigrée en France juste après l'arrêt officiel de l'immigration d'atteindre le nombre de 139735 personnes.

De part la nature de la population immigrée maghrébine. le taux d'activité était très élevé. Néanmoins, parti de 84.9% en 1946 le taux d'activité est passé à 59.7% en 1968 et à 50% en 1975. Cette baisse est due à l'arrivée bien que relativement limitée des familles d'immigrés.

Le taux d'activité était plus élevé chez les marocains que chez les algériens et encore moins élevé chez les tunisiens. Ce taux était de 67.1% en 1962 pour les marocains, de 63.8% pour les algériens et n'était que de 46.7% pour les tunisiens. En 1975 ce taux a baissé pour les trois populations avec

respectivement 58.6% pour les marocains, 52.2% pour les tunisiens et 46.6% pour les algériens.
Cependant, en dépit d'une augmentation du nombre des femmes. le taux d'activité dans la population féminine était très limitée est n'a pas atteint jusqu'à 1975 le niveau de 10%. Bien que « la part des femmes dans la population totale était assez proche (32% pour les Algériens. 30.7% pour les Marocains et 30.9% pour les Tunisiens), mais elle était sensiblement différente pour la population active (respectivement 5.2%.6.3% et 8.2%) »(Singer-Kerel, 1983).
Cela est le résultat de l'augmentation relative du regroupement familial et l'augmentation du nombre des femmes dans la population migrante.
La Libye pays riche de l'Afrique du Nord, était toujours un pays d'immigration et non d'émigration. Il a reçu des migrants essentiellement arabe mais aussi des migrants des autres pays africains, asiatique et de l'Europe de l'Est.
Cependant, la migration de transit est une migration internationale qui implique des populations de partout dans le monde. Il est certain que la migration par la rive sud de la méditerranée ne sera plus l'œuvre des ressortissent des pays de cette côté, mais elle sera plus que jamais le point de départ des populations du monde entier notamment des pays africains sub-sahariens.
De ce fait il faut dire que le mouvement de la population d'une manière générale et la migration d'une manière particulière, suit un schéma déterminé par plusieurs facteurs, notamment le démographique, l'économique et le politique.

5. Aperçu sur la migration avant l'avènement de L'UE (1974-2004)

L'année 1974 était une année déterminante dans le changement des formes de l'immigration. En ayant très mal calculés leurs décisions, les gouvernements européens ont été à l'origine de faire de l'immigration maghrébine une immigration familiale et plus tard définitive. Les décisions de 1974 avaient comme objectifs initiaux de renverser le sens de l'immigration, en arrêtant l'immigration et en proposant des aides au retour. Cependant, toutes les démarches proposées aussi bien en France que dans les autres pays, n'ont pas pu réussir et arrêter les flux migratoires. En même temps, les sociétés[1] des pays du Sud ont ajusté leurs « vies » d'une manière irréversible sur le facteur de l'immigration, comme soupape de régulation du marché du travail. Cependant, l'année 1975 a totalement changé l'image

[1] On a évité de dire les pays du Maghreb et on a utilisé le concept de « société » en raison de l'ambiguïté du discours de l'Algérie et parfois de la Tunisie concernant l'émigration.

de l'immigré maghrébin dans la société européenne. Depuis cette date, plusieurs événements se sont déroulés. Cependant, ils se sont tous concordés dans la diabolisation du Maghrébin et les autres migrants, en tant que symbole de l'étranger, cause et raison de la crise économique de la crise sociale et plus tard comme « présence désagréable » qui porte atteinte à l'identité nationale.

Les années qui ont précédé la crise de 1973 sont considérées comme le tournant qui a bouleversé l'image et le vécu de l'immigration en Europe. Sujet à des attaques continues dans les médias, ils ont commencé comme les Italiens à une époque plus lointaine d'être à l'origine de tous les maux du monde occidental. La montée du chômage et la menace de la récession ont déclenché une hantise que les immigrés doivent payer.

A partir de cette date, une nouvelle politique s'est axée sur deux volets. D'un côté, il fallait contrôler les mouvements migratoires afin de garantir un minimum d'arrivées capables de soutenir le redressement économique et surtout démographique. D'autre part, il fallait renforcer le contrôle de manière cohérente avec l'action sociale de plus en plus nécessaire au profit des immigrés et de leurs familles.

Malgré les décisions politiques et juridiques, les flux migratoires ne se sont pas arrêtés. Les émigrés maghrébins craignant de perdre leur travail et de ne plus pouvoir intégrer leurs postes adoptent une autre forme de migration qui est l'émigration familiale. En plus, une grande partie des immigrés temporaires ou saisonniers, qui venaient seulement pour travailler pour une période déterminer, ont préféré s'installer définitivement. Le nouvel effectif des nouveaux immigrés s'est alimenté d'une part, par les candidats du regroupement familial (les épouses et les enfants d'émigrés) et d'autres parts par les nouveaux candidats à l'émigration, qui venaient en touristes puis trouvant un travail, ils s'installaient.

De ce fait, le nombre des maghrébins n'a cessé depuis de progresser dans tous les pays de migrations traditionnelles, mais aussi dans d'autres pays qui ont vu une progression accélérée de l'effectif des Maghrébins, des égyptiens et des africains sub-sahariens. L'Italie, l'Espagne et même la Grèce constituent ces nouvelles destinations.

Les sources statistiques nous donnent souvent des effectifs différents et parfois contradictoires, mais elles s'accordent toutes à confirmer que le nombre total a toujours progressé entre 1974 et 1984. Cependant, cette progression diffère d'un pays à un autre. Si les tunisiens et surtout les marocains, ont vu leur effectif nettement augmenter, le nombre des algériens a baissé.

Tableau 8 - Evolution de l'immigration maghrébine en France de 1974 à 1982.

	Algériens	**Marocains**	**Tunisiens**	**Ensemble**
1974	871233	302255	162479	1335957
1975	884320	322067	167463	1372850
1976	803986	347984	174486	1326456
1977	829572	376055	176154	1381781
1978	819053	385991	180429	1385473
1979	782111	399952	183782	1365845
1980	828176	421265	181618	1431059
1981	816873	444472	193203	1454548
1982	805353	492669	212909	1510933
1983	777037	519871	214957	1511865
1984	750090	540228	224124	1514442

Source, Larbi Talha, op.cit. p 136

De ce fait. la part de la population Maghrébine immigrés en France dans l'ensemble de la population immigrée est passée de 25.5% en 1962 à 30.1% en 1972 et à 33.9% en 1982.

Cette période a été marquée par l'augmentation du nombre d'enfants et par l'amorce de la féminisation suite au regroupement familiale et à l'accroissement naturel. De 1968 à 1982, le pourcentage d'enfants de moins de 17 ans est passé de 29.7% à 44.3%. Entre 1975 et 1982, ce même taux est passé chez les tunisiens de 27.7% à 43.5% et chez les marocains de 26.1% à 43.5%.

Depuis cette période une transformation très profonde a été enregistrée dans la structure de la population maghrébine en France et en Europe. L'essentiel des arrivées des années 1980 et 1990 était le fait des familles, épouses et enfants.

Ce phénomène a été très important dans certains pays comme la France (où. par exemple. la part des effectifs féminins dans la population totale marocaine est passée de 26.7% en 1975 à 39% en 1982 et où le nombre d'Algériennes venant s'installer à la faveur du regroupement familial entre les mêmes échéances est dix fois supérieur à celui des hommes. La proportion des femmes Tunisiennes présente également une tendance à la hausse passant de 30.9% en 1975 à 38.2% en 1982 pour atteindre 41.1% en 1990.

En Belgique, aux Pays Bas et en Allemagne, on relève la même tendance mais principalement à la faveur des Marocaines. Le regroupement familial a permis l'installation de nombreuses familles dans ces pays, par contre, il est

resté, dans cette phase, marginal dans d'autres pays d'immigration récente comme l'Espagne et l'Italie.
D'une manière générale l'effectif des maghrébins en Europe à atteint un effectif relativement élevé et il est devenue de la sorte un phénomène incontournable dans la vie sociale, économique et politique.

Le Maroc est actuellement le pays qui fournit le plus de migrant et cela d'une manière absolu et d'une manière relative. « Le nombre des marocains enregistrés dans leurs consulat dans l'ensemble du monde a doublé au cours de douze dernières années, passant de 1.549 million en 1993 à 3.089 millions en 2004. Un doublement en douze ans signifie un taux d'accroissance de 6.3% par an, soit cinq fois plus élevé que celui de la population résidente du Maroc (+1.3% par an). Cet accroissement inclut des migrants de première génération et des personnes de seconde génération. » (Fargues & al, 2005). L'Europe constitue la première destination avec 87% du total des migrants. La France demeure toujours la destination préférée des marocains avec 434000 migrant. Cependant, il faut noter que de nouveaux pays d'accueil ont pu absorber aussi, un nombre assez important de la migration Marocaine. On note ici pour cette période, l'Espagne avec 358086 et l'Italie avec 207250 personnes. D'autres parts, ce qui spécifie la migration marocaine reste sa diversité puisque elle se dirige vers plusieurs autre pays non Européen tels que les pays arabe du golfe et l'Amérique du nord.
Pour l'Algérie, considéré en raison de statut particulier pour longtemps comme le pays de migration par excellence, s'est vu son statut se reléguer à la deuxième place après le Maroc. La migration algérienne est devenue comme c'est le cas pour les autres pays, une migration de regroupement familial. Ce qui a fait des nouveaux venus en bonne partie, des femmes et des enfants. Mais cette migration était relativement beaucoup moins que celle des tunisiens et des marocains. Pendant les années quatre-vingt, seulement 100000 algériens ont émigrés. Cependant, les flux migratoires algériens se sont intensifiés dans les années quatre-vingt-dix suite aux événements politiques et sécuritaires de l'époque. « L'analyse des flux montre que près de 200000 algériens ont émigrés entre 1991 et 2001; ce chiffre constitue le double de la décennie précédente. Les migrations se dirigent majoritairement vers l'Europe (la France principalement) mais, depuis peu une migration de plus en plus importante se constitue à destination de l'Amérique du nord, surtout vers le Canada » (Kateb, 2007). Cette période s'est caractérisée par l'augmentation du nombre des demandeurs d'asile. Selon l'UNHCR, l'Allemagne est le pays qui a reçu entre 1990 et 1998 le plus grand nombre de réfugiés algériens avec 35100 demandes, la France a reçu 14642 demandes.

L'accumulation du processus migratoire algérien a engendré un nombre de migrants atteignant en 1995, 1073000 personnes vivant essentiellement en Europe avec 92.5% et la France constitue le premier pays d'accueil avec 86.9% du total.

Pour les tunisiens les années 1980 et 1990 étaient aussi à l'image des marocains des périodes de migrations continue. Les tunisiens sont la première nationalité qui a pu profiter des régularisations des clandestins en France en 1981, avec 17300 cas sur 45700 maghrébins, (d'autres sources avancent le nombre de 22000 cas). En Italie à deux reprises les tunisiens ont pu profiter de la régularisation de 10000 cas en 1988 et de 25500 en 1991.

D'après les statistiques tunisiennes, la population tunisienne à l'étrange reteint près de 10% de la population locale. L'Europe reste la destination préférée des tunisiens et la France est toujours le premier pays d'accueil. Cependant, nous remarquons que l'accroissement moyen de la population à l'étranger entre 2002 et 2004 était de 3.82%.

Celui des femmes, sans prendre en compte l'effectif des enfants, était de 7.37%. Ce chiffre est semblable à celui observé pour l'accroissement de la même population émigrée en Europe qui était de 7.36%. En outre, si l'accroissement de la population féminine en France était en dessous de la moyenne avec 5.53%, celui observé en Italie était exceptionnellement élevé avec une progression de 21.62%.

Tableau 9 - Résidents maghrébins, turcs et yougoslaves.

	Agériens	**Marocains**	**Tunisiens**	**Turcs**	**Yougoslav**	**% total étrang**
Allemagne	5294	61848	24292	1612623	610499	47.8
Belgique	10644	138417	6247	81775	5537	27.6
France	820900	516400	292600	146100	64400	46.6
Pays-Bas	600	148000	2400	191500	12800	55.4
Suisse	2185	2018	2705	59450	116833	18.6

Source, SOPEMI, 1990.

6. Aperçu sur la situation actuelle et la migration clandestine (dernière décennie)

Durant la dernière décennie, le monde a connu des transformations politiques, économiques et démographiques profondes. Ces transformations ont eu un impact important sur le monde arabe d'une manière générale et la région du Nord Afrique d'une manière particulière. Ces transformations ne

se limitent pas au monde arabe, mais elles le dépassent, pour associer les pays africains sub-sahariens et même d'autres pays asiatiques.
La migration égyptienne a continué à s'orienter vers les pays du golfe essentiellement, mais avec une plus grande diversité de destination. Concernant les Maghrébins, l'Europe reste toujours la destination principale. Néanmoins, d'autres destination ont commencé à figurer notamment, les pays de l'Amérique du Nord.

Par ailleurs, il faut noter qu'en cette période de crise, les pays du Nord de l'Afrique sont devenus des pays de transit ou de migration temporaire, et peut être de migration de travail.
La population dans les pays du Nord de l'Afrique a progressé profitant d'un taux de croissance naturel relativement élevé. En dépit d'une fécondité en baisse, les tranches d'âge des jeunes continuent à assurer un renouvellement des générations.
Le facteur démographique reste un facteur déterminant du phénomène migratoire. Néanmoins, ce facteur est négligeable si on ne l'associe pas, à la crise économique d'une manière générale et la crise de la paysannerie d'une manière particulière.

7. Situation démographique en Méditerranée

Il est certain que l'évolution démographique en méditerranée est totalement différente, non seulement d'une rive à l'autre, mais aussi d'un pays à l'autre et même d'une région à l'autre.
Le développement qu'a connu l'Europe, était à l'origine de l'apparition de la transition démographique. On rappelle que la transition démographique est le passage d'un régime démographique dans lequel, la natalité et la mortalité sont élevés à un régime démographique dans lequel, la mortalité et la fécondité sont bas. Il est certain que les différentes étapes de cette transition engendrent un taux de croissance de la population spécifique et une structure de la population adéquate.
L'Europe a vu pendant deux siècles sa population croitre d'une manière vertigineuse, et elle a contribué pendant une longue période à s'implanter dans le reste du monde. Lors de cette période presque tout le reste du monde avait une croissance de la population presque nulle.
La troisième étape de la transition démographique en Europe, l'a obligé à s'ouvrir au « monde jeune » qui vient de commencer sa transition, et qui a une structure de la population en pleine expansion.

Le poids démographique de la rive nord acquit depuis des siècles a changé à la veille du 21 siècle en faveur de la rive Sud. Des pays historiquement peuplés, tels que l'Italie et la France, ont laissé la place à la Turquie et L'Egypte.

Tableau 10 - L'évolution de l'effectif de la population depuis le 21 siècle.

	1970	2000	2015	2025
Rive Nord	167928	192044	197765	196318
Rive Sud	116985	235052	292543	327408
Total	284913	427096	490308	523726

Source : Données compilées à partir de Atane I. et Courbage Y. La démographie en Méditerranée, Situation et projections, 2011.

Au moment ou l'Europe a stagné démographiquement, la rive sud a connu une croissance assez importante. La population du sud sera aussi augmentée par l'apport que pourrait ajouter la population de l'Afrique sub-saharienne.

Tableau 11 - Les taux de croissance annuels moyen %.

	1970- 2000	2000-2025
Rive Nord	0.45	0.09
Rive Sud	2.35	1.33
Total	1.36	0.82

Source : Données compilées à partir de Atane I. et Courbage Y. La démographie en Méditerranée, Situation et projections, 2011.

La population du sud a augmenté depuis les trente dernières années de 5 fois plus rapidement que la population du Nord. Néanmoins, la tendance à la baisse de la croissance touche maintenant toute les populations aussi bien au Nord que le Sud. On prévoit que dans 15 ans, presque tous les pays du Sud, notamment, les plus peuplés d'entre eux atteindront des niveaux semblables au pays européens. Par contre la structure de la population qui restera une population jeune en âge d'activité, continuera à être le réservoir de la population pendant les trente prochaines années.

Tableau 12 - Structure de la population par grands groupes d'âges en 2000-2025 (%).

Age	Rives Nord		Rives Sud	
	2000	2025	2000	2025
0-14	17	15.4	32.2	22.2
15-64	66.7	62.5	62.1	67.4
65+	16.2	22.1	5.7	10.4
Total	100.0	100.0	100.0	100.0

Au Nord, la population de moins de 15 ans continuera à décroitre, celle des pays du Sud baissera d'une manière sensible. Par contre, le grand changement résidera dans la différence entre la population en âge d'activités avec 67.4 % dans les pas du sud et une baisse continue dans les pays du Nord avec 62.5% en 2025. Nous Assisterons de part et d'autres à l'augmentation importante de la population âgées.

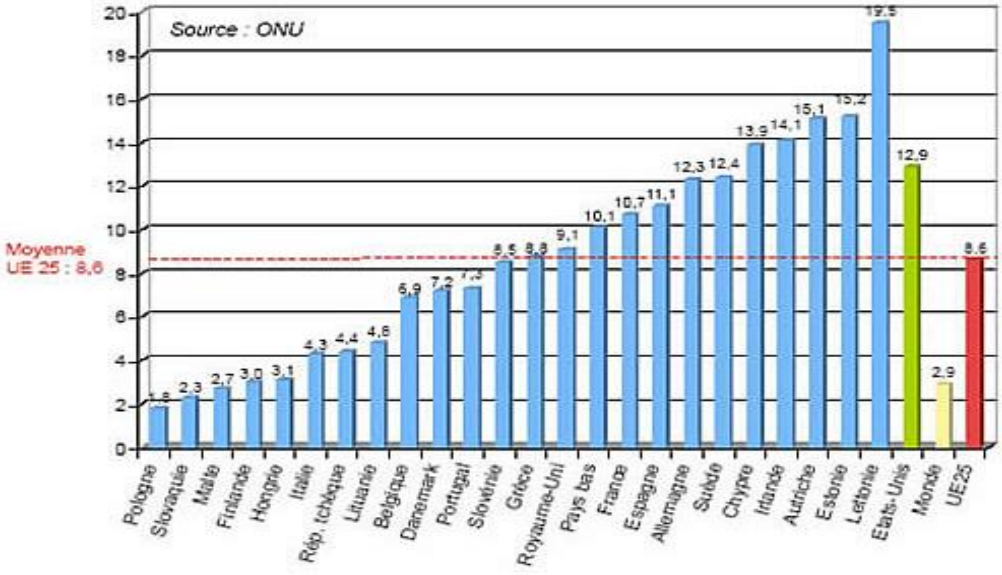

Figure 1- Part de la population immigrée dans la population des Etats membres, en % (2005).

Contrairement à la dramatisation que suscite la question migratoire en Europe, le taux de migrant en 2005 était largement plus bas que celui observé aux USA. Par ailleurs, les pays qui avaient les proportions les plus élevés n'étaient pas les pays dit, traditionnels de la migration tels que la France, l'Allemagne et le Grande Bretagne, mais des pays comme la Lettonie, l'Estonie, l'Irlande.

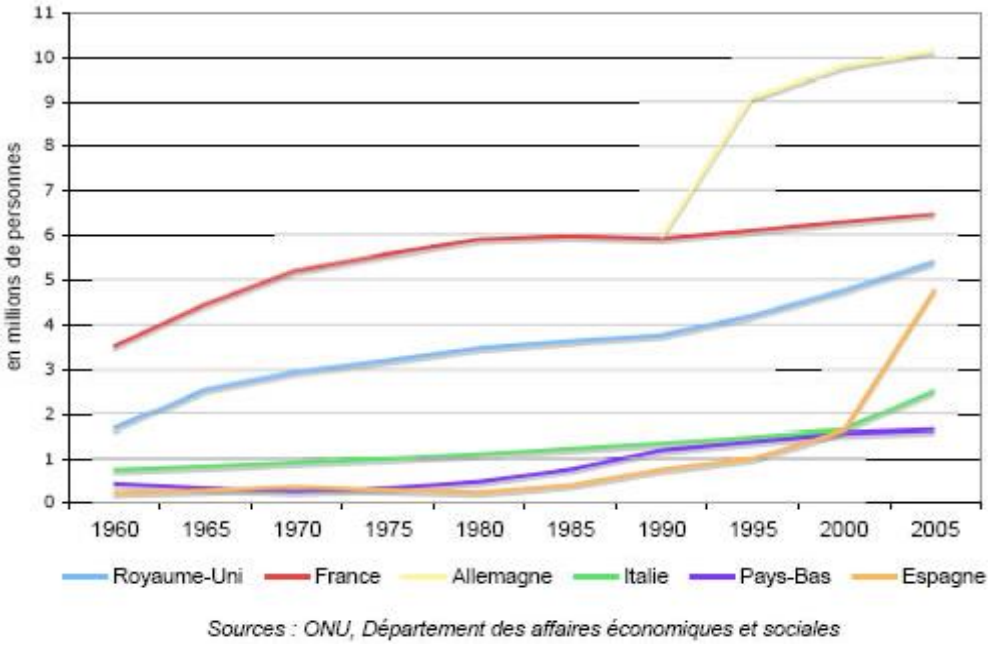

Figure 2 – Evolution du nombre d'immigrés dans certains Etats membres.

On observe dans ce graphique que l'évolution du nombre de migrant était relativement stable durant plusieurs années, à l'exception de l'Allemagne et l'Espagne qui ont vu des augmentations brusque, durant les années 90 pour l'Allemagne et à partir des années 2000, pour l'Espagne.

Tableau 13 - Personnes âgées de 25 à 54 ans issues de l'immigration dans l'Union européenne en 2008.

Pays d'accueil	1ère génération (%)	2ème génération (%)	Total (%)	Principaux pays d'origine
France	13.1	13.5	26.6	Algérie, Maroc, Portugal
Suède	16.2	9.6	25.8	Finlande, Irak, Pologne
Autriche	18.4	6.9	25.3	Balkans, Allemagne, Turquie
Royaume-Uni	15.6	8.8	24.4	Inde, Pologne, Irlande
Pays-Bas	15	8.5	23.5	Turquie, Suriname, Maroc
Allemagne	17.6	4.3	21.9	Turquie, Pologne, Italie
Espagne	19.1	1.1	20.2	Roumanie, Maroc, Equateur
UE 27	12.2	5	17.2	Turquie, Maroc Roumanie
Portugal	10.5	1.2	11.8	Angla, Brésil, France
Italie	10.6	1	11.6	Roumanie, Albanie, Maroc
Réptchèque	3	4.2	7.2	Ukraine, Slovaquie, Viet Nam
Pologne	0.3	2.9	3.2	Ukraine, Belarus, Russie
Roumanie	0.2	0	0.2	Moldavie, Bulgarie, Ukraine

Par ailleurs, si nous considérons que les pays de l'Afrique du nord sont importants dans la question migratoire, et que leur population pourrait donner potentiellement des migrants, elle était répartie comme suit:

Tableau 14 - Les estimations de la population dans les pays arabes concernés, ventilées par genre pour les années 2000, 2010 et 2013 (en millions).

	Femme			Homme			Total		
	2000	**2010**	**2013**	**2000**	**2010**	**2013**	**2000**	**2010**	**2013**
Algérie	15691	18320	19386	16029	18742	19822	31719	37063	39208
Egypte	32867	38869	40850	33269	39206	41206	66137	78076	82056
Libye	2488	2964	3100	2688	3077	3101	5176	6041	6202
Mauritanie	1352	1793	1931	1356	1817	1959	2708	3609	3890
Maroc	14455	16088	16716	14255	15555	16292	28710	31642	33008
Tunisie	4759	5350	5545	4793	5282	5451	9553	10632	10997
Total	71612	83384	87528	7239	83679	87831	144003	167063	175361
Monde	**3041227**	**3430751**	**3551649**	**3086473**	**3485432**	**3610470**	**6127700**	**6916183**	**7162119**

Source: United Nations, Department of Economic and Social Affairs (2013). Trends in International Migrant Stock: The 2013 revision (United Nations database, POP/DB/MIG/Stock/Rev.2013).

Afin d'être cohérents dans notre analyse, nous allons utiliser dans ce travail les statistiques fournies seulement par la banque mondiale, en effet, les données statistiques sur la migration demeurent incohérentes et parfois contradictoires et ce en fonction des différentes définitions accordées à la migration et à la citoyenneté. Les données utilisées par les administrations des pays Nord africains mentionnent un nombre de migrants beaucoup plus élevé que celui fourni par la banque mondiale, les instances internationales ou les administrations européennes.

La population de l'Afrique du Nord et de l'Egypte est estimée en 2013 à 175361000 personnes. La population masculine demeure la plus représentée sauf pour la Tunisie qui a vu sa population féminine dépasser la population masculine. Ceci n'est pas dû à la migration, mais au facteur de la mortalité masculine plus élevée ajoutée à une espérance de vie de plus en plus élevée. L'Egypte reste le pays le plus peuplé des pays de nord de l'Afrique, avec une croissant annuelle moyenne de 1.66%.

La population Nord-africaine est aussi une population jeune avec des taux de population en âge d'activité dépassant les 63%.

Pendant la dernière décennie le mouvement migratoire des pays de l'Afrique du Nord a été dynamique passant de 6189706 personnes en 2000 à 9260916 personnes en 2013. Ce qui nous donne un taux de croissance annuel moyen de 3.81%.

Les flux migratoire ont montré que l'Egypte et le Maroc constitue les plus grands fournisseurs de migrant. La population migrante Egyptienne

était estimée en 2013 à 3465707 personnes se trouvant essentiellement dans les pays du golfe. Mais aussi dans d'autres pays, notamment l'Europe, les USA, le Canada et l'Australie.

Tableau 15 - Migrants originaires des pays SEM - Données les plus récentes en 2008 (stocks).

Région de résidence/Pays d'origine	Union Européenne		Pays arabes	Reste du monde	Total (Statistiques des pays d'origine)
	Statistiques des pays d'accueil	Statistiques des pays d'origine			
Algérie	811826	1118674	72887	23491	1215052
Egypte	177674	106398	1928160	381400	2415958
Israël	47750	n.d.	n.d.		n.d.
Jordanie	20531	n.d.	n.d.	n.d.	n.d.
Liban	145807	157030	123966	325604	606600
Libye	28096	n.d.	n.d.		n.d.
Mauritanie	12314	20000	24000	206000	250000
Maroc	2102534	2837654	281631	173314	3292599
Palestine	4195	n.d.	n.d.		n.d.
Syrie	100137	n.d.	n.d.		n.d.
Tunisie	365003	846803	142655	28715	1018173
Turquie	2525558	3106958	131494	590926	3829378
Total SEM	6341425	8193517	2704793	1729450	12627760

n.d.: non disponible ;**Source:** Compilé à partir des données de United Nations, Trends in International Migrant Stock: The 2013 revision.

Tableau 16 – Les èmigrès et les immigrants (Egypte) pour l'année 2000-2013.

	2000	2013	La différence
Egypte	**Emigrés**		
	2305125	3465707	1160582
	immigrés		
	169149	297448	128299

Source: United Nations, Trends in International Migrant Stock: The 2013 revision.

L'Egypte présente une mobilité au niveau de la migration, on remarque dans ce tableau une augmentation remarquable entre l'année

2000et l'année 2013 du nombre des émigrés (augmentation de 1160582) et des immigrés (augmentation de 128299).
La migration égyptienne reste essentiellement une migration à destination des pays arabe du Golfe. Néanmoins, la proportion des migrants vers l'Europe ne cesse d'augmenter.
Pour les Maghrébins, les marocains ont vu pendant la dernière décennie leur population migrante augmentée d'une manière considérable, passant de 1970467 personnes en 2000 à 2868828 en 2013 avec une croissance annuelle moyenne de 3.5%.

Tableau 17 - Nombre de migrants à destination et en provenance du Maghreb pour 2013.

	2000	**2013**	**Evolution**
	Emigrants		
Algérie	1036939	1763789	726850
Libye	246475	368637	122162
Mauritanie	142578	135591	-6987
Maroc	1970467	2868828	898361
Tunisie	488122	658364	170242
	immigrants		
Algérie	250110	270407	20297
Libye	558770	755974	197204
Mauritanie	62593	90206	27613
Maroc	53124	50771	-2353
Tunisie	36212	36526	314

Source: United Nations, Trends in International Migrant Stock: The 2013 revision.

A l'exception des mauritaniens, toutes les autres populations ont vu leurs populations migrantes augmenter. Nous restons très perplexe sur ces données, surtout concernant les libyens dans la population résidentes en Egypte, en Tunisie et à Malte se compte par d'autres dizaines de milliers. En Tunisie, à titre d'exemple, des déclarations non officielle, avance le nombre de 1000000 à 1600000 libyens en Tunisie.

Tableau 18 - Taux de variation annuel des émigrés aux pays du Maghreb en 2013 (%).

	Femme			Homme			Total		
	1990-2000	**2000-2010**	**2010-2013**	**1990-2000**	**2000-2010**	**2010-2013**	**1990-2000**	**2000-2010**	**2010-2013**
Algérie	-0.91	-0.21	3.17	-0.91	-0.21	3.39	-0.91	-0.21	3.29
Libye	2.00	1.95	2.21	2.00	2.40	2.81	2.00	2.24	2.61
Mauritanie	-4.00	3.43	0.26	-4.09	3.62	0.47	-4.05	3.54	0.38
Maroc	-0.88	-0.94	-0.02	-0.74	-0.24	0.86	-0.81	-0.58	0.43
Tunisie	-0.70	-0.77	2.43	-0.27	-0.74	3.16	-0.49	-0.75	2.80

Source: United Nations, Trends in International Migrant Stock: The 2013 revision

Le nombre de Marocains déplacées a augmenté par 898 000 personnes entre 2000 et 2013, avec un taux de variation de 3.5%. Le Maroc se considère comme le plus grand pays du Maghreb en termes de nombre de personnes déplacées.

Le nombre de Tunisiens déplacées a augmenté par 170 000 entre 2000 et 2013, il a enregistré un taux de variation annuel de 2.7%. Néanmoins, il faut toujours rappeler que les nombres des migrants varient en fonction des conjonctures, notamment suite aux changements des nationalités survenues en grandes parties à partir des années 90.

8. Proportion des femmes dans la population migrante

Traditionnellement, la population migrante maghrébine et arabe était une population jeune célibataire. Plusieurs facteurs ont été à l'origine du changement de la structure de la population. On cite notamment,

- l'arrêt officiel de la migration qui a été à l'origine de la grande poussé du regroupement familial
- L'amélioration du niveau scolaire de la femme
- L'émancipation de la femme qui a conduit à l'augmentation de la migration féminine autonome.
- Augmentation du taux du célibat définitif et l'augmentation de l'âge au mariage.

Ces facteurs et d'autres, ont été à l'origine de l'augmentation de la proportion de femmes parmi la population migrante.

Tableau 19 - Les femmes migrantes dans le monde arabe en 2000 et 2013.

Pays	2000	Pays	2013
	Nombre		Nombre
Le monde	85725516	**Le monde**	111193961
Le monde Arabe (Total)	17 102 554	**Le monde Arabe (Total)**	30 302 601
Le monde Arabe (Femme)	5999867	**Le monde Arabe (Femme)**	9470038
Maroc	886470	**Maroc**	1308490
Egypte	795472	**Egypte**	1165705
Algérie	460314	**Algérie**	859818
Tunisie	203182	**Tunisie**	278094
Libye	62117	**Libye**	97947
Mauritanie	52797	**Mauritanie**	58110

Source: United Nations, Trends in International Migrant Stock: The 2013 revision

En valeur absolue, le nombre de femmes migrantes ne cesse d'augmenter. La femme marocaine est proportionnellement celle qui entreprend le plus une expérience migratoire avec 886470 en 2000 et 1308490 femmes. Le taux d'augmentation était de 3.66% en moyenne. Par contre, même si le nombre des algériennes et inférieur à celui des marocaines, on constate qu'en treize ans le taux d'évolution des algériennes a atteint 6.68%.

Tableau 20 - La proportion de femmes parmi les stocks de migrants internationaux, 2000, 2010, 2013 (%).

	2000	2010	2013
Tunisie	49.8	49.7	49.2
Algérie	45.2	45.2	45.0
Libye	35.5	34.5	34.1
Maroc	50.1	48.3	47.7
Egypte	46.8	43.8	43.6
Mauritanie	42.0	41.6	41.4

Source: United Nations, Department of Economic and Social Affairs (2013). Trends in International Migrant Stock: The 2013 revision (United Nations database, POP/DB/MIG/Stock/Rev.2013).

Nous constatons que la proportion des femmes dans la population émigrée des pays de l'Afrique du Nord et de L'Egypte est en variation constante. Néanmoins, elle demeure importante, essentiellement pour les tunisienne et les marocaines. On note sur ce point que depuis l'avènement du phénomène migratoire, la population féminine tunisienne était relativement plus élevée que celle des autres populations maghrébines. Néanmoins, depuis les deux dernières décennies, la population féminine marocaine a vu son nombre augmenté d'une manière plus rapide. Certainement nous remarquons que le taux des marocaines varie suivant les années, mais il faut sur ce point noter que sans pouvoir avancer un chiffre sur le nombre des clandestins, on peut dire que des témoignages de spécialistes avancent des milliers de cas de marocaines qui ont changé de nationalité suite aux mariages mixtes. Il est certain, que si on prend les données des services consulaires des pays Maghrébins les taux changeront, mai ici ce n'est pas le cas.

9. Le nombre des demandeurs d'asile des pays du nord de l'Afrique (OCDE)

Nous constatons une présence et une variation des demandeurs d'asiles dans tous les pays de l'OCDE. Ce qui et remarquable c'est la forte augmentation du nombre des demandeurs d'asile tunisiens suite aux événements qu'a connu la Tunisie en 2011.
De la même manière le nombre des demandeurs d'asile libyens est devenu important pendant les années 2010-2011, et certainement dans les années qui ont suivies. La guerre libyenne a mis sur le départ non seulement des migrants de toutes nationalités qui résidaient en Libye, mais aussi un grand nombre de libyens, éparpillés actuellement dans plusieurs pays du monde.

Tableau 21-Le nombre de demandes d'asile politique pour les pays de l'Organisation de coopération et de développement économique 2001-2011

Pays d'asile	Origine	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Australie	**Egypte**	59	50	61	72	65	48	41	96	134	123	415	1164
Autriche	**Maroc**	10	25	32	29	32	77	55	140	90	137	313	940
Danemark	**Algérie**	19	97	62	50	45	15	16	38	46	46	103	537
	Libye	6	28	14	16	19	11	4	6	18	12	67	201
	Tunisie	6	11	7	11	4	2	5	11	9	9	56	131
	Maroc	2	20	18	17	14	14	7	19	31	29	45	216
Finlande	**Algérie**	38	38	38	31	33	25	24	27	48	47	55	404
Grèce	**Egypte**	2	3	22	83	104	27	75	95	145	104	306	966
	Maroc	148	10	4	8	11	7	9	18	156	57	161	589
Hongrie	**Algérie**	76	34	79	57	19	22	48	19	11	35	56	456
	Tunisie	7	6	4	4	5	1	0	5	5	10	30	77
	Maroc	9	0	1	2	2	4	5	4	5	14	30	76
	Egypte	24	4	22	3	13	20	41	50	19	14	20	230
Islande	**Algérie**	5	3	0	2	3	1	1	0	1	0	6	22
Irlande	**Algérie**	174	106	68	66	32	49	47	65	71	70	79	827
Israël	**Egypte**	3	2	0	1	3	8	1	0	1	0	5	24
Italie	**Tunisie**	25	0	0	7	53	48	14	278	222	139	4558	5344
Luxembourg	**Algérie**	16	30	81	69	39	8	11	4	11	43	30	342
Hollandes	**Libye**	64	58	71	27	53	34	22	63	101	165	136	794

Nv-Zélande	**Egypte**	3	1	2	2	6	0	2	4	5	6	22	53
Norvège	**Libye**	62	123	288	134	23	13	49	81	84	36	139	1032
	Algérie	346	468	191	103	45	37	27	100	161	133	101	1712
Slovénie	**Tunisie**	1	4	0	0	3	0	0	0	0	3	25	36
	Algérie	44	67	65	19	3	0	0	2	2	6	11	219
	Maroc	0	5	0	0	0	0	0	0	1	4	9	19
	Egypte	0	0	34	1	1	0	0	0	0	0	6	42
Espagne	**Algérie**	231	350	682	991	406	230	247	152	181	176	122	3768
	Libye	0	1	0	3	1	1	1	0	1	1	63	72
Suède	**Libye**	114	456	435	419	451	318	420	646	367	311	402	4339
Suisse	**Tunisie**	146	163	154	121	102	80	90	74	204	291	2324	3749
	Algérie	828	1020	836	480	186	161	132	236	300	313	464	4956
	Maroc	25	34	32	33	30	39	30	37	36	113	429	838
Grande-Bretagne	**Libye**	140	245	220	185	185	130	55	75	100	125	1187	2647
Amérique	**Egypte**	527	603	407	398	329	406	367	412	399	479	1136	5463
Total		**3160**	**4065**	**3930**	**3444**	**2320**	**1836**	**1846**	**2757**	**2965**	**3051**	**12911**	**42285**

10. Conclusion

Suite aux changements que connait le monde sur les plans économique, démographique et politique, le phénomène migratoire a pris de plus en plus de l'ampleur, néanmoins, il est en perpétuelle transformation au niveau des caractéristiques des migrants, des parcours migratoires, et de son impact aussi bien sur les pays d'origine que sur les pays d'accueil.

On assistera durant les prochaines décennies à la migration massive des citoyens de l'hémisphère Sud notamment ceux de l'Afrique subsaharienne et de certains pays asiatiques vers les pays en perdition démographique non seulement européens mais en Afrique du Nord et au Moyen Orient.

L'espace méditerranéen deviendra plus que dans le passé un passage inéluctable des flux migratoire. En l'absence d'une politique globale associant les pays de départ et les pays d'arrivée et en l'absence d'une gestion commune du phénomène, les drames en relation avec la migration ne peuvent jamais s'arrêter.

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Current immigration to Europe from North Africa. Health and physical activity

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Abstract – Immigration to Europe - especially from neighbouring North Africa - is a consistent phenomenon with social and health-related implications. Even if in many cases immigrants come from lower-income countries, their health status is better than that of European-born citizens at immigration time, given their younger age. Still, the adoption of a Western life style, with increased caloric intake and reduced physical activity, may soon lead to a deterioration of individual health. European-born individuals engage more often in leisure-time physical activity than immigrants (especially women) and follow a more healthy diet. Thus, obesity, cardiovascular diseases and diabetes may have a higher prevalence in accustomed immigrants.

Abstract – L'immigrazione in Europa - in particolare dalla vicina Africa del Nord - è ormai divenuto un fenomeno consistente con implicazioni sociali e correlate alla salute. Anche se in molti casi gli immigrati provengono da paesi in via di sviluppo, il loro stato di salute al momento del loro arrivo è migliore di quello dei cittadini nati in Europa, principalmente a motivo della loro giovane età. Tuttavia, l'adozione di uno stile di vita occidentale, con un maggiore apporto calorico e una ridotta attività fisica, può portare presto ad un peggioramento della salute individuale. La popolazione di origine europea pratica più spesso attività fisica nel tempo libero rispetto agli immigrati (soprattutto se di sesso femminile) e segue una dieta più sana. Di conseguenza, l'obesità, le malattie cardiovascolari e il diabete possono avere una più alta incidenza negli immigrati adattati al nuovo ambiente.

1.Introduction

Immigration to the European Community from non-EU countries is a

consistent phenomenon, involving more than 1,000,000 people every year. European countries with the largest number of immigrants are Germany (22.9% on the total population), Italy (15.2%), Spain (14.8%), France (13.2%) and UK (12.3%) (Eurostat, 2014). The historical "pull" effect of the EU has determined a high net migration rate, which contributes to increase its population. Immigrants residing in the EU in 2013 exceeded 20.000.000 individuals, corresponding to roughly 4% of the EU total population (EuroStat, 2014). The 78% of non-EU nationals residing in Europe are of working age (15-64 years). Most of them come from China and India, the two most populated countries in the world, and from North African (NA) countries – Morocco in particular - close to the southern border of the EU.

2. Health of North African immigrants in Europe

Studies on health of immigrants in Europe highlighted a different situation in comparison to the non-migrant population. According to the so-called "healthy migrant effect", immigrants are initially healthier than European natives, probably because the migration process involves mostly healthy and young people. Nonetheless, an Italian longitudinal study on NA immigrants (Moroccans, mainly, and Tunisians) found an increasing trend in nutritional disorders, psycho-social stress and blood pressure over a 10-year-period, underlining the risk of a transition to poor health (Toselli et al, 2008a).

Although the protective effect associated with recent immigration was conferred to first generation immigrants, this advantage was almost lost among second generation immigrants. In the process of accustomization to a new country, exposure to poor lifestyle habits in the host communities may lead to the adoption of unhealthy lifestyle habits.

A recent study (Rechel et al, 2013) reported that diabetes, some communicable diseases, maternal and child health problems, occupational health hazards, injuries, and poor mental health are more frequent among immigrants than native Europeans, owing to different risk factors and different patterns of disease in their countries of origin, in addition to poor living conditions in their new country, precarious and dangerous jobs, and the psychological distress that can be associated with various causes and processes of migration.

Higher rates of hypertension and diabetes - and consequent high mortality and stroke incidence - were observed in Africans compared to migrants of different origin (Gushulak and MacPherson, 2006). Many other factors, involving health risks, were mentioned, such as language skills,

behavioral and cultural practices (use of tobacco and alcohol), dietary practices and physical exercise. The latter factor will be analyzed in more detail in the next section.

Gilbert and Khokhar (2008) reported that diet of people changes after immigration to Europe towards consumption of less-healthy food components, such as fat, sugar and salt, and energy-dense diets. These new eating habits combined with reduced physical activity are likely to be the main causes of increased risk of chronic diseases, and are significant features of adaptation to Western lifestyle. Among ethnic minority groups of NA origin, Moroccan group is the largest one in several European countries. Dietary habits of Moroccan immigrants in Spain differed from those of Spain population depending on the time of acculturation (Montoya et al, 2001). In France, 18-year-old North Africans had a lower consumption of dairy products and meat and a higher consumption of starchy food and legumes in comparison to French natives (Wanner et al, 1995).

Prevalence of cardiovascular diseases among Moroccan immigrants did not significantly differ from ethnic Dutch population (Ujcic-Voortman et al, 2012), although obesity and diabetes had higher prevalence among Moroccan immigrants.

An Italian study found that NA ethnic groups had a high prevalence of obesity, compared to both Italian natives and NA population in the countries of origin (Gualdi-Russo et al, 2009). Fat percentage was higher in Moroccans and Tunisians compared to other minority groups (Toselli et al, 2008b). With regard to blood indicators, Moroccan ethnic group showed a higher number of subjects (especially females) above cut-off values for glycaemia and triglycerides (Gualdi-Russo et al, 2014). Nevertheless the prevalence rates for hypertension of this ethnic group was relatively low compared to native-born and other migrant ethnic groups (Agyemang et al, 2006; Gualdi-Russo et al, 2009).

3. Physical activity of NA immigrants in Europe

The most recent guidelines on recommended levels of physical activity (PA) for children and young people (5-18 years) indicate that they should engage in moderate-to-vigorous intensity PA for at least 60 minutes and up to several hours every day, and they should minimize the amount of time being sedentary. For adults, doing 30 minutes of at least moderate intensity PA on at least 5 days a week helps to prevent and manage over 20 chronic conditions, including coronary heart disease, stroke, type 2 diabetes, cancer, obesity, mental health problems and musculoskeletal conditions (Department of Health, Physical Activity, Health Improvement and

Protection, 2011). According to a recent review (Reimers et al, 2012) being physically active appears to be associated with a higher life expectancy. In particular nonsmoking, normal weight, and physically fit men live on average 12 years longer than smoking, overweight, and physically unfit control subjects.

Low level of PA or physical inactivity are a serious public health problem in children and adults, being associated with risk factors for chronic diseases (Figure 1).

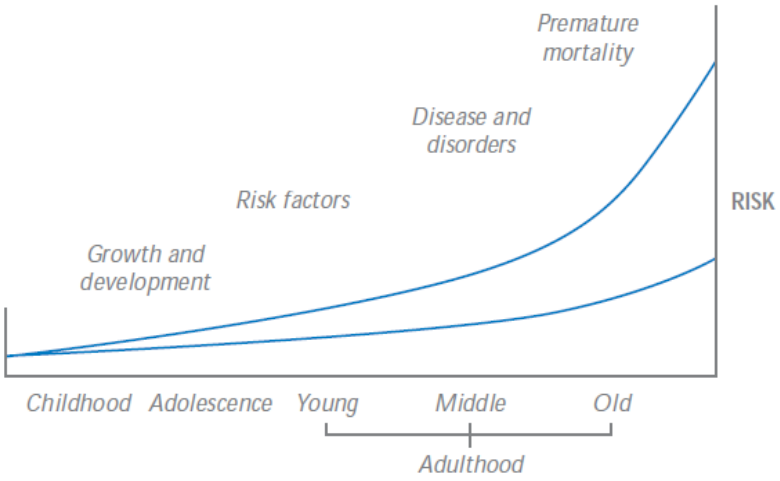

Figure 1 - Physical activity and disease/mortality risk in a lifetime perspective: the lower line shows the hypothetical risk in active subjects, the upper line in inactive subjects (from Department of Health, 2004).

Women are more inactive than men, doing less than 30 minutes of moderate intensity activity/day on five or less days a week (Department of Health, 2000; Department of Health, 2004). Regular PA has consistently been identified as an essential behavior for achieving a good later life. An active lifestyle is particularly important in older people for improving mobility, emotional and mental well-being (Stathi et al, 2002; Colcombe and Kramer, 2003; Ku et al, 2007; Netz et al, 2011).

Physical inactivity is the fourth leading risk factor for global mortality (accounting for 6% of deaths globally). Overweight and obesity are responsible for 5% of global mortality. (WHO, 2009).

The strength of the relationship between PA and health outcomes persists throughout people's lives, highlighting the potential health gains

that could be achieved if more people become more active throughout their lifetime.

The behavior of immigrants is influenced by the environment and culture of host country (Landrine and Klonoff, 2004). Health-related behaviors of migrants, such as dietary patterns or PA in particular, are likely to be affected by the process of acculturation. According to literature, there is a lower prevalence of PA among Hispanic, African and Asian immigrants in United States (Singh and Siahpush, 2002; Abraido-Lanza et al, 2005; Kagotho, 2011; Joshi et al, 2014). Tremblay et al. (2006) found in Canada that recent immigrants (16%) were less active than immigrants (20%) who were less active than non-immigrants (24%) and, in general, female immigrants in all ethnic groups were less active than male immigrants regardless of time since immigration.

Despite the increasing number of immigrants in European countries, there are few studies that have investigated the level of PA in individuals of different ethnic groups according to gender, age, and socio-demographic factors.

Cornelisse-Vermaat et al (2007) found that immigrants in The Netherlands participated in sports less frequently than native Dutch; in particular 47.6% of Moroccan immigrants were inactive, 19.8% of them practiced PA ≤1 time/week, 18.3% of them 2 to 3 times per week and 14.3% >3 times per week.

In the study of Mejean et al (2007) an active lifestyle was more prevalent among Tunisian migrant men than among local-born French and non-migrant Tunisians (53.1%, 43.5% and 32% respectively), but the contrary in the prevalence of vigorous activity (10.2%; 21.1% and 12.9% respectively).

In a recent study on immigrants and Swedish-born individuals, Carlsson et al (2014) found physical inactivity to be more common in immigrant groups compared to Swedish-born (in particular a prevalence of 21% in physically active women from the “rest of the world” group and of 29% in physically active men from the “rest of the world” group).

A similar situation was observed in NA children and adolescents living as immigrants in Europe. In Norway (Kumar et al, 2004), Sweden (Khalin et al, 2009), Germany (Lämmle et al, 2012) and Denmark (Nielsen et al, 2013) children and adolescents with a foreign background were less physically active than non-immigrant subjects. In a recent study by Toselli et al (2014) PA was significantly higher in Italian native preschool children than in immigrants (38.6% vs 29.0% in males and 50.2% vs 40.6% in females).

Limited PA among adult migrants and minority groups compared to the

native population may be the result of attitudes regarding the importance of PA: some minority groups consider PA as a "waste of time" (Im et al, 2010) or as a "luxury" (Im et al, 2012). In a Western context, Moroccan migrant women in The Netherlands attributed their lower levels of PA to changes in lifestyle due to migration (Nicolau et al, 2012). With migration, individuals originating from low to middle income countries come into contact with the obesogenic environment which is typical of Western European societies and characterized by a high availability of energy dense foods as well as limited opportunities for PA. In some cultures it may not be customary to engage in leisure time PA, therefore migrants originating from these cultures, particularly women, would be less likely to participate in PA that is not related to the tasks of daily living. Finally, migrants that originate from cultures that tend to value large body sizes may be less motivated to engage in weight controlling activities.

4. Conclusions

Migration is a complex and dynamic process that can affect the health of migrants, positively or negatively; as the number of immigrants is increasing, their health has therefore been regarded as a public health challenge in several countries.

As there is a clear causal relationship between the amount of PA and all-cause mortality, it is important to increase the physical activity level of children, adolescents and adults who are not meeting the recommendations, in particular of those who are significantly inactive in order to produce the greatest reduction in chronic diseases.

Health-related behaviours, such as dietary patterns and PA, are likely to be affected by the process of acculturation in migrants. Strategies to promote PA and prevent physical inactivity should consider both ethnicity and time since immigration.

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SECTION 2

INEQUALITIES AND PSYCHO-SOCIAL FACTORS

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Immigrants and ethnic disparities in health

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Abstract – Increasing evidence suggest that migrants in EU suffer from disparities in health and access to healthcare in comparison to the native population. Addressing factors underlying these disparities is fundamental for a moral, political and public health perspective. Among these factors, the social determinants of health and the barriers migrants' face in accessing healthcare seem to play a major role in generating inequalities in health. Racial/ethnic discrimination in healthcare, in particular, is a major health determinant as it can influence the quality of care provided to migrants, their physical and mental health and their attitudes toward health and healthcare. EU health systems must therefore pay particular attention to discrimination in healthcare and introduce policies aiming at reaching equitable access to healthcare by migrants.

Abstract – Crescenti evidenze suggeriscono che gli immigrati in Europa presentano differenze nello stato di salute e nell'accesso ai servizi sanitari rispetto alla popolazione locale. Affrontare i fattori che stanno alla base di tali differenze è fondamentale da un punto di vista morale e politico, nonché per la salute pubblica. Tra tali fattori, i determinanti sociali della salute e le barriere che gli immigrati incontrano nell'accesso ai servizi sanitari giocano un ruolo fondamentale nella creazione di disparità nel loro stato di salute. La discriminazione etnica/razziale nella sanità, in particolare, sembra un determinante decisivo della salute in quanto può influenzare la qualità delle cure fornite ai migranti, la loro salute fisica e mentale e il loro atteggiamento verso la salute e l'assistenza sanitaria. I sistemi sanitari dell'Unione Europea devono pertanto porre particolare attenzione alla discriminazione nella sanità e introdurre politiche atte a favorire un equo accesso ai servizi sanitari da parte degli immigrati.

1. Introduction

During last decades, migration to Europe has become a growing and sizable phenomenon. Since the 1990s, the percentage of migrants has

constantly increased in many European countries, with a slight decrease only in recent years as a result of the global economic crisis that also affected Europe (Rechel *et al.*, 2013). Recent estimates report that there were almost 32 million migrants in the EU-27 in year 2008, corresponding to the 6.4% of the total EU population (Eurostat, 2011). Done this growing share of migrants in European population, the issues of migrants' health and access to healthcare are receiving increasing attention in both policy and public health research of European Union (Rechel *et al*., 2011a; Sundquist, 2001). The right to health for everyone has been recognized by all EU Member States and has been reiterated in several Covenant and Conventions (Pace, 2011). In particular the International Covenant on Economic, Social and Cultural Rights (ICESCR; United Nations, 1966) establishes "the right of everyone to the enjoyment of the highest attainable standard of physical and mental health", which belongs to every human being and must be exercised without discrimination of any kind including race, nationality or other statuses. Granting equitable access to healthcare is a core objective of the European Health Systems, which are founded on common principles of "universality, access to high quality care, equity and solidarity" (European Parliament, 2011; Devillanova, 2012). It is also a prerequisite for migrants' well-being and social inclusion, and for attaining the highest level of health and well-being for the European population as a whole (Ingleby, 2009; FRA, 2011). Ensuring equitable access to high quality care for migrants grants in fact early medical interventions and efficient use of healthcare services, thus reducing the cost of future emergency treatments and preventing the spread of diseases (Devillanova, 2012; FRA, 2011). Access to healthcare is defined *equitable* when equal access is guaranteed for equal needs, thus not depending on individual factors such as ethnicity or immigrant status; conversely, inequities occur when there are systematic variations in access depending on individual factors and not on the health needs (Devillanova, 2012; Nørredam & Krasnik, 2011). Besides equality for equal needs, the concept of equity also implies diversification of services in order to meet the different needs of different users (Bhopal, 2007b; WHO, 2010). Migrants in Europe are a very heterogeneous population in terms of country of origin, ethnicity, socio-demographic characteristics, education, type of migration and health needs (WHO, 2010). These needs may change between ethnic groups, between countries and over time in relation to the pressures of the sociocultural environment of the host country, which often influences their health negatively (Sundquist, 2001). It follows that in order to grant equity, health systems have to adapt to the continuously changing population and health needs, so as to ensure equality in access, use and

quality of the services provided (Rechel *et al.*, 2011a). Despite the repeated claims to migrants' right to health and high quality care, growing evidence suggest that migrants in EU suffer from considerable disparities in both the state health and access to health services in comparison to the native population (Agyemang *et al*., 2007; FRA, 2011; Rechel *et al*., 2011b; WHO, 2010). These disparities may vary between countries and between migrant groups in relation to many factors including genetics, migration process and the socioeconomic and cultural condition into the host country. Among the latters, the barriers migrants face when trying to access healthcare, the quality of healthcare provided to them, as well as experiences of discrimination into the healthcare services, seem to be increasingly implicated in migrants' disparities in health (Johnstone & Kanitsaki, 2010). In order to improve migrants' health, is therefore fundamental to focus on these topics, so as to overcome barriers and grant equitable access for all.

2. Migrants' health and access to healthcare in EU

Migrants' health status in the EU. Information on the health status of migrants is lacking in many EU Member States (Rechel *et al*., 2012). Where information are available, some disparities in migrants' state of health and diseases' prevalence can be observed in comparison to the EU native population. In general, at their arrival migrants are healthier than the local population due to the so-called "healthy migrant effect"; however, their health wears rapidly due to challenges they face in the host country and westernisation of lifestyle (Kunst *et al*., 2011; Ingleby, 2009; Rechel *et al*., 2013; Sundquist, 2001). Regarding migrants' burden of diseases, they seem to be more at risk for certain conditions such diabetes mellitus, certain communicable diseases (i.e. HIV, hepatitis A, B and E, TB), overweight and obesity, perinatal health problems, occupational injuries and poor mental health (Gualdi-Russo *et al.*, 2014; Misra & Ganda, 2007; Rechel *et al.*, 2011b; Rechel *et al*., 2013; WHO, 2010). Regarding non-communicable diseases, migrants have initially lower rates for early every cancer type (except for some type of cancer linked to infections), but these rates converge over time with those of the local populations (Kunst *et al*., 2011). Moreover, cancer in migrants is usually detected at a later stage than in native population, so as treatment is often impossible (WHO, 2010). Regarding cardiovascular diseases, large variations between groups have been observed together with higher incidence of certain conditions (e.g. stroke and hypertension) among certain migrant groups (Kunst *et al.*, 2011).

Health determinants in migrants. In order to understand health disparities in migrants, it is necessary to pay attention to the factors influencing their health (Ingleby, 2009). Besides genetic characteristics, the health of migrants is shaped by migration process itself, in relation to both the type of migration (with refugees, asylum-seekers, trafficked persons etc. being the most disadvantaged) and the socioeconomic and cultural conditions in the host country (Rechel *et al.*, 2011a; Stanciole & Huber, 2009; Spallek *et al*., 2010). The first health determinant in migrants is migrant status itself, as it is strictly linked to social exclusion (Marmot *et al.*, 2012). Migrants are frequently pushed at the edges of many aspects of the society and experience social, economic and political disadvantage (WHO, 2010). They usually have poor socio-economic status, which is frequently associated with impaired health, and live in segregated neighbourhoods thus reinforcing the process of social exclusion (*ibidem*). Residential segregation in fact leads to further concentration of poverty and prevents migrants' possibility to afford high education, high job opportunities and to access services and facilities including healthcare (Williams & Mohammed, 2009; Williams & Sternthal, 2010). Migration is also characterized by isolation, loss of social network and social support, which can have an impact on mental health and may be an obstacle in accessing healthcare (Bécares & Das-Munshi, 2013; Nørredam & Krasnik, 2011). Finally, the barriers migrants face when accessing healthcare can influence pattern of access to services, health-seeking behavious, as well as the severity of diseases and their general state of health (Nørredam & Krasnik, 2011).

Migrants' access to healthcare. Migrants in EU seem to suffer from unequal access to healthcare services in comparison to the native population. In general, they tend to use more emergency departments and less specialist and preventive care (Cots *et al.*, 2007; De Luca *et al*, 2013; Dhyr *et al.*, 2007; Nørredam & Krasnik, 2011). This can be due to a greater accessibility of emergency care, a lack of knowledge on the functioning of the health system and to the low socioeconomic status of migrants that prevent them to afford more specialist care (Ballotari, 2013; Berchet, 2013; De Luca *et al.*, 2013). Regarding hospitalization, large variations between countries and migrant groups are documented, with underutilization, overutilization or equal utilization by migrants in comparison to the local population (Norredarm & Krasnik, 2011). In Italy, for example, migrants have lower hospitalisation rates than non-migrants for all diseases except for certain conditions such as injuries, infections, pregnancy and induced

abortion (Cacciani *et al.*, 2006). Nevertheless, they seem to have higher rates of compulsory admission in comparison to the local population, probably in relation to a delay in seeking medical care, referral and diagnosis (Nørredam & Krasnik, 2011). Large variations are documented also for primary care utilisation, with lower use of general practioner in certain countries, for example in France (Berchet, 2013; Dourgnon *et al.*, 2009) and Italy (Devillanova, 2012), but higher in others, for example in the Netherlands (Stronks *et al.*, 2001; Uiters *et al.*, 2006). The use of preventive care is very poor among migrants: for example, low access to preventive antenatal care is documented (Cacciani *et al.*, 2006; Nørredam & Krasnik, 2011) as well as lower immunization rates and lower children's participation in health screening tests (Borràs *et al.*, 2007; Spallek *et al.*, 2010). Regarding mental health, lower use of mental care by migrants in comparison to local population is documented despite their often increased psychological distress (Bécares & Das-Munshi, 2013; Fassaert *et al.*, 2009).

Barriers in accessing healthcare. Migrants' access to healthcare may be influenced by several factors, including migrants' perceived health needs, socio-economic conditions, and barriers in accessing health services (Ballotari *et al.*, 2013; Fassaert *et al.*, 2009; Nørredam & Krasnik, 2011). Growing evidence suggest that migrants in EU face *legal*, *bureaucratic* and *cultural* barriers in accessing healthcare, which act as a deterrent for searching medical help. Among *legal barriers*, the lack of entitlement to healthcare for certain migrant groups (e.g. undocumented migrants) prevent them the possibility to access healthcare in several EU countries, thus undermining the right to health for everyone as established by the ICESCR (United Nations, 1966) (Björngren Cuadra, 2011). Where universal access is granted, *bureaucratic barriers* such as the complex and lengthy procedures to obtain documents, as well as the lack of information about both the entitlement and functioning of the health systems, often frustrate the possibility to access (De Luca *et al.*, 2013; FRA, 2011; Nørredam & Krasnik, 2011). The cost of certain healthcare services (e.g. laboratory tests, specialist care etc.) is another major obstacle for migrants having low or no income (Berchet, 2013; FRA, 2011; Nørredam & Krasnik, 2011). Among *cultural barriers*, the problem of language, together with the lack of interpreters and cultural mediators inside healthcare facilities, prevents migrants to enjoy high quality care as it lead to poor communication between patients and practioners that may also result in poor identification of diseases and treatment (Bhopal, 2007a; Nørredam & Krasnik, 2011). Migrants' cultural attitudes toward health and healthcare such as cultural

beliefs regarding health and illness, self-perceived health needs, cultural stigmas attached to certain diseases and mistrust on Western medicine can also influence their healthcare seeking behaviour (Fassaert *et al.*, 2009). Finally, racial/ethnic discrimination into healthcare services, as well as cultural insensitiveness by healthcare staff, are major barriers that can undermine both the accessibility of services and the quality of care provided (Bhopal 2007a; Ingleby, 2009; Johnstone & Kanitsaki, 2010; Worth *et al.*, 2009).

3. Discrimination, migrants and health

Different types of discrimination. Racial/ethnic discrimination is relatively neglected in healthcare ethics discourse; nevertheless, increasing evidence suggests that it is involved in disparities in health and healthcare provided to immigrants (Johnstone & Kanitsaki, 2010). Bhopal (2007a) provides an overview of levels and types of discrimination that can be present in healthcare provision. Discrimination can be direct or indirect, and can act at a personal or institutional level. In healthcare, direct discrimination is when the healthcare staff treats a patient badly because of his/her racial/ethnic origin, while it is indirect when the services are provided equally to all patients but are designed for the needs of the majority population, thus not meeting the different needs of ethnic minority groups (*ethnocentrism*). *Institutional discrimination* occurs when an organization such as the health system fails to provide appropriate services to people because of their racial/ethnic origin or culture, for example by lacking of interpreter services inside healthcare facilities or by failing to provide female nurses for female patients belonging to certain ethnic/religious groups (Bhopal 2007a, Worth *et al.*, 2009). Experiences of perceived discrimination both at personal and institutional level can result in *internalised discrimination*, occurring when a marginalized individual or group accepts the main society's stereotype about him/her, with negative consequences on identity and self-esteem (Johnstone & Lordan, 2012; Williams & Mohammed, 2009).

Discrimination and health in USA. In USA health disparities between ethnic groups are well documented and research on their association with discrimination in healthcare is long time established and extensive (Bhopal, 2007b; Thomas, 2001). Many studies have focused on disparities between Black and Whites, documenting a higher burden of diseases together with lower intensity and standards of care for Blacks in

comparison to Whites for many conditions such as heart disease, cancer, diabetes, orthopedic problems, pain etc. (Bhopal 2007a; Nelson & Hackman, 2013; NHDR, 2009; Wong *et al.*, 2002). A recent study by Nelson & Hackman (2013) reports that both patients and healthcare staff perceive that race effectively affects the quality of care provided in USA, for example in treating sickle-cell disease. A gap in public and private financing for clinical care and research, with more support for diseases involving especially Whites than those involving especially Blacks, is also documented (Smith *et al.*, 2006).

Discrimination and health in EU. In Europe research on this topic is only at the beginning and few studies document ethnic disparities in diseases management. One of these studies comes from Italy and is linked to the Valore Project, which analyse the quality of healthcare for chronic diseases by migrant status in Italy (Buja *et al.*, 2013). The study found marked difference in the quality of management of diabetes, coronary heart disease and congestive heart failure between immigrants and Italians, with immigrant patients having far lower odds of care for all the indicators of management analysed for each disease, reflecting lower adherence to treatment programs (Buja *et al.*, 2013). Among explanations for this evidence, Authors suggest barriers in accessing healthcare (e.g. linguistic and bureaucratic barriers) and discriminatory attitudes by the healthcare staff (Buja *et al.*, 2013). These results are particularly worrying as Giorda *et al.* (2012) recently found that diabetic patients receiving the worst quality of care are at higher risk of all-cause mortality and cardiovascular complications in comparison to those receiving the highest quality of care (Buja *et al.*, 2013). Ethnic disparities in healthcare management for chronic conditions (e.g. diabetes and chronic heart disease) are also documented in England, with ethnic minorities having higher rates of disease but receiving lower standards of care and having worse related outcomes (Millet *et al*, 2007; Millet *et al*, 2008). However, these disparities between ethnic groups have been partially attenuated, at least for coronary heart disease, after the introduction of pay for performance program in 2004, which rewards healthcare providers with monetary incentives if they meet certain targets in treating chronic diseases (Millet *et al.*, 2007; Millet *et al.*, 2008). In England, lower quality of primary care for ethnic minorities is also documented (in particular in waiting time for consultation to begin, waiting time for appointments with any general practioner and continuity of care), together with lower minority patients' satisfaction in accessing healthcare (Department of Health, 2009; Mead & Roland, 2009). Ethnic minorities are

also reported to be less likely referred to specialist care by their general practioner (GP) in comparison to White patients, probably as a result of different treatment due to racial/ethnic discrimination (Bhui *et al.*, 2003; Bécares & Das-Munshi, 2013). Experiences of perceived discrimination and poor communication with healthcare staff are well documented across EU, and are frequently associated to poor patients' satisfaction in accessing healthcare, underutilization of healthcare services, non-participation in healthy behaviours and lower treatment adherence, all leading to poor health outcomes. Bernardotti (2003), for example, document bureaucratic, linguistic and cultural barriers in accessing Italian National Health System by migrants and a diffuse mistrust on Italian GPs competences, whose attitudes are perceived as indifferent, racist and stereotyping. The perceived discrimination in healthcare is reported to have bad health outcomes (e.g. psychological distress, poor mental health and substances abuse). Mistrust on medical doctors competences together with a perceived lack of respect by the health personnel are also documented in Germany (Gerlach *et al.*, 2008). Different communication by health personnel with migrant and non-migrant patients is documented in the Netherlands, where GPs have shorter consultations, are more verbally dominant, have less stimulating interaction and less mutual understanding with migrants in comparison to the native Dutch (Meewsen *et al.*, 2006; Schouten *et al.*, 2009). These attitudes negatively affect patients' satisfaction and compliance with medical provisions (Schouten *et al.*, 2009). Perceived discrimination and institutional barriers are documented in Scotland by Muslim and Asian Sikh patients, in the form of communication problems due to a lack of interpreter services and cultural insensitiveness of the health system (e.g. absence of sex–specific staff, inappropriateness of food provided in hospitals, etc.) (Worth *et al.*, 2009). Discriminatory language and hostile attitudes by the health personnel toward migrant women are reported in Portugal, where are associated to a consequent underutilisation of healthcare services (Dias *et al.*, 2010). Perceived racial/ethnic discrimination into health services discourages in fact ethnic minorities to search medical care. Bécares & Das-Munshi (2013) report that ethnic minorities with mental health problems living in England are less likely than White British to search medical care because of their expected racial/ethnic discrimination from health services. Discrimination from mental health services in UK is documented, with ethnic minorities being less likely referred to specialist care and receiving higher rates of coercive pathways such as compulsory admissions (Bhui *et al.*, 2003). The refrain from seeking medical care due to expected discrimination by mental health services, however, leads to delays in

seeking primary care that can affect the severity of illness and may therefore result in subsequent compulsory admission (Bécares & Das-Munshi, 2013; Bhui *et al.*, 2003). Refraining from uptake primary care for mental health problems are also documented for Moroccans living in Netherlands (Fassaert *et al.*, 2009). Among explanation for this evidence, Authors suggest linguistic barriers between doctor and patient and prejudices against each other, leading to poor patient satisfaction, mistrust in the physician and healthcare and poor patient compliance. Association between perceived discrimination in both everyday life and healthcare and refraining from seeking medical care is documented also in Sweden, were it is reinforced by socio-economic disadvantage and is significantly associated with poor self-rated health and long-term illness (Wamala *et al.*, 2007). Lower medication adherence is also reported in association with perceived discrimination in both everyday life and by healthcare staff, for example in Africa-Caribbean patients with psychosis in UK, in turn associated to longer hospital admission at follow-up as a result of mistrust on health services (Chakraborty *et al.*, 2011). However, a positive association between resignation at mental health service racism, medication adherence and shorter inpatient hospital bed-days at follow-up was also found, probably reflecting a sort of internalized racism (Chakraborty *et al.*, 2011). It is possible to observe that experiences of discrimination and perception of unfair treatment in healthcare generate mistrust on health professional and healthcare system, which is a predisposing factor to delays in seeking medical care, under-use of health services and non-adherence to medical care recommendations. According to Casagrande *et al.* (2007), the explanation for this evidence should be that discrimination acts as an *attitudinal barrier*, mediated by stress, which inhibits patients' healthcare utilisation and medication adherence. Discrimination can also directly affect health by inducing physiological and psychological arousal that overtime can have deleterious effects on both physical and mental health (Brondolo *et al.*, 2009; Johnstone & Lordan, 2012; Williams & Mohammed, 2009). Paradies (2006), in reviewing 138 empirical quantitative population-based studies on self-reported racism and health, found strong positive association between perceived racism and negative health outcomes, especially for mental health. In particular, the strongest positive associations were found between perceived racism and psychological/psychiatric distress, depression, anxiety, stress, obsessive-compulsive symptoms and somatization, while negative associations were found with life quality and satisfaction, general mental health and self-esteem (Paradies, 2006). Positive associations were also found with negative physical health outcomes (i.e.

increased blood pressure and hypertension, preterm births and low birth weight, increased hearth rate, increased BMI and diabetes), and with negative health related behaviours (i.e. alcohol misuse, substance misuse, cigarette smoking). The negative impact of discrimination on the health status is confirmed by Johnsone & Lordan (2012), who found a detrimental effect on the general heath of Muslim population living in England due to increased discrimination after year 2001, with the highest worsening in cholesterol, blood pressure and BMI.

4. Conclusions and suggestions

It is possible to observe that barriers in accessing healthcare (e.g. communication problems and lack of cultural competency) and discrimination inside healthcare services are effectively a major health determinant in migrants. They can in fact directly affect physical and mental health through increased and prolonged stress or by affecting the quality of healthcare provided to migrants and the quality of communication between patients and practioners. Moreover, they can indirectly affect migrants' health as they act as a psychosocial stressor influencing patients' attitudes toward health and healthcare (i.e. health-seeking behaviour, medication adherence, health-related behaviours) (Brondolo *et al.*, 2009; Casagrande *et al.*, 2007; Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009; Williams & Sternthal, 2010). These findings suggest that the health systems in EU have to front some challenges in order to improve migrants' access to services so as to reach equity in healthcare provision and improve migrants' health. First of all, it is fundamental to reduce legal barriers in accessing healthcare, granting universal coverage to more fragile groups such as undocumented migrants and asylum seekers (FRA, 2011; Nørredam & Krasnik, 2011). Second one, it is important to introduce health policy aiming at reaching equity in access to services. The introduction of interpreter services and cultural mediators in healthcare facilities is fundamental to improve communication between patients and practioners and improve patients' satisfaction with healthcare (Bhopal, 2007a; De Luca *et al.*, 2013; Nørredam & Krasnik, 2011; WHO, 2010). Ethnic diversification of workforce inside healthcare services and training of health personnel on cultural competence is another prerequisite for avoiding an *ethnocentric approach* and reducing the cultural distance between health services and migrant patients (Bhopal 2007a; Brondolo *et al*., 2009; WHO, 2010). The share of information in different languages about the entitlement to healthcare and the functioning of the health systems, as well as health

promotion interventions able at reaching migrants, are other decisive steps to improve migrants' appropriate access to services and reduce their burden of diseases (De Luca *et al.*, 2013; FRA, 2011; Rechel *et al*., 2013). The role of socio-economic determinants of health must also be taken into account: the health of migrants cannot be improved without improving factors underlying them. The introduction of policies acting at reducing migrants' social exclusion in a wide range of sectors (e.g. healthcare, employment, education, housing etc.) is therefore the starting step to reduce health inequalities in migrants (Ståhl *et al.*, 2006; WHO, 2010). Finally, discrimination in healthcare must be tackled and stopped. As we have seen in fact it is increasingly implicated in migrants' disparities in health as it prevents to reach equity in access to services. Besides being a core value of the health systems in EU, equity is a prerequisite for improving migrants' health and therefore the health of the entire European population (FRA, 2011). Moreover, discrimination is inacceptable in modern multi-ethnic societies and overall in healthcare (Bhopal, 2007b). Combating discrimination must be therefore a major goal of the health systems and of public and social policy in EU.

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Adattamento psico-sociale nei bambini immigrati di seconda generazione

[Psychosocial adaptation in second-generation immigrant children]

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Abstract - In recent decades migration flows in the world are particularly increased due to the increasing globalization or for economic, political or personal reasons. In recent years, also in Europe, it has been observed the transition from temporary migration to permanent settlements resulting from increase of second-generation immigrants. The migration process causes great stress on family members, in particularly for children and adolescents. These people leave their countries and start a new life in a completely different world. It is extremely difficult for children to mediate between two different cultures: the native culture and that of the host country. This situation put the immigrant children on the edge of both cultural models and influences the process of acculturation. The acculturation strategies are used to describe the attitudes of immigrant groups and to evaluate the psychosocial adaptation of the immigrant children.

Abstract - I flussi migratori nel mondo sono particolarmente aumentati negli ultimi decenni a causa della crescente globalizzazione o per motivazioni economiche, politiche, personali. Negli ultimi anni si è osservato anche in Europa il passaggio da immigrazioni temporanee a insediamenti durevoli con conseguente presenza sempre più numerosa di immigrati di seconda generazione. Il processo migratorio è fonte di forte stress per i soggetti che lo intraprendono, in particolar modo per i bambini e gli adolescenti che si trovano a dover mediare tra due realtà diverse: la cultura di origine e quella del Paese ospite. La collocazione tra i due mondi influenza il processo di costruzione della propria identità culturale e psicologica e pone il minore immigrato ad essere ai margini di entrambi i modelli culturali. Tale percorso influenza il processo di acculturazione degli individui determinando diverse strategie di acculturazione. Queste ultime

esplicano le modalità di relazione tra le due culture allo scopo di valutare l'adattamento psico-sociale del bambino.

1. Introduzione

La crescente globalizzazione, negli ultimi anni, ha stimolato un flusso di immigrati senza precedenti in tutto il mondo. A questi si aggiungono migliaia di persone in fuga da guerre, tirannia, persecuzioni e povertà. Attualmente nel mondo ci sarebbero 232 milioni di migranti, il 3.2% della popolazione mondiale (UN-DESA, 2013). Il 59% dei migranti vive nelle regioni del Nord del mondo, mentre il 41% è residente nelle regioni in via di sviluppo. La classifica delle aree con il maggior numero di migranti vede ai primi due posti l'Europa (72 milioni) e l'Asia (71 milioni), che insieme raggiungono circa i 2/3 del totale, seguiti dall'America del Nord (53 milioni), dall'Africa (19 milioni), dall'America Latina e Caraibi (9 milioni) e dall'Oceania (8 milioni) (UN-DESA, 2013). Non è facile affermare con esattezza quanti siano, nei paesi occidentali, gli immigrati di seconda generazione; tuttavia i dati riportati nella figura 1 forniscono alcune informazioni: la percentuale maggiore sul totale dei quindicenni, per i quindici paesi presi in considerazione, si riscontra in Lussemburgo, Australia e Francia.

L'Europa è una delle destinazioni favorite per molti migranti; la maggior parte degli stati europei ha incrementato la propria esperienza migratoria negli ultimi anni. In Europa la situazione sociale ed economica degli immigrati dipende in maggior modo dal loro Paese di origine e dal loro livello di istruzione, perciò l'integrazione dei bambini immigrati o gli svantaggi legati alla loro condizione migratoria sono dovuti in definitiva al Paese di provenienza dei genitori. Nel 2010 sono 47.3 milioni le persone nate fuori dal proprio Paese di residenza che vivono nell'Unione Europea, questo dato corrisponde al 9.4% del totale della popolazione europea. La maggior parte degli immigrati in Europa proviene da Romania, Polonia e Marocco (Figure 2-3).

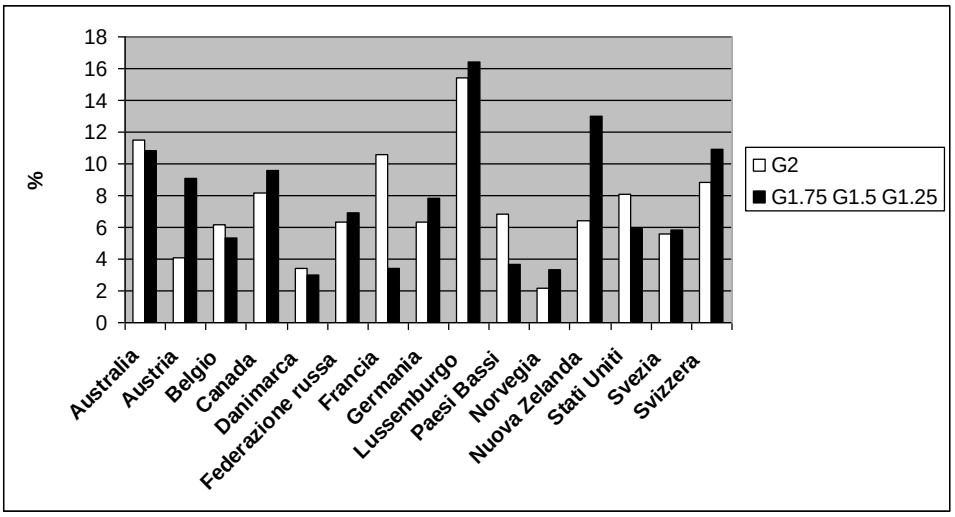

Figura 1 - Percentuale di nati nel Paese in cui vivono da genitori immigrati (Generazione 2) e di nati all'estero da genitori stranieri (Generazioni 1.75; 1.5; 1.25) sul totale dei quindicenni, per Paese di residenza – Oecd-Organization for Economic Cooperation and Development, 2006 (da Barbagli e Schmoll, 2011).

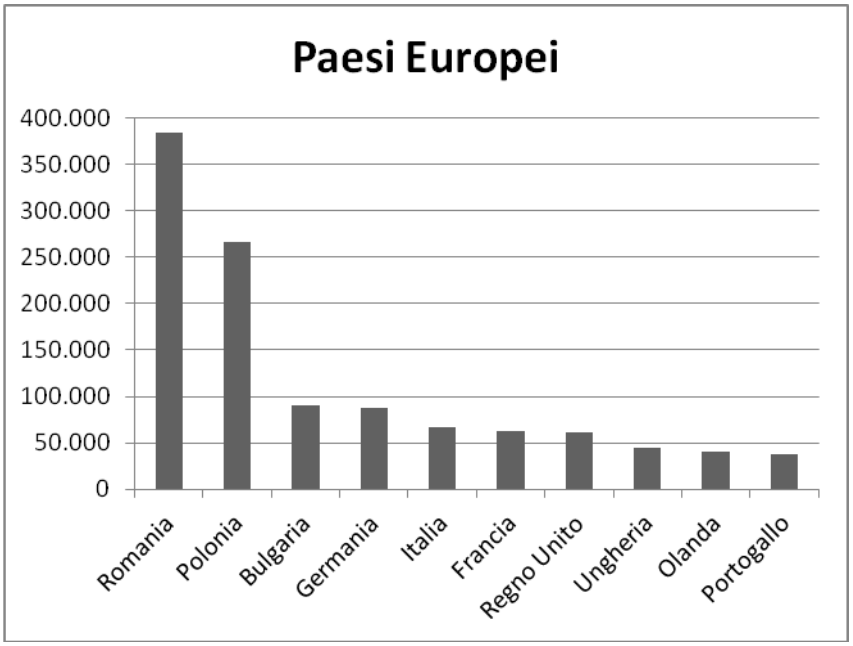

Figura 2- I 10 principali Paesi di provenienza Europei degli immigrati nell'Unione Europea (da Oblak Flander, 2011).

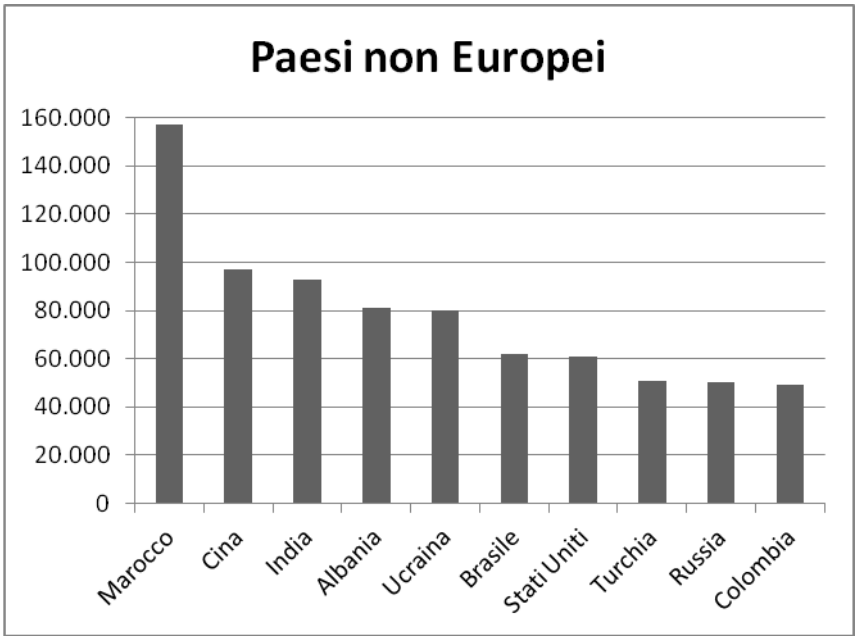

Figura 3- I 10 principali Paesi di provenienza non Europei degli immigrati nell'Unione Europea (da Oblak Flander, 2011).

Da circa trent'anni l'Italia è meta di flussi migratori, negli ultimi anni in particolare la crescita della popolazione straniera è stata molto marcata. All'inizio del 2011 gli stranieri residenti in Italia erano 4.6 milioni, corrispondenti al 7.5% del totale della popolazione italiana; le seconde generazioni contavano la presenza di 1 milione di individui rappresentando il 21.7% del totale degli immigrati (Istat, 2011).

La migrazione di queste genti seppur in alcuni casi volontaria, rappresenta spesso un percorso difficile da affrontare per i singoli soggetti e per le famiglie. La decisione di lasciare il proprio Paese di origine per un altro porta spesso ad un distacco dalle istituzioni sociali famigliari e dalle pratiche culturali, creando una separazione dai membri della famiglia e conducendo ad isolamento dalle fonti di supporto del nuovo Paese (Schwartz et al, 2006). Gli effetti del processo migratorio sul benessere psicologico e sociale degli individui possono essere molto profondi in particolare per i bambini. Questi ultimi sono caratterizzati da bisogni universali comuni a tutti i soggetti in crescita, ma anche da bisogni particolari derivanti dalla loro condizione di vita sospesa tra due mondi: il mondo di origine e quello di accoglienza.

2. Le seconde generazioni

La presenza di immigrati di seconda generazione in un territorio è un indicatore di immigrazione stabile e rappresenta un processo di cambiamento culturale irreversibile e duraturo. Dalla prima alla seconda generazione di immigrati vi è un passaggio da immigrazioni temporanee a insediamenti durevoli, o a volte definitivi, con la trasformazione delle immigrazioni per lavoro, delle quali si immaginava un rientro in patria in un futuro non lontano, in immigrazioni di popolamento.

Le seconde generazioni sono costituite da figli di immigrati nati nel Paese di accoglienza, da figli di coppie miste e da bambini giunti nel Paese ospite attraverso processi di ricongiungimento famigliare (Ambrosini, 2004). Il sociologo Rubén Rumbaut ha proposto una classificazione di tipo decimale individuando quattro diverse generazioni di figli di immigrati, considerando il luogo di nascita e l'età nel momento di arrivo nel nuovo Paese: la generazione "2", la "1.75", la "1.5" e la "1.25" (Suárez-Orozco e Carhill, 2011; Ambrosini, 2004). La generazione 2 è costituita dai nati nella società di arrivo, che interagiscono con la popolazione autoctona dal primo giorno di vita. La 1.75 rappresenta i bambini immigrati arrivati entro il quinto anno di vita, prima di iniziare il percorso scolastico nel Paese di origine. La 1.5 include i figli di immigrati arrivati nel Paese ospite in età compresa fra i 6 e 12 anni, la cui formazione scolastica era già iniziata nel Paese di origine, ma che avverrà in misura maggiore in quello di arrivo. Infine, la 1.25 è la generazione costituita da chi è giunto durante l'adolescenza, da 13 a 17 anni, e che potrà frequentare alcuni anni della scuola secondaria o iniziare un'attività lavorativa.

Il futuro delle seconde generazioni è fortemente legato alle modalità di ingresso dei loro genitori nella società ospite dipendendo dall'epoca storica della prima migrazione, dall'origine etnico-nazionale dei flussi migratori e dall'ambito nazionale di destinazione. Inoltre, il loro inserimento nella società non può prescindere dalle trasformazioni demografiche, socioeconomiche e culturali del Paese di accoglienza durante le fasi del loro ingresso (Demarie e Molina, 2004). Differenze tra prime e seconde generazioni si osservano anche nel fenomeno del transnazionalismo: processo mediante il quale i migranti costruiscono campi sociali che legano insieme il Paese di origine e quello di insediamento (Ambrosini, 2008). I ragazzi nati nel Paese di insediamento o che sono arrivati in giovane età (generazione 1.5, 1.75 e 2), in genere non mantengono relazioni con il Paese di origine, mentre le prime generazioni conservano legami transnazionali di natura affettiva, economica o politica (Colombo e Sciortino, 2004; Portes et

al, 2004). Tuttavia, il bilinguismo, la doppia cittadinanza, i rituali religiosi, la disponibilità di mezzi economici e gli sviluppi tecnologici nel campo delle telecomunicazioni contribuiscono ad aumentare questo fenomeno. La forte presenza di seconde generazioni è dovuta fondamentalmente a due processi: dalla creazione di nuove famiglie e relazioni all'interno del Paese di accoglienza e dall'ingresso di figli nati all'estero dagli stranieri residenti nel Paese ospite prima della migrazione. Il diritto al ricongiungimento familiare costituisce una delle poche aree delle politiche migratorie dove si è giunti ad un accordo tra gli stati europei, per questo rappresenta uno dei principali canali di ingresso dell'immigrazione europea dei minori (Mantovani, 2008). La crescita delle seconde generazioni comporta un cambiamento nella composizione sociale delle società di accoglienza, si costituiscono infatti delle minoranze etniche che necessitano di parità di trattamento e promozione sociale, nonché di riconoscimento della propria identità e di autonomia sociale. Con le seconde generazioni nascono esigenze di definizione, rielaborazione e trasmissione sia in riferimento al patrimonio culturale che al modello di educazione famigliare (Ambrosini, 2004).

3. Adattamento psicologico e socioculturale

Il processo di migrazione provoca un forte stress nelle famiglie che intraprendono questo percorso. I fattori economici, politici, culturali, sociali e personali che possono aver condotto queste persone ad abbandonare il proprio Paese di origine e le politiche di integrazione sociale e le leggi che regolano l'immigrazione nel Paese di accoglienza, influiscono sul benessere psicologico e sociale delle famiglie immigrate. La povertà è un fenomeno che accompagna molte famiglie immigrate e i suoi effetti sono un importante fattore di rischio per la crescita dei bambini. La deprivazione socioeconomica porta spesso questi bambini ad essere vulnerabili nei confronti degli stress psicologici, mostrando difficoltà di concentrazione, insonnia, ansia, depressione e predisponendoli in molti casi a fenomeni di delinquenza e violenza (Gualdi-Russo et al, 2014; Toselli et al, 2014). Le conseguenze della povertà sono spesso legate a monogenitorialità, a residenza in quartieri violenti e segregati e ad ambienti scolastici sovraffollati.

L'adattamento in termini di acculturazione è costituito da due componenti: una psicologica e una socioculturale (Ward e Kennedy, 1999). L'adattamento psicologico si riferisce al benessere personale, all'autostima, al livello di soddisfazione per la propria vita e alle eventuali tensioni

psicologiche che possono sfociare in depressione e in disturbi dell'umore. I fattori che lo influenzano sono legati ai cambiamenti di vita e alle caratteristiche della personalità dell'individuo, nonché dall'assenza o dalla presenza di supporto sociale. Esiti psicologici positivi sono legati ad esperienze positive nei cambiamenti di vita e sono derivanti dall'abilità a fronteggiare adeguatamente le richieste della nuova cultura del Paese ospite e dalla capacità di instaurare rapporti soddisfacenti con la società. D'altra parte la bassa incidenza di cambiamenti nello stile di vita e un adeguato supporto sociale facilitano l'adattamento psicologico. Al contrario, difficoltà psicologiche sono associate ad un alto livello di stress legato al processo migratorio, pesanti cambiamenti di vita, depressione e comportamenti negativi nell'affrontare situazioni problematiche (Searle e Ward, 1990).

L'adattamento socioculturale riguarda invece l'interazione dell'individuo con la comunità in cui vive e la gestione dei rapporti con le istituzioni scolastiche o il mercato del lavoro. L'adattamento socioculturale è influenzato da alcuni fattori culturali specifici come: il livello di permanenza nella società ospite, l'interazione con la popolazione nativa, le eventuali distanze culturali e la capacità linguistica. Un adattamento socio-culturale di successo è determinato da maggiori contatti con la comunità in cui si vive, da una maggiore similarità culturale e da una migliore conoscenza della lingua della società ricevente. Le difficoltà nel contesto socio-culturale sono collegate invece ad incongruenze culturali e ad una scarsa interazione e identificazione con la nazione ospite (Bhugra e Arya, 2005). La vitalità del gruppo gioca un ruolo importante nell'adattamento psicologico e socio-culturale della popolazione immigrata all'interno della comunità ospite, rappresentando uno dei fattori più rilevanti di adattamento. La vitalità del gruppo si riferisce a comportamenti specifici messi in atto dai gruppi etnici minoritari che li rendono entità collettive distintive all'interno del contesto maggioritario (Bourhis et al, 1997). La vitalità del gruppo etnico si riferisce al dinamismo del gruppo e al supporto in termini di caratteristiche socio-demografiche come la presenza demografica degli immigrati e la condivisione di esperienze comuni. Sentimenti di vicinanza psicologica, il fronteggiare problemi simili inerenti l'adattamento culturale costituiscono un valido supporto per i membri del gruppo etnico. Gruppi di immigrati caratterizzati da bassa vitalità etnica avranno esperienze più stressanti e mostreranno maggiori difficoltà psicologiche nell'adattamento alla nuova società se confrontati con gruppi manifestanti medi o alti livelli di vitalità etnica (Suanet-Galchenko e van de Vijver, 2008). Un gruppo minoritario vitale facilita le relazioni, il successo sociale e un positivo atteggiamento nel fronteggiare i problemi dei suoi membri. Le interrelazioni

tra la vitalità etnica, il benessere emotivo e le relazioni sociali delle comunità dei migranti all'interno della società ospite, promuovono positivi risultati di adattamento psicologico e socio-culturale.

4. Identità culturale e strategie di acculturazione

Il termine identità culturale è stato usato in modi diversi per definire vari concetti. L'identità viene descritta come un processo normativo e un prerequisito necessario per orientarsi nel mondo (Erikson, 1950). Erikson (1950) definisce l'identità come il risultato di una dinamica interazione tra l'individuo e il contesto. Egli intende questa interazione come un fenomeno universale, ma afferma che l'attualità storica del contesto culturale su quello individuale possa influenzare lo sviluppo del processo di identità. L'identità viene perciò costruita in base a processi di identificazione e individuazione (Melucci, 1996). Lo sviluppo identitario è un'attività primaria dell'adolescenza che risulta in una coerente e auto-costruita organizzazione dinamica di motivazioni, abilità, credenze e storia personale che fungono da guida durante il corso della vita adulta (Erikson, 1968). Inoltre è' importante distinguere tra identità personale e sociale. L'identità personale rappresenta gli obiettivi, i valori e le credenze dell'individuo (che possono coincidere oppure no con quelli di un particolare gruppo sociale o culturale). L'identità sociale invece rappresenta i valori e le credenze che sono esplicitamente legate ad un particolare gruppo, così come le attitudini e i comportamenti rivolti ai membri interni o esterni del gruppo basati su questi ideali. L'identità sociale e in particolare quella culturale è destinata a cambiare come risultato dell'acculturazione delle persone immigrate venute in contatto con individui, istituzioni e costumi della nuova società ricevente (Schwartz, 2006). Per i bambini è molto difficile mediare tra due diverse culture: la cultura nativa e la cultura del Paese di accoglienza. E' possibile che lo scontro tra questi due modelli culturali diversi provochi una lacuna nell'identità del bambino.

L'etnicità viene spesso associata a differenze nello stato economico e sociale, nel livello di istruzione e nella varietà di problemi sociali. Gli indicatori più importanti del gruppo etnico sono: la lingua del gruppo; la gestualità ossia il linguaggio del corpo; i modi di vita del gruppo (ad esempio l'alimentazione); i costumi legati al matrimonio, alla nascita, alla morte e alle cerimonie e riti di gruppo; le forme corali ossia la musica e le danze dei vari gruppi etnici; l'arte, le credenze e i rituali religiosi del gruppo. La lingua di origine costituisce un marcatore dell'identità, distingue i gruppi etnici e condiziona le relazioni sociali; viene usata come segno

distintivo, come differenziatore o indicatore di comune provenienza. La lingua è considerata un simbolo identitario forte che insieme ad altri elementi come il colore della pelle e la religione fondano la credenza in un'origine comune. I simboli identitari sono i principali fattori aggreganti di una comunità: l'origine nazionale comune, la stessa lingua e lo stesso stile di vita facilitano le relazioni e creano unità. Mantenere la conoscenza della lingua madre significa non voler dimenticare le proprie origini. La famiglia e la società del paese di accoglienza differiscono da quelle native in: valori, leggi, tradizioni, religione e lingua. Questa situazione colloca il bambino immigrato ai margini di entrambi i modelli culturali. La collocazione tra due mondi influisce e segna il processo di costruzione della propria identità, della propria appartenenza culturale e psicologica. Così il minore immigrato può essere considerato come facente parte della cultura di origine, valorizzando la continuità del passato, oppure può essere assunto all'interno della cultura del Paese ospite. Ciascuna di queste posizioni pone comunque il ragazzo ai margini; per questo motivo le seconde generazioni vengono anche chiamate le generazioni del sacrificio, ossia quelle generazioni che pagano caro il processo di migrazione delle famiglie. Le seconde generazioni di immigrati rappresentano in questo contesto una generazione involontaria sospesa tra due culture differenti, in bilico tra appartenenza ed estraneità (Daher, 2010). Inoltre diversamente dai loro genitori, la loro richiesta primaria non è quella di una casa o di un lavoro, ma dell'accettazione e del riconoscimento da parte della società.

L'acculturazione è un processo di mutamento culturale e psicologico risultante dal contatto tra gruppi culturali e individui diversi (Berry e Sam, 2011). Le diverse forme di trasmissione culturale che possono essere sperimentate da un individuo vengono definite proprio con questo termine. Non tutti gli immigrati si acculturano allo stesso modo, può verificarsi una propensione verso la cultura di provenienza o una preferenza per la società ospite. Questo processo perciò può avvenire in due modi: attraverso l'adozione di ideali, valori e comportamenti della cultura del Paese ospite; oppure attraverso la conservazione degli ideali, valori, comportamenti e credenze della cultura di origine (Schwartz et al , 2006). Le strategie di acculturazione dipendono da questi due aspetti fondamentali: la conservazione culturale e il contatto interculturale. Dall'incrocio di queste due variabili si creano comportamenti diversi riconducibili a quattro tipi di strategie di acculturazione (Tabella 1) (Berry, 2001): integrazione, assimilazione, emarginazione e separazione.

Tabella 1- Strategie di acculturazione dei gruppi etnoculturali e della società (da Berry e Sam, 2011, modificato).

		Conservazione culturale e identitaria di origine	
		Alta	Bassa
Contatto interculturale	Alto	Integrazione → Multiculturalità	Assimilazione → *Melting pot*
	Basso	Separazione → Segregazione	Emarginazione → Esclusione

Il comportamento di integrazione comporta sia il mantenimento della propria cultura di origine che la partecipazione alla cultura della società di accoglienza. L'atteggiamento di assimilazione si verifica quando gli individui non desiderano mantenere i propri retaggi culturali, ma preferiscono il contatto quotidiano con le culture della società ospite. L'emarginazione è determinata invece dallo scarso interesse sia nella conservazione della propria eredità culturale che nelle relazioni con altri gruppi. Infine l'atteggiamento di separazione si attua attraverso il mantenimento della propria cultura di origine rifiutando quella del Paese di accoglienza. Esiste poi una ulteriore dimensione data dal gruppo dominante o nazionale nell'influenzare queste strategie trasformandole in aspettative di acculturazione. In questo caso l'integrazione concepita dal gruppo dominante viene detta multiculturalismo; l'assimilazione è definita come *melting pot;* l'emarginazione diventa esclusione e la separazione si trasforma in segregazione. Il metodo di adattamento più efficace come strategia individuale è l'integrazione che si associa a un migliore adattamento psicologico e socioculturale; mentre nell'ambito pubblico e politico è la multiculturalità ad ottenere i risultati migliori. L'interculturalismo è il modo in cui viene accettata la diversità, attivamente e positivamente. L'assimilazione è invece una strategia che tende ad interpretare le differenze culturali come uno svantaggio incoraggiando i bambini ad abbandonare la loro cultura di origine per quella del Paese ospite. Questo tipo di acculturazione tuttavia si nota soprattutto prendendo in considerazione due variabili diverse (Ambrosini, 2004): l'assimilazione

culturale e l'integrazione economica. Esaminando questi due parametri è possibile identificare quattro tipologie di assimilazione: l'assimilazione lineare classica, la *downward assimilation*, l'assimilazione anomica o illusoria e l'assimilazione selettiva. L'assimilazione lineare classica si verifica quando l'avanzamento socioeconomico si accompagna all'acculturazione nella società ricevente, questa a sua volta comporta il progressivo abbandono dell'identità originaria, dei legami comunitari e delle pratiche culturali distintive. La *downward assimilation* dipende da un basso livello di integrazione economica associato ad un basso livello di assimilazione culturale. Gli immigrati confluiscono negli strati svantaggiati della popolazione, in comunità marginali e discriminate, che sviluppano sentimenti oppositivi verso la società ospite. L'assimilazione anomica o illusoria prevede una bassa integrazione economica associata ad una buona assimilazione culturale con l'acquisizione degli stili di vita del Paese ospite, ma con una mancanza di strumenti per poter accedere a standard di consumo corrispondenti e senza possibilità di miglioramento futuro. L'assimilazione selettiva invece è determinata da una alta integrazione economica ed una bassa assimilazione culturale; in questo caso il progresso economico sembra essere favorito dal mantenimento di legami comunitari e dei codici identitari distintivi.

5. Il ruolo dell'istituzione familiare

Il futuro delle seconde generazioni è influenzato da una istituzione sociale importante: la famiglia, i cui processi educativi sono incentrati sul mantenimento di codici culturali tradizionali, sul controllo delle scelte e dei comportamenti dei figli e sul mantenimento di un'identità etnica comunitaria. Questi processi educativi sono condizionati dal desiderio di integrazione che i bambini hanno nei confronti della società ospite e dal desiderio di emancipazione e di eguaglianza sociale. Uno dei maggiori problemi è il conflitto intergenerazionale che si crea tra gli adolescenti immigrati e i loro genitori. Spesso le differenze dovute ad una acculturazione diversa tra genitori e figli porta divergenze tra quello che i figli vogliono per se stessi e quello che i genitori vorrebbero per loro. Il modello familiare è debole perché rappresenta valori e tradizioni diversi da quelli della cultura maggioritaria, e anche perché occupa un ruolo marginale nel nuovo contesto di inserimento. Spesso il minore immigrato svaluta le figure genitoriali e la propria origine, questo è dovuto al fatto che i famigliari sono spesso impegnati loro per primi in un non facile percorso di adattamento e di inserimento nel nuovo contesto. D'altra parte anche la

cultura maggioritaria non è in grado di colmare il bisogno di identificazione e di certezze poiché spesso è una cultura ostile o poco conosciuta. Le principali aree critiche su cui verterebbe il conflitto tra genitori e figli stranieri sono: le amicizie, le prime relazioni sentimentali, le diverse concezioni rispetto alle differenze di genere (ruolo uomo/donna), il livello di autonomia e di libertà che gli uni e gli altri ritengono legittimi avere rispetto all'età, la gestione del tempo extrascolastico, le strategie e i percorsi di inserimento nel nuovo paese in termini di avvicinamento a valori, comportamenti, pratiche e costumi (Ghiringhelli, 2006). A tutto ciò si possono aggiungere altri problemi familiari quali, ad esempio, difficoltà lavorative, economiche, relazionali tra coniugi, o difficoltà dovute ai cambiamenti legati al percorso migratorio. A causa della frequentazione della scuola le seconde generazioni di immigrati sono in genere più avanzate culturalmente e hanno una migliore integrazione dei loro genitori all'interno della società (Ambrosini, 2004). Questo però può portare ad alcuni problemi familiari come la perdita dell'autorità genitoriale con il conseguente fenomeno del rovesciamento dei ruoli. I figli assumono precocemente responsabilità adulte nei confronti della società ospite specialmente nei contatti con le istituzioni scolastiche, o fungono da interpreti per quanto riguarda la lingua tra la società e i genitori. Questo porta ad erodere l'autorità dei genitori che vengono superati dai figli per dimestichezza, socializzazione e capacità di interazione con la società ricevente. Alcune problematiche sono dovute al rifiuto dei modelli culturali della società di origine con riferimento al ruolo della donna che nel Paese di accoglienza può essere visto in maniera diversa da quello del Paese di origine causando alcuni conflitti. I processi di emancipazione femminile possono essere avvertiti come pericoli per i valori patriarcali tramandati da molte culture tradizionali. I rapporti con le figlie adolescenti sono i più a rischio: nei loro confronti vertono i maggiori contrasti con le famiglie in termini di mantenimento dei ruoli tradizionali. Inoltre la svalutazione della famiglia può verificarsi a causa di lunghi tempi di separazione tra genitori e figli dovuti al processo di migrazione, ciò può portare tensione nei rapporti familiari e a disturbi di salute mentale nei bambini. Il periodo di separazione infatti non solo abitua il ragazzo a stare senza i genitori, ma pone i genitori e i figli in una situazione di estraneità reciproca che non è scontato superare al momento della riunificazione familiare.

Insieme alla famiglia anche il gruppo dei pari è determinante nei processi di socializzazione nel periodo infantile e adolescenziale. Gli amici e i coetanei giocano un ruolo fondamentale nella formazione della personalità e nell'inserimento societario dell'individuo. Il confronto con il

gruppo dei pari rappresenta una tappa fondamentale nello sviluppo psicologico della persona e la creazione di buoni rapporti determina nei giovani una base di sicurezza, di minor paura nell'affrontare il loro percorso di crescita. E' importante distinguere tra influenza dei pari in età infantile, per cui il modello di riferimento emotivo e relazionale rimane la famiglia e quella in età adolescenziale, per cui il gruppo rappresenta il punto di riferimento principale, fino a superare l'importanza del nucleo famigliare. I bambini stranieri possono vivere con maggiore difficoltà la relazione con i coetanei, che a volte rappresenta una fonte di grande angoscia. Le difficoltà nelle relazioni con i pari possono essere dovute a vari tipi di diversità: diversità somatica, etnica, religiosa, culturale e linguistica. Quando la situazione è pesante genera conseguenze come: volontaria emarginazione, depressione, rifiuto della società e della famiglia, e disturbi alimentari come anoressia e bulimia (Ghiringhelli, 2006; Kolaitis et al, 2003).

6. Conclusioni

La condizione di benessere dei minori migranti dipende da un insieme di fattori che riguardano l'apertura o la chiusura della società di accoglienza, le relazioni familiari, scolastiche e con il gruppo dei coetanei. Le migliori strategie di acculturazione attuate si riferiscono all'integrazione come strategia individuale e alla multiculturalità come politica e pratica pubblica messa in atto dalla società. Nell'integrazione del bambino straniero un ruolo importate è costituito dalle relazioni con la famiglia e con i compagni, con la possibilità da parte del minore di partecipare ad attività di gruppo ludiche e sportive. Inoltre il bambino immigrato deve avere la possibilità di mantenere una competenza nella lingua materna al fine di raccontare aspetti della propria cultura, del proprio Paese di origine e perciò della propria storia. L'affermazione e il rafforzamento della propria identità etnica portano ad un arricchimento tra culture diverse che deve essere sorretto dalla ricerca di obiettivi comuni all'interno della società. Il modello della multiculturalità si verifica attraverso lo scambio tra le culture, cioè mediante un'interazione dinamica tra esse ed è fondato sulla fiducia nella possibilità di un confronto positivo tra le stesse.
Gli immigrati e la società di accoglienza devono perciò arrivare ad un equilibrio dei rapporti che conduca i primi al mantenimento della memoria della propria cultura di origine e la seconda all'accettazione dell'eredità culturale delle minoranze etniche.

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Migration and Mental Health

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Abstract - Mental health, defined by the WHO as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life" should be at the center of health and social policy and health-system planning, since there is "*no health without mental health"*. The increase in migratory processes across countries worldwide, makes this issue extremely significant in medicine and psychiatry, specifically. In fact, since migration is a chronic stressful event involving the loss of one's social structure and cultural identity (e.g. language, attitudes, traditions, values, support networks), and the need to adjust to a new culture, psychiatric disorders may emerge, particularly in more vulnerable segments of the migrant population. Schizophrenia and schizophrenic spectrum disorders, stress-related disorders (e.g. post-traumatic stress disorders), depressive and anxiety disorders, drug abuse and addictive disorders have been examined in transcultural psychiatry studies showing a higher incidence and poorer outcome among migrants from different cultural backgrounds and ethnicities. Culture-bound psychiatric syndromes have also been considered as a part of possible manifestation of psychological suffering in certain migrant people. Also, since language, ethnicity, race, and religion, have an important role in molding the patients and families perception of physical illness (e.g. doctor-patient relationship, coping to diagnosis and prognosis, treatment decision-making), psychiatric and psychosocial implications of major diseases (e.g. cancer) should be carefully taken into consideration among migrants. The abovementioned issues should be also part of intervention planning both in terms of psychotropic drugs prescription and psychotherapy, by following the recommendation of the most important psychiatric guidelines (e.g. World Psychiatric Association, European Psychiatric Association).

Abstract – La salute mentale, definita dall'OMS come "uno stato di benessere in cui ogni individuo realizza il proprio potenziale, in grado di far

fronte al normale stress della vita" dovrebbe essere al centro della politica socio-sanitaria e del pianificazione della salute di ogni paese, dal momento che "*non esiste salute senza salute mentale"*. L'aumento dei processi migratori tra i paesi di tutto il mondo rende la questione molto importante in medicina e in psichiatria in particolare. Infatti, dal momento che la migrazione è un evento stressante cronico che comporta la perdita della propria struttura sociale e dell'identità culturale (ad es. lingua, comportamenti, tradizioni, valori, reti di sostegno) e la necessità di adattarsi a una nuova cultura, disturbi psichiatrici possono insorgere, in particolare, nei segmenti più vulnerabili della popolazione migrante. Schizofrenia e disturbi dello spettro schizofrenico, disturbi legati allo stress (ad esempio disturbi da stress post-traumatici), disturbi depressivi e d'ansia, abuso di droghe e disturbi da dipendenza sono stati esaminati in studi di psichiatria transculturale, mostrando una maggiore incidenza e esiti peggiori tra i migranti provenienti da diversi background culturali e etnici. Sindromi psichiatriche legate alla cultura sono state considerate come parte di una possibile manifestazione di sofferenza psicologica in certi migranti. Inoltre, poiché linguaggio, etnia, razza e religione hanno un ruolo importante nel plasmare la percezione della malattia fisica dei pazienti e delle famiglie (ad esempio, rapporto medico-paziente, far fronte a diagnosi e prognosi, decisione del trattamento), le implicazioni psichiatriche e psicosociali delle principali malattie (ad esempio cancro) devono essere attentamente prese in considerazione tra i migranti. I problemi sopracitati devono essere anche parte della pianificazione degli interventi sia in termini di psicofarmaci da prescrizione che di psicoterapia, seguendo le raccomandazioni delle più importanti linee guida psichiatriche (ad esempio la World Psychiatric Association e la European Psychiatric Association).

1. Introduction

According to the World Health Organization (WHO) constitution, "health" is defined as "a state of complete physical, mental, social and spiritual well-being and not the mere absence of disease or infirmity", with mental health, in turn, defined as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (WHO, 2014). The importance to pay attention to mental health of the population is particularly stressed by several organizations, including WHO, the World Psychiatric Association

(WPA), as well as governmental institutions (e.g. UK) (UK Government, 2011), that have repeatedly underlined that mental health awareness be integrated into all aspects of health and social policy, health-system planning, and delivery of primary and secondary general health care, since there is *"no health without mental health"* (Prince et al., 2007) (Table 1).

Nevertheless, the global burden of psychiatric disorders diseases and related mental health conditions continue to be underappreciated and under resourced, particularly in the developing countries. The absence of adequate and quality mental health infrastructure and workforce is increasingly recognized, with ethical implications in terms of inequalities in mental health for people and nations (Saxena et al., 2007; Wang et al., 2007; World Health Organization, 2014). Stigma and discrimination against people living with mental disorders is still a problem worldwide and affects their education, employment, access to care and hampers their capacity to contribute to society (Henderson & Thornicroft, 2009; Schulze, 2009), with a further reduction of poor services for a vulnerable segment of the population, that is extremely vulnerable, and the risk for abuse of their human rights.

Table 1 - WHO concepts on mental health and Mental health is an integral part of health; indeed, there is no health without mental health (http://www.who.int/mediacentre/factsheets/fs220/en/

- Mental health is an integral part of health; indeed, there is no health without mental health.
- Mental health is more than the absence of mental disorders.
- Mental health is determined by socioeconomic, biological and environmental factors.
- Cost-effective public health and intersectoral strategies and interventions exist to promote, protect and restore mental health.

Table 2 - 10 key facts on mental health and mental disorders according to the WHO (http://www.who.int/features/factfiles/mental_health/mental_health_facts/en/index.html)

1. Around 20% of the world's children and adolescents have mental disorders or problems
2. Mental and substance use disorders are the leading cause of disability worldwide
3. About 800 000 people commit suicide every year
4. War and disasters have a large impact on mental health and psychosocial well-being
5. Mental disorders are important risk factors for other diseases, as well as unintentional and intentional injury
6. Stigma and discrimination against patients and families prevent people from seeking mental health care
7. Human rights violations of people with mental and psychosocial disability are routinely reported in most countries
8. Globally, there is huge inequity in the distribution of skilled human resources for mental health
9. There are 5 key barriers to increasing mental health services availability (e absence of mental health from the public health agenda and the implications for funding; the current organization of mental health services; lack of integration within primary care; inadequate human resources for mental health; and lack of public mental health leadership
10. Financial resources to increase services are relatively modest

Because of the increase in migratory processes across countries, the importance of the abovementioned discussion clearly emerges. Migration with all its typology and accompanying stressors may in fact affect mental health of migrating individuals and their families, with clinicians needing to be to be aware of the characteristics of the mental disorders and risk factors among migrants (Brugha, 2004). In this chapter we will explore some of the issues related to mental health and migration, and the possible ways to set-up, in a multicultural world, specific intervention.

2. Social and cultural factors in mental health

In order to understand the possible determinants of health and mental health, Dahlgren and Whitehead (1992), within a social ecological theory, have attempted to map the relationship between the individual, their environment and disease by proposing a model which stresses the role of several factors that, combined together, affect the health of individuals and communities. The model, with individuals are at the centre, includes (i) biological factors (e.g. fixed genes, age, constitutional factors), surrounded and influenced by (ii) behavioural and life-style factors (e.g. choice to smoke or not); by (iii) social and community influences (providing mutual support for members of the community in unfavourable conditions; (iv) structural factors (e.g. housing, working conditions, access to services and provision of essential facilities); and, as an important conceptualization, (v) general socio-economic, cultural and environment conditions. Culture, defined as a sociocultural construct, represents in fact "*shared learned meanings and behaviors that are transmitted from within a social activity context for purposes of promoting individual/societal adjustment, growth, and development"* (Marsalla and Yamada, 2013) and influences the incidence and the presentation of health problems in a marked way. In fact, the integrated patterns (and their representations) of human behavior, including the language, thoughts, communications, actions, customs, beliefs, values, and institutions of racial, ethnic, religious, or social groups, have a main role within the promotion of health and mental health.

Dahlgren and Whitehead model is in part related to George Engel's biopsychosocial model that systematically considers biological, psychological, and socio/cultural factors and their complex interactions as the framework through which health, illness, and health care delivery can be understood (Engel, 1977). For these reasons, as Kleinman (Kleiman et al. 1978) indicated, socio-cultural factors need to be taken into account as instruments constantly intervening in the multiple explanatory concepts related to etiology, symptoms, pathophysiology, expectations about the prognosis and therapies of disease, according to different symbolic universes of reference of each one.

3. Migration, migratory process and mental health implications

On these backgrounds, since socio-cultural factors strongly mould the way in which mental disorders express themselves, psychiatry, as specialty medical discipline, can be applied in clinical practice only if the culture of reference of patients presenting psychiatric disorders are carefully

assessed. As Devereux (1980) has proposed in his etnopsychiatric approach, culture is an interior experience and a way of "living experience" and, based on the complementarity of psychological and sociological data, understanding of all human behavior and consequent mental health disorders requires the application of both classical psychological but also well-defined sociocultural methods of explanation. From this perspective and for these reasons, transcultural psychiatry has today a special role within the area of general and clinical psychiatry, with special aims to be constantly considered in medical and psychiatry core-curricula (Table 3). Mental health professionals in fact work in an increasingly multicultural world, shaped by the migrations of people of many different cultural, racial and ethnic backgrounds and attention to mental health of migrants is mandatory.

Table 3 - Aims of the World Psychiatric Association Section on transcultural psychiatry
(http://www.wpanet.org/detail.php?section_id=11&content_id=574)

Exploration of the similarities and differences in the manifestations of mental illness in different cultures
• Identification of cultural factors that predispose to mental illness and mental health
• Assessment of the effect of identified cultural factors on the frequency and nature of mental illness
• Study of the form of treatment practiced or preferred in different cultural settings
• Comparison of different attitudes toward the mentally ill in different cultures

Many are the factors to be considered, such as the fact the diversity of cultures, ethnicity, races of people that for many reasons migrate (e.g. political, socioeconomic and educational) can influence – because of linguistic, religious and social variation - the presentation of distress and illness, including mental health problems in terms of diagnosis and treatment; the fact that the incidence and prevalence of mental disorders varies among people of different cultural backgrounds, due to an interplay of biological, psychological and social factors; the fact that the provision of health care is necessarily influenced by the demands of people of many different cultures, and it is important that cultural differences be appreciated

and understood to arrive at a correct diagnostic impression and treatment plan.

Migration is per se a stressful condition and, as every stressful life event, may cause physical and psychological problems. Furthermore, migration is not just a phase, but a process, a series of events, which are influenced by a number of factors over a prolonged period of time and these phases in turn are influenced by other factors at social and individual levels. Bhugra (2004) suggests to understand migration as a three-stage process. The first, pre-migration stage, is when the individuals decide to migrate and plan the move, and prepares themselves to do so, using financial, legal and political resource. The second phase involves the process of migration itself and the physical transition from one place to another, involving all the necessary psychological and social steps. The third, post-migration, is when the individuals deal with the social and cultural frameworks of the new society, learn new roles and become interested in transforming their group. The outcomes of this phase should be considered, since the possible problems arising here may influence mental health: the first outcome is assimilation, that occurs when individuals adopt the cultural norms of a dominant or host culture, over their original culture, with the consequence that cultural differences disappear and psychosocial adjustment is favored; deculturation is a different possible outcome, characterized by a loss of cultural identity, one's own cultural values, alienation and acculturative stress; acculturation is a third outcome, indicating the process of as second-culture learning, with cultural and psychological change as a result of the meeting between cultures (Bhugra, 2004).

The process of migration involves the loss of one's social structure and culture, that could cause a grief reaction, because migration implies the loss of the familiar, including language, attitudes, values, social structure and support networks. Several factors should be taken into account in examining the process of migration, including individual's characteristics in pre-migration phase: economic, educational and occupational status in country of origin, disruption of social support, roles and network, trauma, political involvement (Kirmayer et al, 2011). People who migrate for economic or educational reasons may move singly and at a later date be joined by their families, whereas people who migrate due to political reasons may move in masse but with or without their families. In migration phase other important factors are trajectory, exposure to harsh living condition, exposure to violence, disruption of family and community networks and uncertainty about outcome of migration.

In post-migration stage the type of the new society where the migrant is also an important factor related to psychological adjustment or risk for mental disorder. Bhugra has hypothesized that individuals who migrate from predominately sociocentric societies into a society that is predominately egocentric are likely to have problems adjusting to the new culture, especially if the individuals are sociocentric in their own belief system; in contrast sociocentric or collectivist societies favor cohesiveness, strong ties between individuals, group solidarity, emotional interdependence, traditionalism and a collective identity; in contrast individualistic societies (Bhugra et al, 2001). Other factors that influenced the post-migration stage are the ethnic density, the social isolation, the unemployment and the racism (Bhugra 2004).

A main point in understanding the risk of mental disorders in migrants is that the process of integrating the social and culture values, ideas, and behavioral patterns of the culture of origin with those of the new culture can lead to acculturative stress if they conflict.

4. Psychiatric disorders and migration

Data of the psychiatric literature indicate that migration and the stressors involved in the migration experience could cause or exacerbate several psychiatric disorders, such as anxiety, depression, adjustment and post-traumatic stress disorders, substance abuse and schizophrenia spectrum (Kirkbride et al, 2011). Whereas 25-30% of the general population is affected by at least one mental disorder, similar rates (if not more) are expected in immigrants. In a study conducted by Banal et al. (2010), psychiatric morbidity was reported to be 33.6% among migrants compared to 26% in non-migrant local population.

4.1. Schizophrenia and psychotic disorders

A number of studies have been conducted on the problems of schizophrenia among people from different cultural backgrounds and on ethnicities. Preliminary data regarding this area were presented by Ødegård (1932) who noted a high rate of schizophrenia in Norwegians migrated to the USA with a peak of admission rates 10-12 years after migration. In his selective migration theory he hypothesized that the increased incidence of schizophrenia was related to the migration process itself and suggested that more fragile and vulnerable people, thus those already predisposed to psychosis, tended to leave Norway and migrate, thus giving reason to the higher prevalence/incidence of major psychiatric disorders than the local

population. However, more scientifically sound studies did not confirm this hypothesis. A recent study by Van der Ven et al. (2014) involving a cohort of 49,321 Swedish military conscripts showed that, compared to non-emigrants, hypothetical relative risks for developing non-affective psychotic disorder were 0.7 – 0.8 (95% CI 0.4-1.2) for emigrants, adding an increasing body of evidence opposing the selection hypothesis. However, the majority of studies showed that the relative risk for schizophrenia (and psychosis in general) is higher among migrants that the native local population. A three-fold risk for schizophrenia in migrants has been reported in a systematic review (Cantor-Graae et al, 2005), with data showing a 2.9 relative risk (RR) for schizophrenia in first and second generation migrants compared with non-migrants and a 4.5 RR in second generation migrants and a 4.8 RR in black population (Cantor-Graae et al, 2005).

In order to explain these figures, an interesting hypothesis relates to a socio-developmental theory which suggesting that a genetic predisposition and neurodevelopmental deficits may be amplified by the interaction with the environment. More specifically, childhood adversity, trauma and life stressors in childhood may determine alteration of biological mechanisms (such as sensitization of the mesolimbic dopaminergic system, dysregulation of the hypothalamic–pituitary–adrenal axis, and disorders of cognitive schema and interpretation of reality) that can be reactivated or may precipitate because of the stressors caused by the migration process (including both social adversity or abuse of substances or drugs, particularly cannabis). This in turn may favor the onset of psychotic symptoms and full-blown psychosis (Morgan et al, 2010). Another possible hypothesis explaining the higher prevalence of psychosis is ethnic density, stating that living in high ethnic density areas may provide a buffer against the adverse effects of disadvantage and discrimination, perhaps through a greater availability of social support (Morgan et al, 2010). This hypothesis seems to be confirmed by studies examining the social determinants of psychosis and showing that the less ethnically dense an area (a situation favoring poor social support, social disadvantage and discrimination), the higher the rates of psychosis. Perhaps most intriguing is the finding that the relative risk of schizophrenia increases as Black Caribbean people in the UK form a decreasing proportion of the local population (Boydell et al, 2001; Kirkbride et al, 2007).

4.2. Anxiety and depressive disorders

With regard depression and anxiety, a series of studies have indicated that prevalence of depressive disorders is higher in migrants than native proven by many studies (Bhui et al, 2004; Hoppe et al, 1989; Shaw et al, 1999), with a RR of 1.21, while no difference was fond as far as anxiety disorders are concerned (Tarricone et al, 2012). It is possible that the many losses that migrants have to deal with are significant co-factors for the onset of depression. More specifically, culture shock represent a powerful stressful event related to a sense of loss and feelings of deprivation, rejection by and members of the new culture, confusion in role and role expectation, values, feelings and self-identity, indignation and feelings of impotence (Jackson-Triche et al, 2000; Hoppe et al, 1989). These are ingredients may determine feelings of being trapped without a possible way out, a sense of defeat that easily can be conducive to hopelessness and helplessness, as the main core of depression (Gilbert & Allan, 1998).

A significant and extremely negative consequence of depression is the risk of suicide or attempted suicide. Suicidal and self-harm behavior appears to vary with ethnicity and sex. Possible culture conflicts that can be attributed to a disparity between traditional and modern attitudes in oneself as well as social and gender role expectations from individuals' significant others may favor the idea to find a way out through suicide. The rates of suicide seem to be associated to several variables, such as gender (higher rate in women), age (younger women aged 18-25), socio-economic status, cultural transitions and tensions, and poor emotional functioning (Taylor, 1999; Wassanaar et al, 1998; Dusovic et al, 2002; Bhui et al, 2007; Bhugra et al, 2005).

4.3. Adjustment and Post Traumatic Stress Disorders (PTSD)

Adjustment disorders, defined as the inability of an individual to adjust to or cope with a particular life event stressor, are obviously common among migrants, as well as in all life situations representing a challenge for individual's coping mechanisms (APA, 2013). A possible complication of adjustment disorders is the use of alcohol and various illicit substances, that have been linked to specific migrant population. Cultural variations should be taken into account, with alcohol or drugs abuse being often a consequence of an underlying depression and not infrequently the expression of a tendency of patients to self-medicate themselves (Cochrane et al, 1990; Cochrane et al, 1995).

A more specific disorder, such as PTSD, has also been studied among migrants. A number of data suggest that cultural bereavement, as experienced by refugees, is interlinked with symptoms and experiences of post-traumatic stress disorder, with the typical clusters of symptoms, including disturbing recurring flashbacks, avoidance or numbing of memories of the event, extreme anxiety and hyperarousal, and dissociative symptoms after the occurrence of a traumatic event. PTSD can be also characterized by dysphoria, aches and pain, subjective bouts of feeling intense heat, repeated dreams of the event, avoidance symptoms, tendency to live in the past, to be visited by supernatural forces from the past, to feel guilt about leaving and by fading positive memories of the past. Several authors have indicated that PTSD depends on the type and urgency of migration and reasons for such a drastic step. PTSD is in migrants or refugee and asylum groups or those escaping natural disasters have 10 times risk of than the general population (Bhugra et al, 2003; Fazel et al, 2005; Lipsedge et al, 2001).

4.4. Somatic Symptom Disorders

Physical symptoms suggesting a physical illness but that cannot be explained by a general medical condition or by the direct effect of a substance, and are not attributable to another mental disorder (e.g., pain in patients with depression) are common in medical practice and are well-known as somatic symptom disorders (APA, 2013) (or, as in the past, somatoform disorders). Individuals from traditional countries may not believe in mind-body dualism and may present with somatic symptoms which may become medically unexplained, therefore leading to unnecessary, often obtrusive, investigations adding to stress. A bulk of data indicating the importance of cultural factors in moulding the expression of physical symptoms. Reporting somatic symptoms in many different forms, such as asthenia, fatigue, headache, biting sensation all over the body, chest's constraint, pain, gastrointestinal symptoms is typical in many populations. It is always to recognize that, according to specific cultures, there are different manner to explicate somatic discomfort (Bhugra et al, 2011). Differential diagnosis between somatic presentation depression (masked depression) and somatic symptom disorder is not easy, particularly when cultural background influences the patient's complaints and language barriers make assessment complicated. Furthermore, mental disorders may be also hiding under many different physical diseases, which may influence their presentation and make diagnosis extremely complex.

4.5. Cultural-bound disorders

A significant issue to be mentioned among mental disorders in migrants regards “culture-bound syndromes”, that denote recurrent, locality-specific patterns of aberrant behavior and troubling experience that may or may not be linked to a particular psychiatric diagnostic category. Many of these patterns are indigenously considered to be "illnesses", or at least afflictions, and most have local names. Although presentations conforming to the major DSM5 (APA, 2013) categories can be found throughout the world, the particular symptoms, course, and social response are very often influenced by local cultural factors. In contrast, culture-bound syndromes are generally limited to specific societies or culture areas and are localized, folk, diagnostic categories that frame coherent meanings for certain repetitive, patterned, and troubling sets of experiences and observations. Some examples are Zar, in some areas of Africa; Koro in Cambodia; Taijin Kyofusho in Japan; Ghost Sickness in Natives of North America; Maladi Moun in Haitian people.

To describe, as an example, in more detail one of these disorders, people who experiment Zar (that they do not consider a pathology locally) have dissociative episodes, including fits of excessive laughing, yelling, crying, and hitting their head against a wall, and the cause is spirit possession, with whom they report developing long-term relationships. On the basis of its phenomenology, Zar could be conceptualized as a recurrent brief psychotic episode, delusional disorder, dissociative condition, or potentially a substance-induced event. Zar is an important example of how certain culture-bound syndromes can be seen as normal, or as a sign of being "selected," where other cultures would consider such symptoms pathologic (Magalhaes & Rasooli, 2012).

4.6. Mental health issues, physical diseases and cultural variables

A last significant area to be mentioned regards the relationship between severe physical diseases and the onset or worsening of psychiatric disorders among migrants. In the last thirty years, attention has been focused on the implications of cultural diversity in medical settings, particularly for racial and ethnic minorities for whom health disparities are related to socioeconomic disadvantage or the difficulty of integrating their cultural model into the dominant model. Since, likewise societies, medicine is progressively becoming multiethnic and multicultural, the need for clear policies of screening, assessment and treatment which take into account the implications determined by cultural diversity, is nowadays mandatory.

Language, ethnicity, race, and religion, have in fact an important role also in affecting the patients and families perception of physical illness, as well as in influencing communication and doctor-patient relationship (e.g., disclosure of information related to diagnosis and prognosis, role of patient and family in decision-making). Culture may also influence patients' coping mechanisms, including psychological response to a diagnosis of a medical illness, the presence or absence of psychopathological disorders (e.g. phenomenology of anxiety or depression, abnormal illness behavior), the awareness and knowledge of treatment options, and their acceptance of psychological intervention.

In some areas, such as oncology, because of the high incidence of cancer worldwide, the role of culture has been particularly studied among migrants and culturally-diverse population in consideration of the role of cultural issue in life-style, screening, early diagnosis, and treatment of cancer, on the one side, and the need to have a broad vision of how to assess and treat psychosocial implications consequences of cancer, including psychosocial palliative care and death rituals, on the other side, (Kagawa-Singer et al., 2010; Surbone, 2012; Grassi and Riba, 2012; Grassi et al., 2015). For example, a study of breast cancer survivors of different backgrounds (i.e., African American, Asian American, Latina and Caucasian) it was shown that psychosocial concerns related to worry about children and burdening the family, body image and sexual health concerns, beliefs about illness, gender role, family obligations (e.g. self-sacrifice), as well as language barriers were significantly different among the different cultural groups (Ashing-Giwa et al., 2004). In another study, it has been demonstrated that immigrant Chinese breast cancer survivors may express symptoms in culturally unique ways (e.g., hot-cold imbalances) and may be at higher risk for distress compared with US-born Chinese and non-Hispanic breast cancer survivors, because of cultural norms that influence the tendency to express one's own needs to physicians or to challenge physicians when one's own needs are not met (Wang et al., 2012).

Thus, cultural (and linguistic) competence as the capacity to function effectively as an individual and an organization within the context of the cultural beliefs, behaviors, and needs presented by patients and their support system in cross-cultural situations, has been underlined as an extremely important variable in medicine (Surbone, 2004). It is clear that the there is a strong need for the creation and the dissemination of a culturally sensitive patient/family-centered care, in which the clinical encounter is grounded in communication whereby cultural cues (i.e., values and beliefs) of the patient and the clinician are incorporated within the

therapeutic relationship and mutually shared (Kumagai et al., 2009; Teal and Street, 2009; Surbone, 2010). All these aspects should be taken into consideration when training physicians and multidisciplinary teams working in medicine (Grassi et al., 2015). Culturally competent communication skills that can be useful in multicultural screening and assessment are presented in Table 4.

Table 4 - Culturally competent communication skills that can be useful in multicultural screening and assessment (adapted and modified from Teal and Street, 2009).

- Non-verbal behaviors: reflect the physician's respect, concern and interest in the patient's well-being (active listening, focusing on the patient, and moderating culturally variable aspects of the interaction such as eye contact, touch, physical space, facial expressiveness, and the use of gestures)
- Verbal behavior skills: asking about and assessing the patient's problems, showing understanding, acknowledging, reflecting, and calibrating emotions to help form a connection
- Recognition and exploration of potential cultural differences: evaluation of the patient's community and family; skills and abilities that aid the patient and his/her family in dealing with the illness; factors that contribute to understanding health issues (e.g., education, mental acuity, familiarity with disease); aspects of the patient's environment that influence his/her ability to care for him/herself (e.g., socio-economic factors, structural environment, stressors); and emotional implications of illness)
- Incorporation of and adaptation to cultural knowledge: integrating a patient's cultural values or beliefs into the encounter; awareness and ability to adapt communication behaviors to maximize the patient's comfort; reconcile misunderstandings; be responsive to the patient's values.
- Negotiation and collaboration: operating with awareness and adaptability to negotiate a shared understanding with the patient; reaching agreement on how the patient's symptoms will be prioritized, diagnosed, and treated; discussing the meaning of screening and assessment and the risks and benefits of different treatment options in ways that are individualized to the patient's socio-cultural and biomedical context.

5. Intervention

Although intervention in psychiatry is essentially based on guidelines for the treatment of the several psychiatric conditions affecting the population, there are some specific elements characterizing mental care for migrants that has to take into consideration. Different ways of help-seeking, difficult linkage with primary care, the most accesses are in urgency, the seriousness psychopathological symptoms on first admission, and different ways to prescribe psychotropic drugs and psychotherapy interventions are part of these differences (Gilgen et al, 2005; Schaufnagel et al, 2006; US Department of Health and Human Services, Mental Health: a report of the Surgeon General, 1999; Skaer TL et al, 2000).

A first important step is to conduct a good assessment by proper interviewing and in case validated psychological instruments. It is useful to investigate the different stages of migration: pre-migration stage (reasons, preparation, group or singly, degree of control over migration), migration (how long ago, why, age on arrival, possible return or permanent, asylum status, previous experiences); post-migration (aspiration, acculturation and adjustment, attitudes toward new culture, support networks available).

Regarding psychopharmacological treatment, it is necessary to follow some guidelines (Lin et al. 2001). Exploring the patient's attitudes about the medication, expectations of its action, religious beliefs, diet and use of tobacco and alcohol is mandatory, since different culture have different attitudes and expectations of medication (e.g. use of herbal medication, use of alternative medicine). A number of ethnic groups show an increased vulnerability to side effects, due to different pharmacokinetics and pharmacodynamics (e.g. Asian experienced more extrapyramidal side effects with a fixe dose regimen of haloperidol; Hispanics are reported to require half the dose of tryciclic antidepressants to achieve therapeutic benefit and more sensitive to side effects; African Americans are said to be at greater risk of developing lithium toxicity). Religious rituals, such as fasting totally or partially, can alter the efficacy and tolerability of a prescribed drug, while cultural dietary practices may directly impact upon the pharmacokinetic s of a drug, due to their action to the function of the cytocrome system in the liver. Thus, it is always worth starting at a low dose, gradually building it up, monitoring side effects due to different pharmacokinetics and pharmacodynamics, and keeping the patients and his/her careers as informed as possible.

Likewise, regarding psychotherapy, it is important to accurately explore and understand a person's cultural background, prerequisite to

effecting a helpful therapeutic relationship; to use a psychological approach, with an underlying philosophical basis, that have to be acceptable to the patient and the therapeutic technique have to be modulated by the belief system of the patient. It should be considered that the degree of acculturation of a patient will make a difference in them accepting therapy and therapists must be aware of the cognitive styles within the patients' primary culture, e.g. concepts of shame may be stronger in some cultures compared with notions of guilt. In sociocentric cultures, for example, group psychotherapy are commonly part of treatment, but this may also raise issues of confidentiality and cultural values adding to stigma. Different levels of linguistic competency and acculturation will add to difficulties. Despite these potential difficulties, evidence suggests that group psychotherapy can be effective in assisting migrants with mental distress (Bhugra et al, 2011; Otto et al, 2003; Hilton et al, 2004).

The Recommendations of both the World Psychiatric association and the European Psychiatric Association are extremely important in guiding policy makers, service providers and clinicians in order to improve mental health care in migrants (Bhugra et al, 2011; Bhugra et al, 2014). In the health care systems it is essential to set up specific programs to recruit and retain staff members who reflect the cultural diversity of the community served. Also use of interpreter services or bilingual providers, cultural competency training for healthcare providers, and use of linguistically and culturally appropriate health education materials and culturally specific healthcare settings (e.g. neighborhood clinics for immigrant populations) need to be considered (Tarricone et al, 2011, Javier et al, 2010).

6. Conclusions

Migration itself is a very complex phenomenon and the individual migrant goes through a series of stages of adjustment and response to a number of stressors related to the preparation, process and post migration adjustment (Bhugra et al., 2004). Migration is associated with a higher risk for mental disorders, indicating that initiatives to prevent social exclusion and marginalization, particularly for at-risk population, are imperative. However, since it is impossible to consider "migrants" as a homogeneous group concerning the risk for mental illness and that psychiatry literature has shown that mental health differs between migrant groups, more data are necessary to better understand the complex phenomena related to migration

(Lindert et al., 2008). Furthermore, since the access to psychosocial care facilities is influenced by many different factors , including the legal frame of the host country, national health organization systems, but also sensitivity of the health care system about the problem of mental health in the population, training should be a necessary component in mental health care systems.

Table 5 - Aims of the comprehensive Mental Health Action Plan for 2013-2020
(http://apps.who.int/iris/bitstream/10665/89966/1/9789241506021_eng.pdf)

- Strengthen effective leadership and governance for mental health;
- Provide comprehensive, integrated and responsive mental health and social care services in community-based settings;
- Implement strategies for promotion and prevention in mental health; and
- Strengthen information systems, evidence and research for mental health.

Some significant steps have been taken by the WHO that approved in 2013, within the World Health Assembly, a "Comprehensive Mental Health Action Plan for 2013-2020". The Plan is a commitment by all WHO's Member States to take specific actions to improve mental health and to contribute to the attainment of a set of global targets, with the overall goal to promote mental well-being, prevent mental disorders, provide care, enhance recovery, promote human rights and reduce the mortality, morbidity and disability for persons with mental disorders (Table 5). The effects of these policies will be a test for the future of transcultural psychiatry.

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SECTION 3

EPIDEMIOLOGICAL TRENDS

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Establishment of Cancer Registries in Egypt and Morocco: Prevalent Cancers in both Countries

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Abstract - Population-based registry plays an important role in providing statistics on the occurrence of cancer in a defined population and a framework for assessing the impact of cancer in community. It is an essential part of any national cancer control programme and used in a wide variety of areas of cancer control ranging from etiological research, to health-care planning and patient care. This paper is aimed to compare between results of registries in 2 North African countries, Egypt and Morocco, regarding most common cancers in each country based on registry incidence data. Breast cancer is the most common cancer in both countries among females. Among males, lung cancer is the most common in Morocco unlike Egypt where bladder and liver cancers occupied the first 2 ranks. Variability in cancer incidence is encountered in both countries. Multiple sociodemographic and environmental factors play an important role in the variation among the two countries that require further investigation.

Abstract - Il registro di popolazione svolge un ruolo importante nel fornire statistiche sulla presenza del cancro in una popolazione definita e un quadro di riferimento per valutare l'impatto del cancro nella comunità. Si tratta di una parte essenziale di qualsiasi programma nazionale di controllo del cancro ed è utilizzato in una vasta gamma di settori di controllo del cancro, dalla ricerca eziologica alla pianificazione sanitaria e cura del paziente. Questo lavoro è finalizzato a confrontare i risultati dei registri in 2 paesi del Nord Africa, Egitto e Marocco, con riferimento ai più comuni tipi

di tumore in ciascun paese basandosi sui dati di incidenza del registro. Nelle donne il cancro al seno è il tumore più comune in entrambi i paesi. Nei maschi, il cancro al polmone è il più comune in Marocco, mentre in Egitto il tumore alla vescica e al fegato sono i più diffusi. La variabilità di incidenza del cancro si riscontra in entrambi i paesi. Molteplici fattori socio demografici e ambientali svolgono un ruolo importante nella variabilità riscontrata nei due paesi, richiedendo ulteriori indagini.

1. Introduction

Cancer is a major non-communicable public health problem. It has become an important contributor to the global burden of diseases worldwide. Globocan 2008 estimates that worlwide, there are 12.7 million cancer cases and more than 7.6 million cancer deaths. Currently, over 22 million people in the world are cancer patients. About 56% of new cancer cases and 63% of deaths occurs in the developing regions of the world (Ferlay *et al*, 2008).

In order to evaluate cancer burden and to develop program for control and prevention of cancer, the World realized the importance of establishing cancer registry.

The major types of cancer registry are: Hospital based cancer registry and Population based cancer registry. Hospital-based cancer registries are concerned with the recording of information on the cancer patients seen in a particular hospital. The main purpose of such registries is to contribute to patient care by providing readily accessible information on the subjects with cancer, the treatment they received and its result. The data are used mainly for administrative purposes and for reviewing clinical performance. Although these data may be used to a certain extent for epidemiological purposes, these registries cannot provide measures of the occurrence of cancer in a defined population because it is not possible to define their catchment populations, that is the populations from which all the cases arise. Population-based cancer registries seek to collect data on all new cases of cancer occurring in a well defined population. As a result, and in contrast to hospital-based registries, the main objective of this type of cancer registry is to produce statistics on the occurrence of cancer in a defined population and to provide a framework for assessing and controlling the impact of cancer in the community. Thus, the emphasis is on epidemiology and public health (IARC,1999).

The first population-based cancer registry was set up in Hamburg (Germany) in 1926. Three nurses visited hospitals and medical practitioners

in the city at regular intervals. They recorded the names of new cancer patients and transferred data to a central index in the health department. This index was compared once a week with official death certificates. Other population-based cancer registries were set up in subsequent decades, so that by1955, almost twenty cancer registries had been established in various countries **(**Connelly *et al*, 1968; Griswold *et al*, 1955).

In 1966, the International Association of Cancer Registries (IACR) was founded in Lyon, France. The main objective of this association was to develop and standardize the collection methods across registries to make their data as comparable as possible. At present, more than 200 population-based cancer registries exist in various parts of the world. They cover about 5% of the world's population, but the proportion is much greater in developed countries than in developing ones. Moreover, in developing countries, registries are more likely to cover urban areas, where access to diagnostic and treatment services is better (Griswold *et al*, 1955).

Over the last few years, Cancer Registries in North Africa increased in number. Currently there are nine registries that cover 13% of the total regional population. In Algeria there are 2 population based registries in Oran and Setif. The registry of Oran covered a population of 1.2 million in 1998. The Setif cancer registry was established in collaboration with the IARC. It covered a population of 1.3 million in1998. In Tunisia, there are now three regional population based cancer registries covering the entire national population. These are: in northern region (the Cancer Registy of Tunis), in the center (the Cancer Registy of Sousse), and in the south (the Cancer Registry of Sfax; Parkin *et al*, 2003).

In this paper, we chose to compare between registries in Egypt (in the eastern part) and Morocco (in the western part). The selection was based on the variability in the prevelant cancers between both countries as indicated in Globocan, 2008, and because both countries are prioritized by the presence of efficient population based registries and wellingness of cooperation between the staff of the registries.

History of registry in both countries

In Egypt: the first initiative for cancer registry was the establishment of the Alexandria cancer registry that was followed by the registry of the National Cancer Institute in Cairo, and these were hospital-based. This was followed by the first attempt towards population based registry which is Gharbia population based cancer registry in 1998 (Ibrahim, 2007).

In 1996, the Ministry of Health of Egypt, signed an agreement to establish the Middle East Cancer Consortium (MECC). The first comprehensive

publication of the MECC Cancer Registration Project, presents information about cancer incidence for populations in the region for the period 1996-2001. The MECC findings are compared with those from the US Surveillance, Epidemiology, and End Results (SEER) Program (Freedman *et al*, 2006).

In 1999, the Egyptian Ministry of Health started a national cancer registry to provide accurate data aiming at better understanding of the problem. They used eight centers of cancers, which were established in 1996 to collect the data, these centers are: Nasser institute, El salam, Damiette, Tanta, Damanhour, El Menia, Aswan and Sohag center. All the centers are hospital-based centers except Tanta center which is population-based (Anwar *et al,* 2002).

Consequently, National Cancer Registry Program of Egypt (NCRPE) was initiated through a protocol of cooperation between three ministries of Communication and Information Technology, Health, and Higher Education. The Supreme Committee of the Program decided to start by population-based registration of incident cancer cases and to explore the possibility of establishing a national cancer database through eventual inclusion of hospital based cancer registries in due time. The registry program started in 2008 and covered Aswan Governorate followed by Menia, Beheira and Damietta. Governorate of Gharbiah which has already a registry established 10 years ago will be included in the national registry program in a subsequent phase. Egypt will thus be covered by a network of population based registries geographically spread allover the country. The Metropolitan Cairo is not covered by population-based registration due to logistic difficulties. Nonetheless, comparison of program results with those of the National Cancer Institute in Cairo would give a guidance to the profile of cancer in the Metropolitan Cairo Area and complete the picture for Egypt**.** The program is governed by a Supreme Committee that includes: Program Director, representatives of the concerned ministries and the directors of the peripheral registries. The peripheral registries are managed by the directors of the cancer centers in different governorates with daily follow-up of work by a data manager and a trained medical doctor. Data collection is carried out actively by 2-4 abstractors, medical doctors, helped by a team of data entry and support staff. The number of personnel in each registry depends on the size of the population covered. The national cancer registry program is supported by a strong technical unit from the Ministry of Communications and Information Technology. The unit is responsible for the establishment of the national cancer network, customization of national cancer registry applications, development of data analysis and reporting

tools, training of program staff, and establishment of the Egypt National Cancer Registry Portal for program sustainability (Ibrahim and Mikhail, 2010).

In Morocco**:** the first initiative for the establishment of cancer registry was in 1986 in the form of hospital based registry in the national institute of oncology, which then expanded its activity to cover the provence of Rabat Sale in 1990**.** Cancer Registry of Greater Casablanca (GCCR) is the first population based registry in Morocco, It was founded in March in 2003 by a team composed of medical college professors of the Facuty of Medicine and Pharmacy of Casablanca and Ministry of Health. Lately, it is developed as an independent department and is considered as a member of the IACR. Its implementation could not be achieved without the support, financing of standing logistics from Lalla Salma Foundation against Cancer. The first edition of the registry was published in 2007, in which reported the data of newly diagnosed cases of cancer in 2004 is present. The second edition of the GCCR reports the data of three successive years 2005, 2006 and 2007. This cancer registry is temporarily placed in the center of Oncology Hospital Ibn Rushd with a processing unit where registry operations are performed by the registry team which is composed of a permanent staff (an epidemiologist, a biologist and a nurse), and the abstractor. The staff is assisted by the scientific committee and founder who ensure scientific support and monitoring (Sahraoui *et al*, 2013).

Another registry present in Morocco is Rabat Cancer Registry. In January 2005, as a part of a cooperative project between the Moroccan Ministry of Health and the World Health Organization, a population-based cancer registry was created in Rabat, which has a well-developed health-care delivery system. Cancer care is provided by five university hospitals, the national institute of oncology, the military hospital, two private cancer centres, and many private clinics. There are five linear accelerators in public hospitals and four in private centres (Tazi *et al*, 2013).

2. Methodology

In Egypt the national cancer registry program is based on a standardized form that record patients data. The form consists of five sections that cover patient identification, patient demographics, cancer-specific data, hospital-specific data and follow-up/recurrence/death.

Doctors actively collect data from all centers (governmental, insurance or private) that suspect incidence of cancer, have diagnosed cancer or are treating cancer patients, both inside and outside governorates. The main

sources of information in this regard were the national cancer institute in Cairo, the Nasser institute and the South Egypt Cancer Institute in Assiut. Death certificates are checked regularly in health offices for cancer as a cause of death. Deceased patients who were not reported before to the registry were recorded as death certificate only (DCO) cases.

Completed data forms are sent to the cancer registry office of the governorates. Records are manually checked by the data manager for completeness and inconsistencies with re-abstracting if necessary. The topographical and morphological data coding is based on the International Classification Diseases for Oncology (ICD-O), 3rd edition. The software system is a tailored version of Abstract Plus developed by the US Centers for Disease Control and Prevention (CDC) was used for data management. Special programs were developed for the registration program to supplement the package for duplicate elimination, analysis and calculation of incidence rates, and tabulation and reporting (Ibrahim and Mikhail, 2010).

In the GCCR of Morocco**,** data are actively collected from different hospitals (public and private). Cancer related data are extracted from patient's medical records based on clinical and histopathological diagnosis of cancer using a special form designed for this purpose. In Rabat cancer registry, the collection of registry data is an active process involving visits by registry staff to 65 different locations (laboratories, hospitals, private clinics, etc). The data sources are all the public or private facilities in Rabat in which cancer may be diagnosed or treated. Death certificates were not considered because they were of inadequate quality since they often provide an inaccurate cause of death and it is difficult to access the registry of deaths (Sahraoui *et al*, 2013)**.**

The tumors are coded for topography and morphology in both registries in Morocco are according the international classification of diseases: Oncology, third edition (ICD-O-3) of the World Health Organization according to the recommendation of the European Network of Cancer Registries (ENCR). Data entry and analysis was performed using Epi info. All essential data were revised for monitoring any duplication or incompleteness.

3. Results

Based on the Globocan 2012, an online analysis was done to identify the top ten incident and prevalent cancers among males and females in each country as shown in Figures 1 and 2.

We compared incidence data from both countries based upon the results of the registries in both countries. In Egypt; the results of the national cancer registry program in the following registries Gharbiah (1999-2002), Aswan (2008**)** Damiette (2009**)** and El Minia (2009)**.** As for Morocco: the registry of Great Casablanca (2005-2007) and Rabat cancer registry (2005-2008)**.**

In Table 1 we introduced the population covered by each registry, which shows that the largest population covered was that of Aswan in Egypt and Great Casablanca in Morocco.

Tables 2, 3 show the crude incidence and age standardized rate (world) of all cancers /100,000 in all the registries included from which we concluded that the most common cancers among males in Egypt were bladder cancer (ASR is 26 in Gharbiah and El Menia) followed by liver cancer (highest ASR in Damiette 71), while in Morocco, cancer lung is the highest incidence in both registries (ASR is 25 in Rabat &26 in Casablanca). In females, breast cancer (ASR in all registries in higher than 35) showed the highest incidence in both countries, followed by cervical cancer in Morocco registries only (ASR is 13 in Rabat &15 in Casablanca).

Figures 3-6 show the ASR in both countries for the most common cancers, namely cancer of the bladder, liver, prostate and lung among males. While graphs 7,8 introduces variation found in ASR of breast and cervix cancers in Egypt and Morocco. Finally Figures 9,10 show the variation recorded in both sex between both countries in non hodgkin lymphoma (NHL) and colorectal cancers.

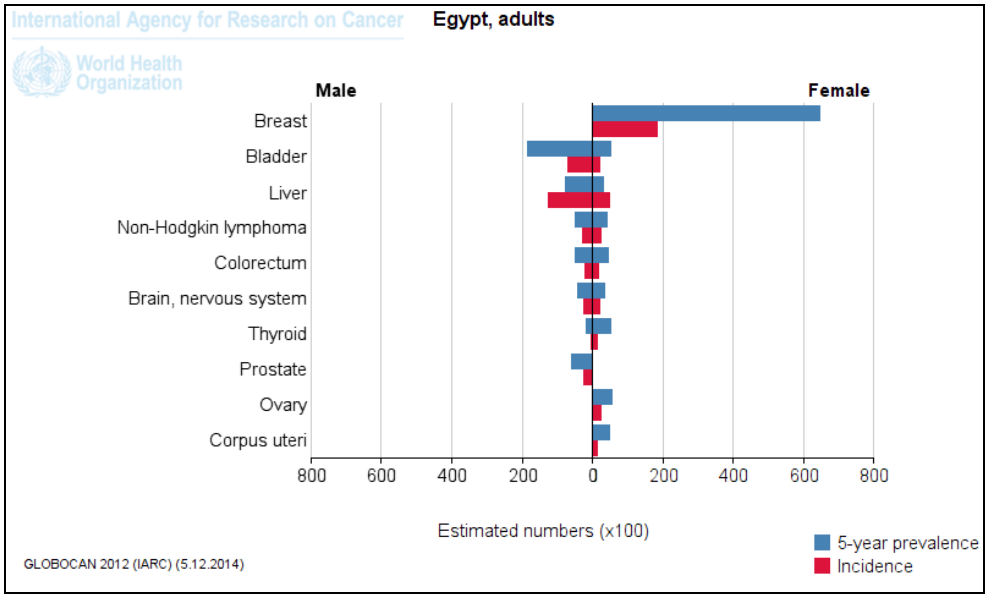


Figure 1 – Top ten cancers among males and females in Egypt.

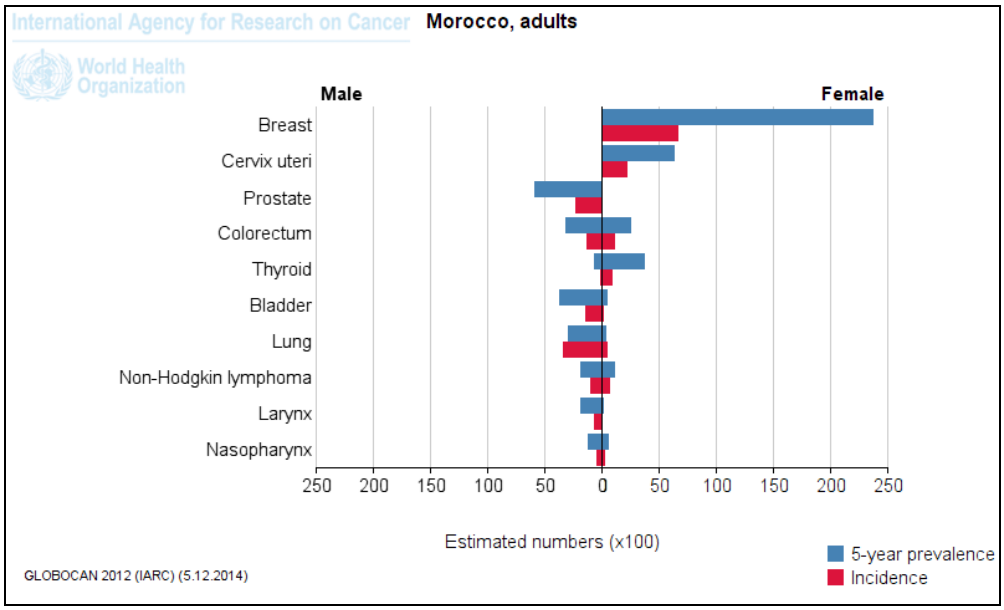


Figure 2– Top ten cancers among males and females in Morocco.

Table 1– Population covered by Cancer Registries in Both countries.

	Egypt				Morocco	
Governorate	**Gharbiah 2002**	***Aswan 2008**	**Damiette 2009**	**El-Menia 2009**	**Rabat 2007**	****Casablanca 2007**
Total Population	**30,386**	**1,074,131**	**11,410**	**46,743**	**64,222**	**3,763,306**
Males	**12,383**	**539,617**	**5848**	**22,802**	**30,9300**	**I,852,872**

*Aswan Governorate is divided into five administrative districts (markaz), namely: Aswan (303,508), Kom Ambo (268,870), Daraw (93,242), Edfu (333,460), Nasr El Noba (75,051)

**Grand Casablanca is divided into 4 main sectors: Province de Nouaceur, Province de Médiouna Préfecture de, Mohammédia and Préfecture de Casablanca (ville de Casablanca)

Table 2 – ASR and Crude Rate among females in the six registries.

	Gharbiah		Aswan		Damiette		El Menia		Rabat		Casablanca	
Site	**Crude rate**	**ASR world**	**Crude rate**	**ASR world**	**Crude rate**	**ASR world**	**Crude rate**	**ASR world**	**Crude rate**	**ASR world**	**Crude rate**	**ASR world**
Lip	**0.1**	**0.1**	**0.2**	**0.3**	**0.2**	**0**	**0.2**	**0.4**			**0.2**	**0.3**
Tongue	**0.3**	**0.5**	**0**	**0**	**0.5**	**0.4**	**0.3**	**0.5**			**0.7**	**0.8**
Mouth	**0.7**	**0.9**	**0.9**	**1.5**	**0**	**0**	**0.5**	**0.8**			**0.2**	**0.3**
Salivary glands	**0.3**	**0.5**	**0.2**	**0.4**	**0**	**0**	**0.3**	**0.4**			**0.6**	**0.6**
Tonsil	**0.1**	**0.1**	**0**	**0**	**0**	**0**	**0**	**0.1**			**0.1**	**0.1**
Other oropharynx	**0**	**0**	**0.2**	**0.3**	**0**	**0**	**0.1**	**0.1**			**0**	**0**
Nasopharynx	**0.3**	**0.3**	**0.2**	**0.2**	**0**	**0**	**0**	**0**	**1.8**	**1.9**	**1.2**	**1.2**
Hypopharynx	**0.7**	**1**	**0.6**	**0.9**	**0**	**0**	**0.4**	**0.4**			**0.1**	**0.1**
Pharynx unspec.	**0.1**	**0.1**	**0**	**0**	**0**	**0**	**0**	**0**			**0**	**0**
Esophagus	**0.5**	**0.8**	**1.1**	**1.6**	**0.7**	**0.8**	**1.2**	**1**			**0.9**	**1**
Stomach	**1.5**	**2**	**2.1**	**3.4**	**1.4**	**1.4**	**1.2**	**1.8**	**3.7**	**3.4**	**2.6**	**2.7**
Small intestine	**0.5**	**0.6**	**0.6**	**0.9**	**0**	**0**	**0.4**	**0.6**			**0.3**	**0.3**
Colon	**2**	**2.5**	**2.4**	**3.5**	**1.9**	**1.9**	**2.2**	**3.2**	**1.8**	**1.8**	**3**	**3.2**
Rectum	**1.4**	**1.7**	**0.7**	**1.3**	**1.2**	**1.2**	**1**	**1.2**	**3.1**	**2.8**	**2.4**	**2.6**
Anus	**0.3**	**0.5**	**0.2**	**0.3**	**0**	**0**	**0.1**	**0.2**			**0.5**	**0.6**
Liver	**3**	**4.2**	**6**	**8.7**	**17.9**	**24.6**	**8.6**	**13.7**			**0.4**	**0.6**
Gallbladder etc.	**0.7**	**1.1**	**1.9**	**3.1**	**0.4**	**0.6**	**0.6**	**0.9**			**1.7**	**1.9**
Pancreas	**1.4**	**2.2**	**1.7**	**2.3**	**2.8**	**3.6**	**0.9**	**1.4**			**0.8**	**0.9**
Nose, sinuses etc.	**0.2**	**0.3**	**0.2**	**0.2**	**0.4**	**0.6**	**0.1**	**0.2**				
Larynx	**0.1**	**0.2**	**0.4**	**0.7**	**0.2**	**0.3**	**0.3**	**0.4**			**0.6**	**0.5**
Trachea, Bronchus, Lung	**2.5**	**3.6**	**2.4**	**3.8**	**3.5**	**4.4**	**2.1**	**3.1**				
Other Thoracic organs	**0.1**	**0.1**	**0.6**	**1.1**	**0.7**	**1**	**0.5**	**0.7**				
Bone	**0.8**	**0.9**	**4.1**	**5.9**	**2.3**	**2.4**	**1.9**	**2.4**			**1**	**1.1**

Melanoma of skin	0.2	0.3	0	0	0	0	0	0.1				
Mesotheliom a	0.2	0.3	0	0	0.5	0.3	0.2	0.3				
Kaposi sarcoma	0	0	0	0	0	0	0	0.1				
Connective, Soft tissue	2.4	2.7	2.1	2.4	1.8	1.5	0.4	0.6			1.4	1.4
Breast	33.1	41.9	45.1	63.9	40.1	41.4	25.8	35.7	49.2	43.4	37.5	36.4
Vulva	0.5	0.7	0	0	0	0	0.3	0.4			1.1	1.4
Vagina	0.1	0.2	0.6	1	0.2	0.3	0.1	0.2			0.5	0.5
Cervix Uteri	1.5	2	0.6	0.9	1.8	2.4	1	1.5	14	13	14.4	15
Corpus Uteri	1.9	2.8	1.7	2.9	0.5	0.9	0.6	0.9				
Ovary	4.1	5.2	6.5	9.1	4.6	5.2	3.6	5	5.2	5.2	5.1	5.3
Other female genital	0.1	0.1	0.4	0.6	0	0	0	0.1			0.1	0.1
Placenta	0.2	0.2	0.2	0.2	0	0	0	0			0.2	0.2
Kidney	1.2	1.5	0.7	1.1	1.2	1.6	1.2	1.8			1.2	1.5
Renal pelvis	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.3				
Ureter	0.1	0.1	0	0	0	0	0	0				
Bladder	3.6	5.5	4.1	6.6	3.3	5.1	3.1	4.9	0.9	1.1	0.9	1.1
Other urinary organs	0	0	0	0	0.2	0.4	0	0			0	0
Eye	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5			0.4	0.6
Brain, Nervous tissue	2.6	3	2.4	2.8	4.6	4.7	7.4	11.2			2.8	3
Thyroid	2	2.5	3.7	4.5	5.1	5.1	1.6	2.1	4.2	3.9	7.1	6.7
Adrenal gland	0.3	0.3	0.2	0.2	0.4	0.4	0.2	0.3			0.1	0.1
Other endocrine	0	0	0.2	0.2	0	0	0.5	0.6			0.1	0.1
Hodgkin disease	1.2	1.2	0.9	0.8	1.1	0.1	1	1			2.3	2.1
Non-Hodgkin lymphoma	7.5	9.9	1.1	1.6	4	3.3	4.2	5.8	4.2	4.2	4.5	4.7
Immunoproli ferative dis	0.1	0.1	0	0	0	0	0	0				
Multiple myeloma	0.5	0.8	0.2	0	0.5	0.4	0.1	0.3				
Lymphoid leukemia	1.5	1.9	1.7	1.8	1.8	1.8	1.2	1.7				
Myeloid Leukemia	1.9	2.1	1.9	2.8	1.1	1.5	1.7	2				
All sites Total	92.6	120.8	16.9	166.8	122	138.5	96.5	132.6			112.7	115.9
All sites but C44	90.7	118	15.2	164	120.1	136.4	95.6	131.2			108.9	111.7

Table 3 – ASR and Crude Rate among males in the six registries.

	Gharbiah		Aswan		Damiette		El Menia		Rabat		Casablanca	
Site	Crude rate	ASR world	Crude rate	ASR world	Crude rate	ASR world	Crude rate	ASR world	Crude rate	ASR world	Crude rate	ASR world
Lip	0.3	0.4	0.4	0.6	0.2	0.2	0.3	0.5			0.2	0.2
Tongue	0.6	1.1	1.1	1.5	0.3	0.4	0.2	0.4			0.6	0.8
Mouth	0.7	1.3	1.3	1.9	0	0	0.8	1.1			0.3	0.4
Salivary glands	0.4	0.7	0.6	0.9	0	0	0.4	0.5			0.5	0.5
Tonsil	0.1	0.2	0	0	0	0	0	0.1			0.3	0.4
Other oropharynx	0.1	0.1	0.2	0.3	0	0	0.2	0.3				

Nasopharynx	0.7	1.1	0.7	1.1	0.7	0.8	0.1	0.1	3.3	3.4	3.8	4.2
Hypopharynx	0.6	1.2	0.6	0.9	0	0	0.3	0.5			0.2	0.2
Pharynx unspec.	0.1	0.2	0.2	0.3	0	0	0.1	0.1			0	0
Esophagus	1	1.8	4.1	5.7	0.8	0.9	1.8	3			1	1.2
Stomach	1.9	3.1	2.6	4.1	0.8	0.5	1.7	2.5	5.9	6.7	4.1	4.8
Small intestine	0.3	0.6	0.2	0.2	0	0	0.5	0.6			0.3	0.3
Colon	3	4.4	2.6	3.9	3.5	4	2.3	3.7	3.3	3.3	4	4.7
Rectum	1.4	2.1	0.7	1.1	0.8	0.8	1.3	1.6	3.9	3.9	2.9	3.4
Anus	0.3	0.6	0.4	0.5	0.5	0.3	0.2	0.2			0.6	0.8
Liver	12.2	21.7	11.5	17.4	52.8	71.5	22.5	37.8	1.9	2.1	0.6	0.7
Gallbladder etc.	0.7	1.3	1.3	2.2	0.8	0.5	0.4	0.7			0.8	1
Pancreas	2.2	3.9	3.7	5.7	3	3.9	2.1	3.5			0.9	1.1
Nose, sinuses etc.	0.3	0.6	0.6	0.9	0.2	0.3	0.4	0.6				
Larynx	2	4	3.9	6	0.3	0.5	3.3	5.7			4.9	6.1
Trachea, Bronchus, Lung	7.1	13.6	7.2	11.2	7	8.8	6.5	11	25.6	24.9	20.7	25.9
Other Thoracic organs	0.3	0.3	0.9	1.4	1	1.2	0.8	1.2				
Bone	1.3	1.4	1.7	2	2.5	2.8	2.3	3.4			1.7	1.7
Melanoma of skin	0.2	0.3	0	0	0	0	0.1	0.1				
Mesothelioma	0.2	0.3	0	0	0	0	0.3	0.4				
Connective, Soft tissue	2.3	3.3	3.2	4.1	2.9	2.4	0.5	0.8			1.4	1.4
Breast	0.4	0.7	1.1	1.8	0.3	0.3	0.4	0.6	1	1	0.7	0.8
Penis	0	0	0	0	0	0	0	0				
Prostate	3.8	8.8	5.7	9.2	4.5	6.8	2.9	5.2	20.7	22.9	10	13.5
Testis	0.4	0.5	0.4	0.5	0.5	0.4	0.5	0.7			0.7	0.6
Other male genital	0	0.1	0	0	0	0	0.1	0.2				
Kidney	1.8	2.8	0.9	1.3	2	3	1.7	2.5				
Renal pelvis	0.2	0.4	0.4	0.5	0.3	0.6	0.5	0.8				
Ureter	0.2	0.4	0	0	0	0	0	0.1				
Bladder	13.9	26.9	12	18.6	11.6	18	15.6	26.3	9.3	9.7	6.7	8.7
Other urinary organs	0.1	0.2	0.2	0.3	0	0	0	0				
Eye	0.4	0.5	0.7	0.6	0.3	0.5	0.3	0.4			0.9	1.1
Brain, Nervous tissue	3.2	4.1	4.8	6.3	6.9	8.7	8.1	12.5			3	3.3
Thyroid	0.7	1.1	0.7	1.1	0.8	1	1.2	1.7	0.3	0.3	1.2	1.4
Adrenal gland	0.4	0.5	0.6	0.8	0	0	0.1	0.2			0.1	0.1
Other endocrine	0.1	0.1	0.2	0.3	0	0	0.6	0.8			0.2	0.2
Hodgkin disease	2.4	2.5	1.5	1.7	1.8	1.8	1.7	2			2.4	2.2
Non-Hodgkin lymphoma	11.8	17.1	1.3	2.2	5.4	6.4	5.2	7.5	8.1	8.2	6.4	7.2
Immunoproliferative dis.	0	0	0	0	0	0	0	0				
Multiple myeloma	1	1.6	0.2	0.3	1	1.2	0.7	1.1				
Lymphoid leukemia	2.4	3.1	3.3	3.7	2.7	3.1	1.8	2.3				
Myeloid Leukemia	1.8	2.2	1.9	2.5	1.5	1.6	1.6	1.8				
All sites Total	95.5	161.7	97.3	142.5	128.3	65.2	110.3	170.7	125.5	132.9	101.1	120.7

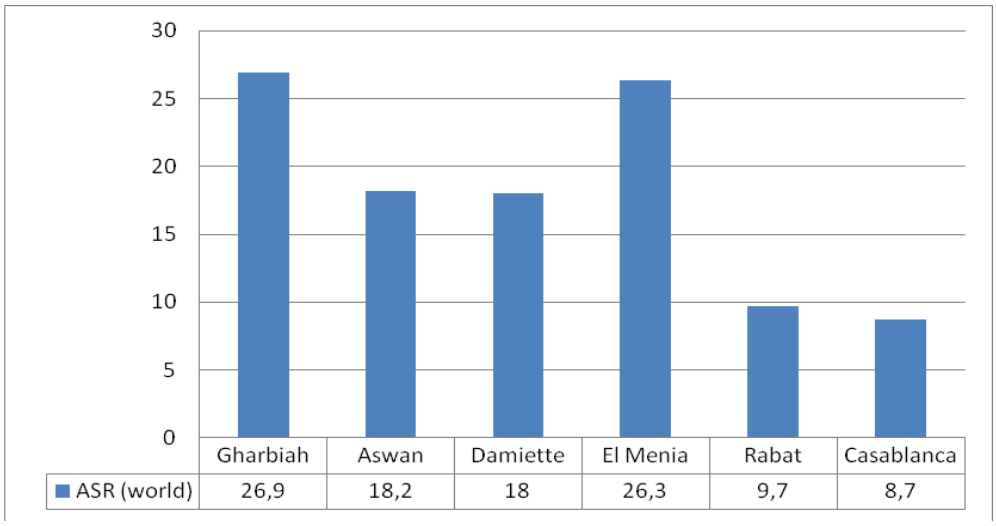


Figure 3 - ASR (World) of bladder cancer among males in the registries.

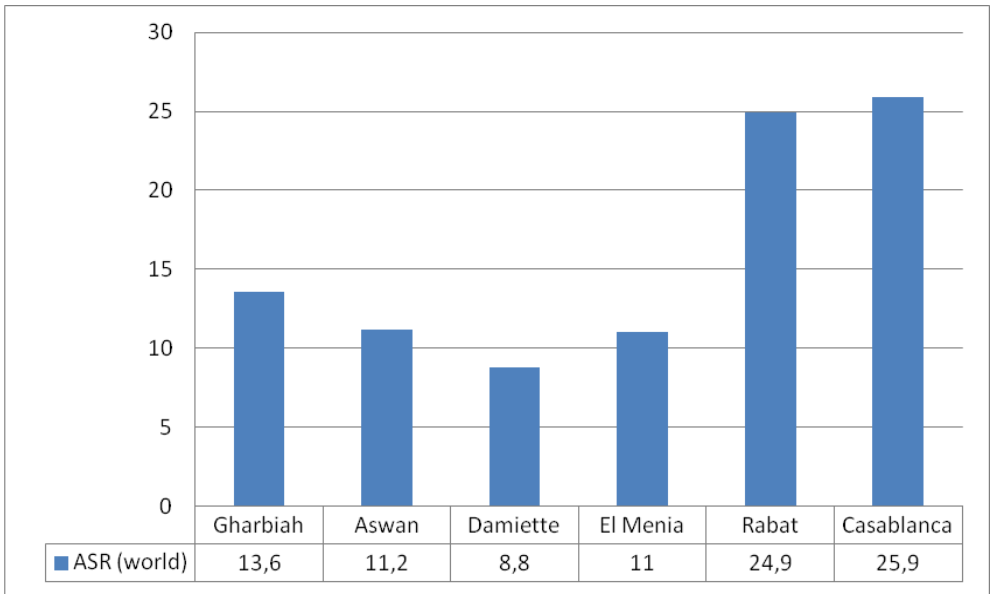


Figure 4 – ASR (World) of lung cancer among males in the registries.

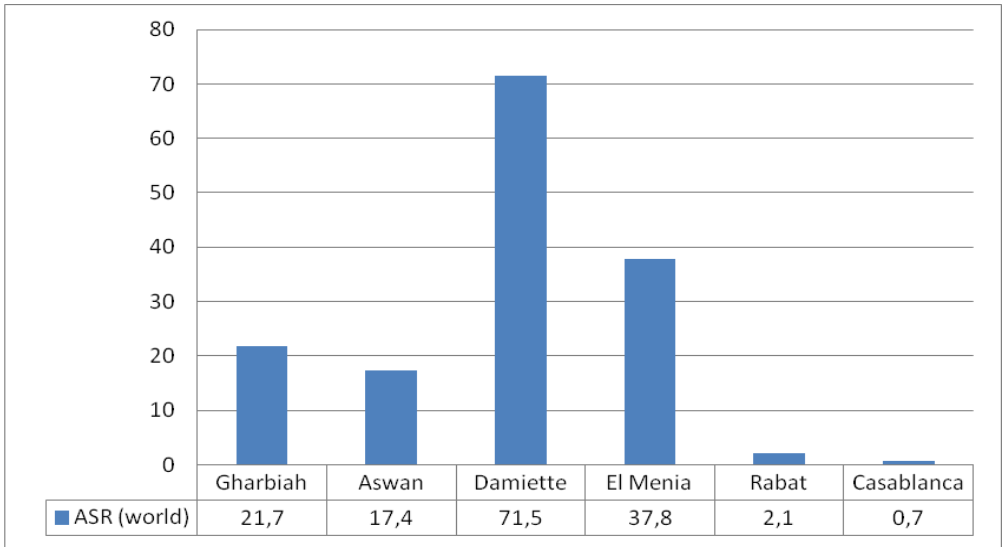


Figure 5 – ASR (World) of liver cancer among males in the registries

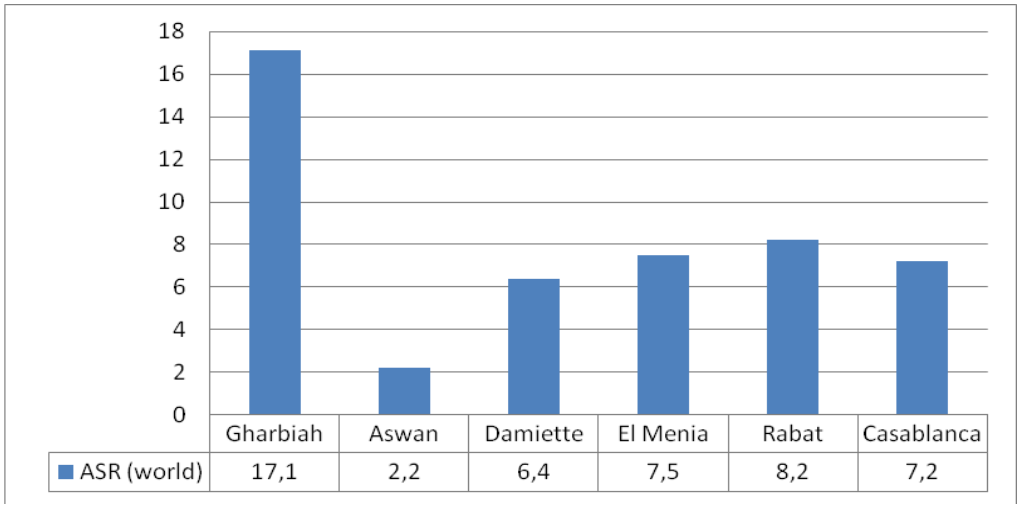


Figure 6– ASR (World) of prostate cancer among males in the registries

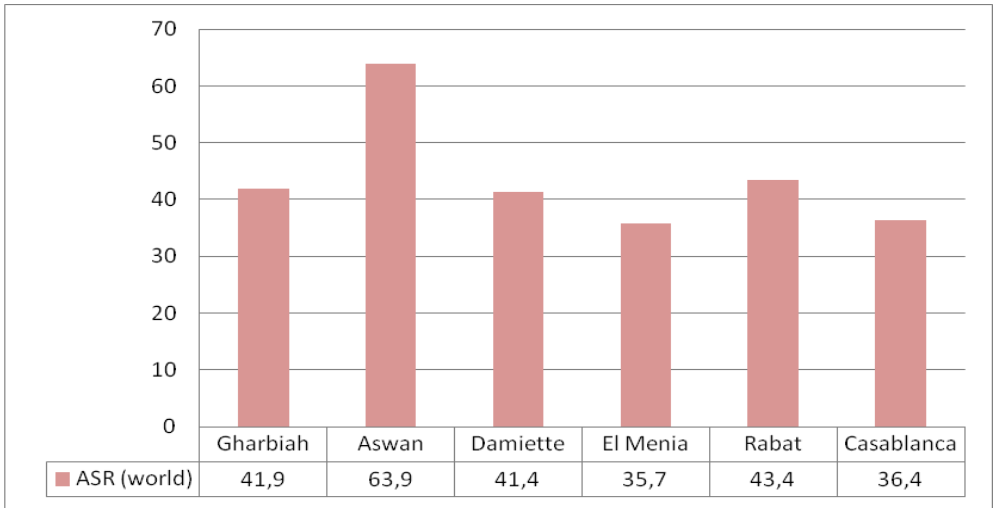


Figure 7 – ASR (World) of breast among females in the registries

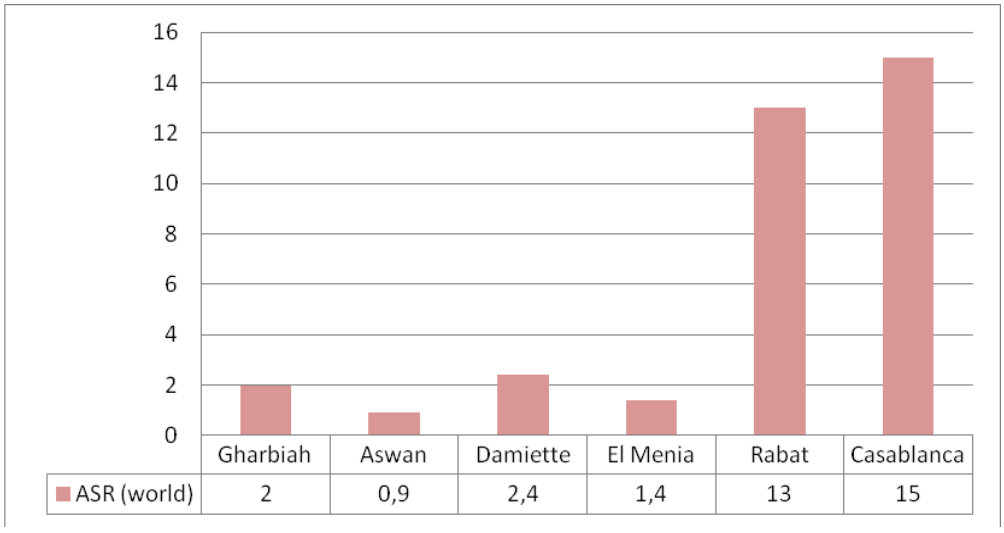
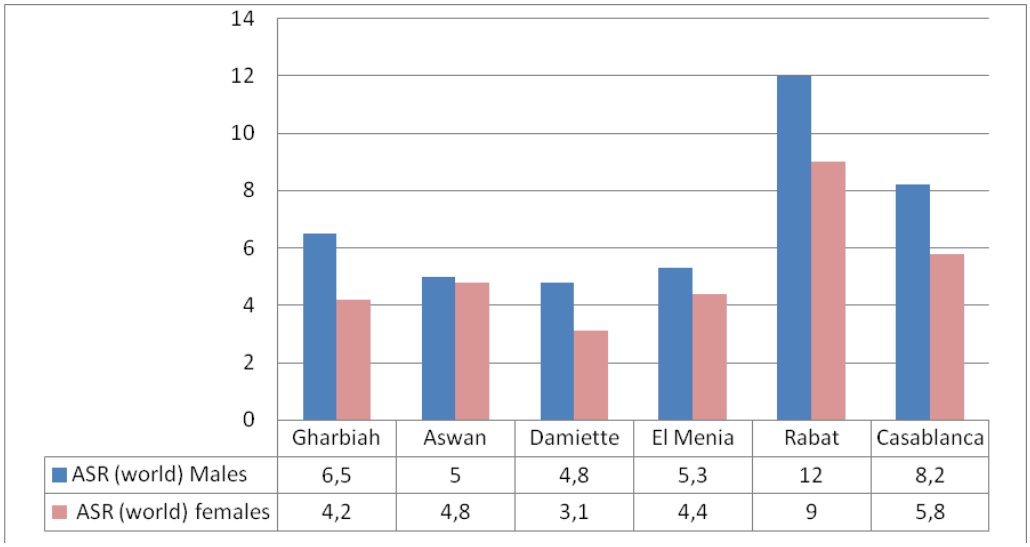
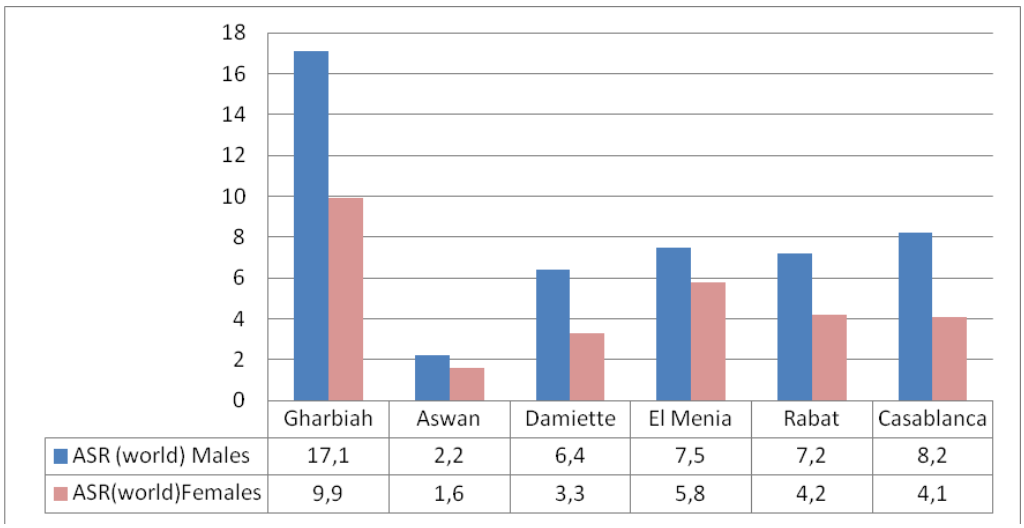


Figure 8– ASR (World) of cervical cancer among females in the registries.



	Gharbiah	Aswan	Damiette	El Menia	Rabat	Casablanca
ASR (world) Males	6,5	5	4,8	5,3	12	8,2
ASR (world) females	4,2	4,8	3,1	4,4	9	5,8

Figure 9 – ASR (World) of Colorectal Among males & females in the Registries.



	Gharbiah	Aswan	Damiette	El Menia	Rabat	Casablanca
ASR (world) Males	17,1	2,2	6,4	7,5	7,2	8,2
ASR(world)Females	9,9	1,6	3,3	5,8	4,2	4,1

Figure 10– ASR (World) of NHL Among males & females in the registries.

4. Discussion

From comparing data from registries of both countries bladder cancer shows highest incidence among Egyptian males and this is due to the infection with Schistosoma haematobium, in addition to smoking, which was confirmed as the most important risk factor for bladder cancer, (Parkin, 2008). Liver cancer comes the 2nd after bladder cancer among Egyptian men and this attributed to the high prevalence of Hepatitis C infection which is one of the highest prevalence rates of HCV infection in the world Previously, there was strong evidence that hepatitis B virus (HBV) was the major cause of HCC in Egypt, but more recently HCV has become the predominant factor in developing liver cancer (Lehman et al, 2008). In Morocco registries lung cancer was found to be the highest among men, studies have proven that lung cancer in Morocco is due to two major risk factors: active smoking and history of chronic bronchitis. The overall prevalence of current smoking is 31.5% for males and usually associated with lower educational level among men (Nejjari et al, 2009). Prostate cancer is the 2nd in incidence among men this could be attributed to the population pyramid of Morocco which shows increase in percentage of older age groups, where age group above 60 years represents 8.4% of the Moroccan population and increase life expectancy which reached 74.8 years in 2010. It is obviously higher in Rabat registry than in Casablanca as Rabat is known to be urban with increased level of education and seeking medical advice and screening (les indicateurs sociaux du Maroc, 2010).

Among females, breast cancer is the highest in both countries, which comes in agreement with all the studies done in north African countries. This may be due to the prevalence of risk factors for breast cancer as early menarche, late childbearing and obesity which are associated with economic development (Vorobiof et al, 2001).

Cervical cancer is the 2nd important cancer among women in Morocco due to the high prevalence of HPV infection, Studies in Rabat has shown that among cases of cervical cancer HPV type 16 was the common in 67.7% of the cases to be followed by HPV type 18 **(**Alhamany *et al*, 2010).

On the other hand colorectal cancer is high among both sexes in Morocco compared to Egypt and this comes in agreement with studies which show diet transition in Morocco. In fact urbanization of population has increased from 29% in 1960 to 55.1% in 2004, as result of this the consumption of red meat increased and was accompanied by steadily increasing consumption of bread **(**Rhazi, 2012).

As for NHL higher level was shown in both sex among the Egyptian population with marked increase in Gharbiah cancer registry, HCV has been

suggested as a cause or contributing factor in the etiology of B-cell Non Hodgkin lymphoma. Previous epidemiological studies has reported statistically significant associations between seriological markers of HCV and increased risk to NHL (Goldman *et al*, 2009).

5. Conclusion

Apart from breast cancer, infections contribute significantly in the incidence of cancers in both countries. Smoking in all its forms is also greatly associated with lung cancer in Morocco**.** Hence national wide strategies combating infections are urgently needed and more efforts targeting smoking is highy suggested**.**

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Most salient communicable diseases in North Africa

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Abstract - Communicable diseases (CD) such as human immunodeficiency virus (HIV), malaria, tuberculosis (TB) and hepatitis viruses, pose a worldwide public health problem in both developing and developed nations resulting in significant mortality. The North African (NA) region is no exception to this rule, with half of reported deaths being directly attributable to CD. Vaccination programs seek to reduce prevalence levels, yet many NA countries exhibit intermediate or high prevalences for many bacterial, zoonotic, viral, and parasitic diseases. Due to pathogen adaptability, the NA region is now faced with the persistence or stagnation or even the resurgence of certain diseases, in particular, TB, hepatitis, HIV, meningitis and leishmaniasis. Migration via North Africa to other destinations adds another level of complexity in disease spread and impacts the health of the local population. Adequate monitoring and preventative strategies must be in place so as to mitigate the negative impact on NA residents' health and reduce the burden on future generations.

Abstract - Le malattie trasmissibili, come il virus dell'immunodeficienza umana (HIV), la malaria, la tubercolosi (TB) e il virus dell'epatite, rappresentano un problema per la salute pubblica in tutto il mondo, sia nei paesi in via di sviluppo che in quelli sviluppati, con conseguenze per la mortalità. La regione del Nord Africa (NA) non fa eccezione a questa regola, con metà dei decessi segnalati direttamente attribuibili alle malattie trasmissibili. I programmi di vaccinazione cercano di ridurre i livelli di diffusione, ma ancora molti paesi del NA presentano

incidenze medie o alte per molte malattie di origine batterica, zoonotica, virale e parassitaria. A causa dell'adattabilità degli agenti patogeni, la regione del NA è ora di fronte alla persistenza o stagnazione o addirittura alla recrudescenza di alcune malattie quali, in particolare, la tubercolosi, l'epatite, l'HIV, la meningite e la leishmaniosi. La migrazione attraverso il NA verso altre destinazioni aggiunge un ulteriore livello di complessità nella diffusione della malattia e influenza la salute della popolazione locale. Strategie adeguate di monitoraggio e di prevenzione devono essere messe in atto al fine di mitigare l'impatto negativo sulla salute dei residenti in NA e di ridurre l'onere per le generazioni future.

1. Introduction

Communicable diseases (CD) are one of the leading causes of death around the world. Almost one third of deaths worldwide are due to CD, with children remaining as the most vulnerable group (WHO, 2003). Human immunodeficiency virus (HIV), malaria, tuberculosis (TB), acute respiratory infections, diarrheal disease along with malnutrition, commonly known as the six major killers of children, are reportedly responsible for 14 million deaths a year (Brundtland, 2002). In 2002, it was reported that 57 million deaths had occurred with 10.5 million of these among children below 5 years of age, of whom 98% lived in developing countries (WHO, 2003; Jones et al., 2003; WHO, 2005).

While vaccination programs in North African (NA) countries have been successful in eliminating poliomyelitis and providing high vaccination coverage for many childhood diseases such as measles, diphtheria and pertussis (Table 1), (WHO, 2013) certain CD continue to be a health problem in these countries. Endemic, emerging and re-emerging diseases like TB, HIV, hepatitis, meningitis, Influenza and others are the chief cause of suffering and mortality in the developing world including NA countries and additionally pose a threat to developed countries (WHO, 2003).

Table 1 - Immunization coverage among one year old children in NA countries in 2011 in percentage.

Country	BCG*	Measles	DPT3	HepB3	Polio3*	Hib3
Egypt	98	96	96	96	96	….
Libya	99	98	98	98	98	98
Tunisia	98	96	98	98	98	43
Algeria	99	95	95	95	95	95
Morocco	99	95	99	98	98	99

Source: World health statistics 2013, WHO.
*Source: Immunization Summary, A statistical reference containing data through 2011, WHO/UNICEF, 2011.
BCG: Bacille Calmette-Guerin
DPT: Diphteria- pertussis- tetanus vaccine
HepB: Hepatitis B vaccine
Polio: Poliomyelitis
Hib: Haemophilus influenzae vaccine

2- Article design and search strategy

For this article, we have applied multiple stages of searches of the peer-reviewed published work. Beside documents available from PubMed and Science direct, we included in our analysis works written in French, as well as data from institutional reports and regional meeting abstracts. Our purpose was to produce a synthesis from the available corpus of data emanating from a region where investigators do not publish readily in English and to provide, therefore, genuinely new information to the reader about CD in NA countries. This review covered five NA countries: Egypt, Libya, Tunisia, Algeria and Morocco. Data was regarded as eligible for inclusion when the number, prevalence; viral strains in a given NA country or a region were mentioned.

2.1 Viral diseases

HIV/Acquired immune deficiency syndrome (AIDS): HIV/AIDS is a leading cause of death in many parts of Africa, with about 69% of all people living with HIV and 70% of all AIDS deaths in 2011 are found in Sub-Saharan Africa alone. NA countries (Egypt, Libya, Tunisia, Algeria and Morocco) have significantly lower HIV prevalence rates compared to other parts of Africa. This is primarily attributed to the role of Islam in the

region's societies, which has greatly reduced high-risk practices such as extramarital sexual relationships that are socially prohibited and in turn has kept infection rates at a negligible level in most Muslim countries (Velayati *et al.*, 2007). The Middle East and North Africa have an adult (15-49 years old) HIV prevalence of 0.2%. There are 23.000 AIDS deaths and 37,000 new HIV infections annually (UNAIDS, 2013). The percent of infected patients under the age of 30 years varies from 50 to 61%, suggesting an accelerating epidemic in the region, and the increased vulnerability of young people to HIV is due primarily to engagement in high-risk behavior (UNAIDS, 2011). The rapid rise in new infections has placed NA among the top two regions in the world with the fastest growing HIV epidemic, especially among key populations at a higher risk. The rapid rise in new infections has placed NA among the top two regions in the world with the fastest growing HIV epidemic, especially among key populations at a higher risk. Table 2 shows UNSAIDS statistics from NA countries in 2011.

Table 2 - UNAIDS Statistics on HIV infection in NA countries in 2011.

Region/Country	Adult (15-49) HIV prevalence	Persons living with HIV	Annual AIDS deaths	Annual new HIV infections
Middle East & NA	0.2%	300,000	23,000	37,000
Egypt	< 0.1%	9500	< 1000	No data
Libya	< 0.2%	No data	No data	No data
Algeria	0.1%	13,000-28,000	<1,000-1,500	No data
Tunisia	< 0.1%	1,700	< 100	No data
Morocco	0.2%	32,000	1,600	No data

Source: UNAIDS, 2013

The first cases of HIV in most NA countries were reported in 1986 and since then the number of cases has slowly increased. The adult HIV prevalence (15-49) in Egypt is reported to be less than 0.1%. Unsafe behaviors among high risk populations and limited condom use among the general population place Egypt at risk of a broader epidemic. The National AIDS Program (NAP) has reported that there were 1,115 people living with HIV by the end of 2007, although UNAIDS estimates for 2005 were higher, giving a number of 5,300 HIV-positive Egyptians. Recent reports show that 9500 people were living with HIV in Egypt in 2011, with an annual mortality rate of less than 1000. However, annual incidence data are lacking (UNAIDS, 2013). Regarding the modes of transmission, heterosexual transmission was the primary mode (49.1%), followed by homosexual

relationships (22.9%), renal dialysis (12%), and blood transfusion (6.2%), according to the NAP in an official report issued in January 2008. Injecting drug use accounted for 2.9% of HIV infections, mother-to-child transmission for a mere 1.6%, and 5.2% are due to unknown causes. Males were four times more likely to have HIV as compared to females, but this may simply be due to more men being tested than women. Other groups at risk of acquiring HIV infection in Egypt include street children, prisoners, and refugees (Health profile, 2008). A bio-behavioral study on the progression of HIV prevalence among populations at risk in Libya involved 328 injecting drug users, 227 men who have sex with men, and 69 female sex workers and found an elevated prevalence of 87% (Mirzoyan *et al.*, 2013). In Setif, Algeria, the number of HIV cases had reached 152 cases in 2009, with a median age of infection of 39.7 years. About 40.8% of cases were women and 76.9% of cases were acquired through sexual transmission (77.9% of these were heterosexual). Notably, 37.20% of cases were correlated to travel and migration. The advances in highly active anti-retroviral therapy (HAART) have reduced mortality to 36.2% since 2002 (Ouyahia *et al.*, 2010). A study in Annaba, Algeria, included 3044 pregnant women admitted to two regional hospitals within a period of five months found that a prevalence of HIV infection as high as 5.3/1000, compared with the national average of 1/1000 (Aidaoui *et al.*, 2008). HIV prevalence has nearly doubled in Morocco over the past decade. In 2011, Morocco had an adult HIV prevalence (ages 15-49) of 0.2% compared to a prevalence of less than 0.1% in 2001 (UNAIDS, 2013). According to the Moroccan Ministry of Health, the cumulative number of AIDS cases in December 2002 was 1085 (Elharti *et al.*, 2002). HIV in Morocco is transmitted mainly through heterosexual relationships and the 30 to 39 year old age group in the regions of Marrakech and Agadir has been most affected. The HIV epidemic has been less penetrant in Morocco than in other sub-Saharan countries which may be partly explained by the late introduction of the less transmissible form of HIV-1 subtype B in Morocco, circumcision, and reduced risk behaviors characteristic of Muslims. However, the increased prevalence in recent years requires the enforcement of preventive measures to halt the progression of the HIV epidemic in the country (Elharti *et al.*, 2002).

Viral hepatitis: viral hepatitis represent a significant health problem in the NA countries although there are differences in the overall epidemiology, risk factors, and modes of transmission of various viral type (A, B, C, D, E) infections. Differences in the incidence and prevalence of viral hepatitis across NA are attributed to variations in health care and

sanitation standards, risk factors, and immunization strategies. Active and continuous population movement through travel, tourism, and migration from and to North Africa contribute to the spread of infections due to hepatitis viruses across borders. This further leads to outbreaks, emergence of new patterns of infection, and/or introduction of uncommon genotypes into other countries, particularly those in the European Union.

Hepatitis A virus*:* hepatitis A virus (HAV) is highly prevalent in NA countries and is responsible for more than half of acute hepatitis cases (Kamal *et al*., 2010). HAV infection is frequently contracted by European tourists travelling to the region and it has caused several outbreaks among them (Jeong and Lee, 2010; Marano *et al.*, 2009; Couturier *et al.*, 2009; Bernard and Frank, 2009; Robesyn *et al*., 2009). Thus, travelers, and especially children, are strongly encouraged to receive HAV vaccination before travelling to the NA region (Prell and Nothdurft, 2004; Arya and Agarwal, 2009; Fitz Simons *et al.*, 2010).

HAV is endemic in Egypt and most infections are acquired during childhood, with the genotype IB being the most prevalent (Salama *et al.*, 2007). Cross sectional studies conducted in rural areas showed very high prevalence of anti-HAV IgG, reaching 100% in adults (Meky *et al.*, 2006). In environmental samples, HAV was detected in 72% of raw sewage, 50% in Nile water and 43% in treated effluent sewage samples respectively (Pint *et al.*, 2007). in Libya, most HAV infections are acquired during childhood and most patients come into contact with the virus before the age of 10. Surveys showed that HAV antibodies could be detected in 60-70% of three-year old children and by the age of 7 years almost 100% of children have become immune to HAV (Gebreel *et al.*, 1983). Hepatitis A is also common in Algeria where 96% of individuals have anti-HAV antibodies. In Tunisia, HAV prevalence rates range between 84.0 and 92% (Rezig *et al.*, 2008; Ghrabi-Khelifi *et al.*, 2007; Letaief *et al.*, 2005). In contrast to Egypt and Libya, primary infection with HAV in Tunisia is gradually shifting to affect older age groups, presumably due to improved sanitary conditions. A survey conducted to assess the prevalence of HAV among Tunisian children and adolescents revealed an overall sero-prevalence of 60% (44%, in children < 10 years old, 58% in those 10-15 years of age, and 83% in those > 15 years of age). Prevalence rates also varied by residence and reached 90% in rural areas as compared to 30-50% in urban areas. The lowest anti-HAV prevalence rates were found in coastal regions and this is probably due to the higher socioeconomic level of the population living there (Ghrabi-Khelifi *et al.*, 2007). Morocco is an intermediate endemic area for HAV

infection and a transition is taking place where fewer children acquire HAV infection at an early age. The prevalence of anti-HAV antibodies among children varies with age. Children below 6 years of age and those between 7-14 years old showed anti-HAV antibodies prevalence of 45% and 70% respectively. Socioeconomic factors and education of the parents were associated with anti-HAV-IgG prevalence. Introduction of hepatitis A vaccination in early childhood might further reduce the prevalence and prevent outbreaks (Bouskraoui *et al.*, 2009).

Hepatitis B virus: Egypt is considered an area of intermediate endemicity for hepatitis B virus (HBV). A study on blood donors in Mansoura University reported a prevalence of hepatitis B surface antigen (HBsAg) of 4.3% (El-Gilany and El-Fedawy, 2006). Another cross sectional study found that 5% of 1000 volunteer blood donors in Cairo University hospital blood bank were HBsAg positive (Awadalla e*t al.*, 2011). However, other studies pointed out that the prevalence of anti-hepatitis B core antibody (HBcAb) positivity was even higher. In a study on 150 patients who were HBsAg and HBsAb negative, 13.3% were found positive for HbcAb (El-Sherif *et al.*, 2007). Another study conducted to measure the prevalence of HBcAb positivity in blood donors found that 16.6% of blood units were positive for total HBcAb, of which 64% were HBsAb positive (Said *et al.*, 2011). In Lybia, there is a rising trend of HBV with a marked increase of incidence, prevalence and HBV-related hospitalization rates. A national population-based sero-epidemiological survey conducted between October 2004 and March 2005 reported an overall prevalence of 2.2% (Elzouki *et al.*, 2006). Another study reported a prevalence of HBsAg carriers among blood donors of only 1.3%, which was claimed to be a direct result of health system efforts to recruit safe donors (Prati, 2007). Tunisia endures an intermediate endemicity of HBV infection. A large study conducted on healthy people found a prevalence of HBsAg in 6.5% (Triki *et al.*, 1997). Early studies on HBV in Tunisia have shown a varying prevalence of HBsAg across the country; ranging from 3 to 13%. Highest prevalences were found in the south and central-western regions reaching as high as 15% in some villages (Triki *et al.*, 1997; Gorgi *et al.*, 1989). In the same period, the HBsAg prevalence rate among blood donors reached 5% (Jemni and Chatti, 1994). There are no recent national estimates of the prevalence of HBsAg in Algeria. The first epidemiological survey in 1984, showed a prevalence of HBsAg carriers ranging from 1.8 to 2.8%. Highest infection levels were found in the Eastern and desert regions of Algeria. Prevalence increased with age and lower socioeconomic conditions (Khalfa

and Ardjoun, 1984). In 1998, the estimated national prevalence of HBsAg positive population was 2.2% (Khelifa and Thibault, 2009). In Morocco, systematic nationwide screening of blood donors for HBsAg was introduced in 1985 and vaccination of neonates started in 1999. According to available data, the national prevalence ranges from 1 to 3%. HBsAg prevalence in the general population was reported to be 1.5% which was consistent with the 1% prevalence found among health-care workers (Ezzikouri *et al.,* 2008;. Heikel *et al.*, 1999, Benjelloun *et al.*, 2002).The modes of transmission include vertical, intra-familial, sexual or parenteral routes. A recent study has detected HBsAg prevalence of 1.7% among sexually active subjects with risky sexual behavior as the main mode of transmission (Ezzikouri *et al.,* 2008;. Sbai *et al.,* 2012) . Another study involving barbers and their clients showed HBsAg prevalence rate of 1.7–1.9%. In blood banks, an early 21st century survey found that HBsAg prevalence reached 2.5– 2.8%. Authors concluded that from 1991 to 2010, HBV sero-positivity underwent a significant decline in Morocco (Zohoun *et al.,* 2011; Aqodad *et al.*, 2011).

Hepatitis C virus: Hepatitis C virus (HCV) infection represents a major health problem worldwide. The World Health Organization (WHO) estimates that there are 170 million individuals with chronic HCV infection around the world. Hepatitis C results in more than 0.35 million deaths per year (Perz *et al.*, 2006). According to the WHO, the prevalence of chronic hepatitis C is intermediate and estimated between 1–2% in the Maghreb region. This is further supported by reports from different European countries that indicate a higher HCV prevalence among immigrants from the Maghreb region as compared to the general population (Roudot-Thoraval 1992; Chiaramonte *et al.*, 1998; Hemminki *et al.*, 2010). HCV is a major concern in the NA countries with variations in prevalence and virus genotypes (Table 3).

Table 3 - Prevalence of HCV and its common genotypes in NA countries (Daw *et al.*, 2012).

NA Country	HCV Prevalence among population	HCV Prevalence among Hemodialysis patients	Most frequent genotype	Less frequent genotypes
Egypt	13-22%	40%	4	1a, 1b, 2a
Libya	1.2%	20.5%	4/1	2a, 2b, 2c, 3a
Tunisia	0.4-0.7%	51%	1b	2a, 2c, 1a
Algeria	1.8%	63%	No data	No data
Morocco	7.7%	76%	1b	2a, 2c, 1a

Despite comparable socioeconomic conditions and health standards, Egypt has the highest HCV prevalence rates in the region and in the world as well. An average prevalence of 14.7% was detected in a nationally representative including both urban and rural populations (El-Zanaty *et al.*, 2009). However, other prevalence estimates range between 6 and 28% (Guerra *et al.*, 2010). In another study, approximately 20% of Egyptian blood donors were anti-HCV positive. A likely explanation of the high prevalence of HCV in Egypt is the past practice of parenteral anti-schistosomal therapy (PAT) campaigns, which served as a reservoir of chronic HCV infection (Lavanchy *et al.*, 2000). More recently, decades after the end of PAT program and despite the rapid increase of the population (new birth cohorts), a time trend analysis suggests that there is a small but insignificant decline in HCV prevalence over time in both the general population and high risk population (Mohamoud *et al.*, 2013). A number of studies have delineated the strong correlations between HCV infection and different medical exposures such as unsterilized injections, blood transfusions, surgical procedures, perinatal care, and dental treatment, as well as the possible role of genetic predisposition (Mohamoud *et al.*, 2013; Arafa *et al.*, 2005; Laoue´nan *et al.*, 2009). In Libya, the first study, conducted in 1994, has detected HCV infection among 8% of healthy subjects suggesting a high frequency of "community-acquired" HCV (Saleh *et al.*, 1994). However, a national sero-epidemiological survey in 2006 found a much lower prevalence of HCV antibodies in the general population of Libya (1.2%) (Elzouki *et al.*, 2006). Nosocomial HCV transmission was also a main route of infection. HCV prevalence was 20.5% among renal dialysis patients and 11% in patients receiving multiple blood transfusions (Daw *et al.*, 2002). Recently, a cross-sectional study has reported a sero-prevalence of 23% among prison inmates in the western part of Libya. In Algeria, an early screening for blood donors and pregnant women in 1995 found 0.2% positivity for Anti-HCV antibodies (Ayed *et al.*, 1995). The Algerian Ministry of health recent estimates conveyed that the prevalence of HCV infection had reached 2.5% (Rouabhia *et al.*, 2010). In Morocco, the estimated prevalence in the general population and blood donors ranged between 0.3% and 2% (Benouda *et al.*, 2009; Lahlou *et al.*, 2010; Boulaajaj *et al.*, 2005). Very high anti-HCV prevalence rates were detected in haemodialysis patients (34–68%) and in haemophiliacs (42%) (Benjelloun *et al.*, 1996; Benouda *et al.*, 2009; Sekkat *et al.*, 2008; Bahadi *et al.*, 2013).

Hepatitis D virus: Hepatitis D or delta virus (HDV) is a defective single-stranded RNA virus requiring the presence of HBV for its expression and replication. HDV has a worldwide distribution. It is endemic in the developing world, with a high prevalence in South America. HDV infection is limited to patients who have HBV infection and, like hepatitis B, is acquired parenterally. Worldwide, about 5% of HBV carriers are anti-HDV-positive and remains a common problem among intravenous drug users. Despite the scarcity of data in the Maghreb region, it is noted that the burden of HDV infection varies markedly. A single study performed two decades ago on 142 HBsAg carriers living in Morocco found that 1.4% of them had anti-Delta antibody (Benjelloun *et al.,* 2002). In contrast, HDV was once found in 17–33% of Tunisian HBsAg positive patients, and in 6–20% of HBsAg-positive patients in Algeria (Triki *et al*., 1997; Mansour *et al.,* 2012; Hughes *et al.,* 2011*;* Jenhani *et al.*, 1990; Belabbes *et al.*, 1987). The prevalence was higher in the Southern part of Tunisia in association with the–endemic HBV infection and the cultural practices such as scarification and traditional circumcision. Recent studies indicate that, at least for Tunisia, the prevalence of HDV has decreased in the last decades to 3-10% of HBsAg carriers (Djebbi *et al.*, 2009).

2.2. Bacterial diseases

Tuberculosis: TB remains a major global health problem. Despite the availability since the 1980s of the short-course regimens of first-line drugs that can cure around 90% of cases, TB still ranks as the second leading cause of death from an infectious disease worldwide, after the HIV. It is estimated that nine million new cases have occurred in 2011, of which 1.4 million died and 430 000 were HIV-associated (WHO, 2012). Developing countries endure almost all the burden of the TB epidemic. An estimated 95% of TB cases and 98% of TB deaths occur in the developing world (Chase *et al.*, 2006). Tuberculosis control remains a public health challenging the NA region. In 2008, a total of 397,726 TB cases were registered in the region, compared to 383 364 in 2007 (WHO, 2009).

The incidence of TB includes the number of new pulmonary, smear positive, and extra-pulmonary TB cases. Morocco has the highest TB incidence in the region followed by Algeria, Libya, and Tunisia, while Egypt has the lowest reported incidence (Table 4). In Morocco, the incidence of TB was last reported at 103 per 100.000 people in 2011, according to a World Bank report published in 2012. In Morocco, TB is particularly frequent in the most urbanized and heavily populated areas, for

example, 20% of the new cases were recorded in Casablanca, where there can be over 180 new cases per 100,000 per year in some areas. TB mortality in Morocco mounted to 9 per 100,000 in 2011.

Table 4 - WHO estimates of TB burden in NA countries (new cases, incidence and mortality rates per 100,000 in 2012).

NA Country	New cases 2012	Incidence per 100,000	Mortality per 100,000 (excludes HIV+TB)
Morocco	27 437	103(90 – 117)	9.2 (4.4 – 16)
Algeria	21506	89 (65 – 117)	15 (5.1 – 29)
Libya	1549	40 (33 – 48)	6.8 (2.9 – 12)
Tunisia	3194	31 (27 – 35)	2.9 (1.6 – 4.6)
Egypt	8147	17 (14 – 19)	0.46 (0.43 – 0.5)

Source: Global Tuberculosis Report, WHO 2013 (WHO, 2013)

The latest incidence of TB (per 100,000 people) reported in Algeria was 89 in 2012. Over the past 21 years, it has increased markedly from 61 in 1992 reaching a highest of 93 in 2005. The incidence of all forms of TB in Libya was 40 per 100 000 population in 2012. Pulmonary TB represented 50.9% of total cases. About (86.8%) of pulmonary TB cases were reported from only five TB Sub-centers out of twenty one distributed all over the country. The number of new TB cases reported in 2012 was 1549 cases with 6.8 TB deaths per 100 000. In Tunisia, pulmonary TB is the most common form, while cutaneous TB is rare (1–2% of cases). The incidence of TB (per 100,000 people) in Tunisia was reported to be 31 in 2012, according to a WHO report published in 2013 where the number of new TB cases reported was 3194 and TB deaths per 100,000 population was 2.9. Egypt is a country with a middle/low level of TB incidence reaching of 17 per 100,000 people in 2012 with 0.46 TB deaths per 100,000 people (WHO, 2013).

Meningitis: Meningitis and fulminant septicemia are the most common presentations of invasive infection. Meningococcal disease is characterized by its ability to cause outbreaks and epidemics, in addition to the fact that pathogenic sero-groups can change in a given region over only a few years. *N.* meningitides is responsible for at least 500,000 cases and 50,000 deaths worldwide each year (WHO, 2011). Endemic meningococcal disease affects mainly children and adolescents, with the highest incidence rates in infants aged 3–12 months. In the case of epidemics, older children and young adults may be affected. Despite antibiotic treatment, 9-12% of

patients die and only around 10-15% of those surviving meningococcal meningitis suffer from significant neurological complications, including neurological disabilities, deafness, and seizures. Egypt has experienced cyclical outbreaks, reaching a peak of 7.22 per 100 000 in 1989 (WHO, 1998). Implementation of the school-based polysaccharide Meningitis bivalent serogroups A, C (MenAC) vaccination program in Egypt appears to have interrupted the cycle of outbreaks, which had been occurring with a periodicity of 8 years (1967–91) (Nakhla *et al.*, 2005). In 1998, an enhanced surveillance system for meningitis was set up at 12 infectious diseases hospitals, where all meningitis patients are usually referred, utilizing standardized clinical and laboratory procedures. Over a 2.5 year period, a total of 834 patients of all ages were found culture-confirmed disease. Among these S. pneumoniae was found in 36% of isolates, H. influenzae in 19%, and *N.* meningitidis in 16%. An analysis restricted to the 228 patients less than 6 years of age showed Hib to be the most common causative agent (39%), followed by *S.* pneumoniae (30%) and N. meningitides (13%). Case-fatality rates among children with *H.* influenzae, N. meningitides, and *S.* pneumoniae meningitis were 27%, 23%, and 15% respectively (Youssef *et al.*, 2004). Following the introduction of the vaccine, the incidence rates of endemic meningococcal disease decreased from 0.7–2.0 per 100 000 in 1967–95 to 0.1 per 100 000 in 2006 (Nakhla *et al.*, 2005; Ceyhan *et al.*, 2013). Some evidence of a shift was seen in *N.* meningitides serogroups; before the era of vaccination, sero-groups A was the prevalent strain between 1966 and 1992 accounting for nearly 95% of cases of meningococcal meningitis while serogroup B has accounted for about 4% (Nakhla *et al.*, 2005; Girgis *et al.*, 1993). Starting in 1997, only 26–59% of cases observed have been caused by serogroup A and 5–66% by serogroup B (Nakhla *et al.*, 2005; Ceyhan *et al.*, 2013; Hausdorff *et al.*, 2007; Afifi *et al.*, 2007).

There is little data on the incidence of meningitis in Algeria. For Libya, in 2005, the reported incidence per 100,000 was 2.01 (Egypt Ministry of Health and Population, 2000). In Tunisia the highest incidence rate was reported in 1987 (WHO, 2008). The incidence in 2005 was 2.86 per 100 000 (WHO, 2010). Besides sero-groups A and C, sero-group B were reported to be the main sero-group in two studies in Tunisia (Saguer *et al.*, 2006; Pousse *et al.*, 1989). A neonatal case of sero-group B was also reported recently (Ceyhan *et al.*, 2012; Tinsa *et al.*, 2008). Since 1992 the incidence has remained below 2 per 100 000 in Morocco (MOH, Morocco, 2008). The peak incidence was 5.24 per 100 000 in 2005 (Hausdorff *et al.*, 2007). All strains are present in Morocco with sero-groups A and B being

the most prevalent. Sero-group B has resulted in about 57% of cases in the past decade (Ceyhan *et al.*, 2012; MOH, Morocco, 2008).

Leprosy: In Egypt, 587 new cases were diagnosed between 2004 and 2008 in the Sohag leprosy hospital. The mean age of patients at diagnosis was 34 years, 62% were males, and 11% were children below 15 years of age. The overall leprosy case detection rate was 3.1/100,000 population, which has declined from 3.4/100,000 population in 2004 to 2.8/100,000 population in 2008 (El-Dawela *et al.*, 2012). Between 1980 and 1987, twelve systematic leprosy detection surveys involving 254,979 persons were conducted in Morocco. Clinical examination of 92.61% of the sample yielded 422 suspected cases, of which only 55% were transferred to the hospital for lab confirmation, 90% of which tested proved positive (Sekkat *et al.*, 1990). A retrospective study at the National Centre of Leprology in Casablanca reviewed cases reported over a 16 year period (1991 to 2006) and confirmed 18 new cases of histoid leprosy (Benchikhi *et al.*, 2011). Only 250 cases of leprosy were reported over a whole century (from 1888 to 1987) in Algeria, of which 75 were Algerian and 61 were foreigners who caught the disease in Algeria (Boudghene-Stambouli *et al.*, 1989). In Libya, a descriptive study was conducted using case records from the Leprosy Clinic in Benghazi over 4 years found a decline in the number of leprosy cases registered for multidrug treatment from 18 in 1994 to only 4 in 1998 (Toweir *et al.*, 2000).

2.3. Zoonotic diseases

Rabies: Rabies is a viral zoonotic disease of which a number of carnivores and bat species serve as natural reservoirs, and in humans, is almost always fatal once clinical signs appear. Bites by rabid domestic dogs are the cause 99% of human rabies-associated deaths globally, and approximately 55,000 people die from rabies each year. The vast majority of deaths occur in Asia and Africa and children are at particular risk. Rabies is endemic to NA (Talbi *et al.*, 2010) where it poses a social and economic burden. However, accurate data on incidence is scarce and better surveillance is needed (Dodet *et al.*, 2008). There is an average of 22 annual fatalities associated with rabies since 1986. The annual incidence varies from 0.02 cases/100,000 population in Tunisia to 0.1 cases/100,000 population in Egypt. In Tunisia, human cases are localized in the northern, central and eastern rural and southern coastal parts of the country (Dodet *et al.*, 2008). In Morocco, cases occur mainly in rural areas in Kenitra,

Casablanca, and El Jadida (Faouzi *et al.*, 2009). In Algeria, human deaths from rabies occur mostly in the coastal and northern part of the country (Metallaoui *et al.*, 2009).

Table 5 - Reported rabies cases in humans and animals in NA countries, 2000-2009 (Gautret *et al.*, 2011).

NA Country	Annual no. of deaths/ 100.000	Annual no. of post-exposure prophylaxis/ 100,000	No. of rabies cases in animals (years)
Algeria	0.06 *	2.2 *	2,206 (2000-08), 754 (2009)
Egypt	0.1ǂ	1.9 **	5 (2000, 2006, 2007)
Morocco	0.07 *	1.6 *	3,600 (2000-08), including 343 in 2007
Sudan	0.04 *	0.4 ǂ	101 (2000-07), including 38 in 2007
Tunisia	0.02 *	3.3 *	1,253 (2000-07, including 102 in 2007)

Data sources include WHO Rabnet database (www.who.int/globalatlasdefault.asp) and RABMEDCONTROL (www.rabmedcontrol.org)
*Calculated for 2000- 2007
**Calculated for 2000
ǂCalculated for 2007

In Tunisia, mass vaccination for the canine population combined with the elimination of free-roaming dogs has proven quite effective (Touihri *et al.*, 2011). However, rabies in dogs is still prevalent in Algeria, Morocco, and Tunisia due to ineffective implementation of rabies control and animal vaccination programs (Dodet *et al.*, 2008; Barrat, 2005; Artois *et al.*, 1986; Matter *et al.*, 1987). There has been no publically available information about rabies in humans or animals in Libya for years, yet the country has declared itself free of canine rabies, despite the fact that the disease still exists in all neighboring countries (Burki, 2008). The information available from Egypt is similarly incomplete (Matter *et al.*, 2004). Elimination of free-roaming cats and dogs conducted in Egypt had very little effect (Barrat, 2005).

Leptospirosis: Leptospirosis is a zoonotic disease that can lead to life-threatening conditions, such as Weil's disease and severe pulmonary hemorrhage syndrome. It is estimated that 500,000 annual cases of leptospirosis occur all over the world, the majority of which show severe clinical symptoms and a case fatality rate of over 10% (WHO, 2007). Leptospirosis cases can occur either sporadically or in epidemics. Humans

are susceptible to infection with a variety of serovars (Mohammed *et al.*, 2011). Leptospirosis is regarded as focally enzootic throughout the NA region. The highest median annual incidence occurs in the African Region (65.5/ 100 000 population), whereas no data exist on human leptospirosis in NA countries. Studying the epidemiology of leptospirosis in Egypt has been markedly affected by misdiagnoses. A retrospective study to detect leptospiral antibodies among undiagnosed acute febrile illness (AFI) and hepatitis cases concluded that leptospirosis had almost never been diagnosed in Egypt and therefore wasn't an important public health problem. Approximately 16% of both AFI (141/886) and acute hepatitis (63/392) cases showed sero-reactivity to leptospira IgM by ELISA and microscopic agglutination test (MAT). Researchers recommended raising awareness of leptospirosis among physicians, establishing laboratory facilities in fever hospitals for proper diagnosis, and conducting prospective studies (Ismail *et al.*, 2006). In Morocco, the annual incidence of leptospirosis declined three-fold, from 0.31/100000 in 2001 to 0.10/100000 in 2011. The disease occurs over the summer period from June to October with two peaks reported in July and September. During 2011, the Directorate of Epidemiology and Fight against Disease (DELM) was notified of 33 human cases of leptospirosis (Mohammed *et al.*, 2011).

Brucellosis: North Africa has been traditionally considered endemic for brucellosis. The very limited data from national reports in Egypt probably underestimate the prevalence of the disease; as such data is derived from selected medical institutions (Pappas *et al.*, 2006). Algeria has the tenth highest annual incidence worldwide (84.3/1000000) (WHO, 2002). There is also no official data for Morocco, although the disease may be endemic along the Moroccan/Algerian border. Limited data exist about Libya, while the incidence in Tunisia may be underestimated (WHO, 2003). WHO programs have focused on controlling brucellosis in these countries, however urgent interventions are most needed in Algeria and Tunisia (Pappas *et al.*, 2006; WHO, 2004). Between 2003 and 2005, the incidence of brucellosis in Algeria showed a 181% increase from 8.79 to 24.71, followed by stabilization between 2005 and 2007. The estimated mean incidence of neuro-brucellosis is 4% with clinical manifestations that are variable and often multi-focal in the same patient (Guenifi *et al.*, 2010). In the rest of the region, the incidence per 100,000 varies from 35.5 in Tunisia to 2.95 in Egypt (with a mean of 61 cases reported annually during the period 1988–2003) (WHO, 2003). Prevalence of human brucellosis in Egypt was reported to be as high as 8% in high-risk populations in Egypt (Samaha

et al., 2008). In Libya, the overall prevalence of Brucellosis sero-positivity among humans in the Yafran municipality was 40%, with the rates in regions of Jado (47%) and Yifrin (46%) being the highest. The prevalence of IgG and IgM antibodies in seropositive individuals was 57% and 43% respectively, suggesting active or recent infection. The number of cases reported annually in Morocco during the period of 2002–2011 varies between 0 and 27 cases, with peaks in 2007, 2009, and 2010 (Ahmed *et al.*, 2010).

Hydatidosis: Echinococcosis/hydatidosis is one of the most important zoonotic diseases in the world for which humans serve as the intermediate host. High parasite prevalence is found in the Middle East as well as Arabic North Africa (Anderson *et al.*, 1997; Eckert *et al.*, 2001; Battelli *et al.*, 2002; Romig *et al.*, 2003). Human Cystic Echinococcosis (CE), despite the lack of recent published data, is a predominantly rural disease and an important public health problem in NA countries. CE is endemic/hyper-endemic in Tunisia and is a major public health problem due to its high prevalence, morbidity and economic losses (Grosso *et al.*, 2012). The last report on human CE is by Anon et al. (1993), who reported that the annual surgical incidence was approximately 15 per 100,000 inhabitants. Two autochthonous cases of *E. multilocularis* infection have been reported in humans from a mountainous region of northern country (Eckert *et al.*, 2001). CE is highly endemic in Morocco, as 1403 surgical cases were recorded in the country in 2006, representing an annual rate of 4.55 cases per 100,000 inhabitants. Surgeries had to be repeated in 7–10% of cases and a mortality rate of 2–3% was observed (MOH, Morocco, 2008). A human ultrasound screening performed in the middle Atlas mountainous region showed a high prevalence of 1% (Kachani *et al.*, 2003). In Algeria, More than 700 surgical cases are notified each year to the Ministry of Health. Based on hospital records, it is estimated that the annual incidence reached 3.6–4.6 per 100,000 inhabitants (Shambesh *et al.*, 1997). In Libya, the incidence of surgically confirmed CE in eastern Libya was estimated to be at least 4.2 /100,000 people, significantly affecting females more than males (Tashani *et al.*, 2002). A survey applying ultrasound examinations revealed that 1.7% of those living in 36 villages in northern Libya had the disease (Shambesh *et al.*, 1999). Egypt has a relatively lower endemicity level of CE as compared to other NA countries (Grosso *et al.*, 2012). CE was recognized in slaughtered livestock by veterinarians (Ramzy *et al.*, 1999). Prevalence rates were less than 1% in slaughtered sheep and goats, but reached 2.53% in camels and 6.4% in buffalos and cows (Haridy *et al.*,

2006). In humans, a retrospective hospital based study showed an annual surgical incidence varying between 1.34 and 2.60 per 100,000 inhabitants (Kandeel *et al.*, 2004). Human cases of CE were reported to be due to the camel strain G6 (Azab *et al.*, 2004). Camel and equine strains are the main strains in Egypt (Derbala *et al.*, 2004).

2.4. Parasitic diseases

Leishmaniasis: On a global scale, 350 million people live in areas characterized by active transmission of leishmania, with 14 million people dispersed throughout Africa, Asia, Europe and the USA directly affected by the disease. The global burden of leishmaniasis has remained stable for some years, causing a morbidity and mortality loss of 2.4 million disability adjusted life-years and approximately 70,000 deaths, a significantly high rank among CD. Leishmaniasis, one of the highly neglected diseases is currently a significant health problem in all NA countries, with cutaneous leishmaniasis (CL) found in many diagnoses and Algeria enclosing 90% of worldwide CL cases. CL is distributed in a belt from Marrakech to Casablanca in Morocco, Algiers in Algeria, Tripoli in Libya and from Cairo to Alexandria, all the way to the Sinai in Egypt. Visceral leishmaniasis (VL) is less prevalent in NA countries, yet a more severe systemic disease. Additionally, CL is a rising concern in Western Africa due to its oftentimes co-infection with HIV. Comparatively, there are low prevalence rates of the disease in West African countries (Desjeux, 2004; Kimutai *et al.*, 2009; Reithinger *et al*., 2007). Leishmaniasis is expected to increase due to global and ruralization of suburban space. The zoonotic CL would pose more problems in the future unless significant control measures are taken.

Schistosomiasis: Schistosomiasis is a parasitic infection caused by trematodes (flukes) of the Schistosoma genus and infection occurs by skin contact with cercaria-contaminated freshwater during swimming, fishing, and bathing. Various species cause specific pathologies in humans: *Schistosoma mansoni* and *Schistosoma japonicum* cause intestinal schistosomiasis; *Schistosoma haematobium* causes urinary schistosomiasis (Leusen van *et al.*, 2000). According to estimates of the WHO, 200 million people are infected worldwide with the majority living in sub-Saharan Africa and South America. The largest number of schistosomiasis cases occur in Egypt and Algeria. In Egyptian studies dating from 2006, approximately 7 million cases were reported (Steinmann *et al.*, 2008). However, it is believed those numbers have since decreased, with *S.*

haematobium infection almost eliminated and *S. mansoni* infections remaining only in what are described as ‘‘hot spots’’ in the Nile Delta–irrigated area in the northern part of that country (Fenwick *et al.*, 2006). Schistosomiasis has been eliminated in Morocco and Tunisia as no new cases detected over the past few years. The Moroccan Health Ministry launched a schistosomiasis elimination process in 1994, and it is believed that during the years 2005-2009, disease transmission had been interrupted at the national level. A study involving 2,382 children selected from provinces with histories of high transmission showed an absence of antibodies in all serum samples (Amarir *et al.*, 2011).

3. *Migration and CD in NA countries*

It is estimated that nearly 2% (more than 200 million people) of the world’s population resides in a nation different than their countries of origin. These mobile, migrant populations are composed of several groups, including immigrants, migrant and seasonal workers, refugees, asylum seekers, international students, and others (Gushulak *et al.*, 2004). North Africa serves both as a transit and final destination for large mixed migration movements from sub-Saharan Africa. In addition, the instability still affecting much of NA countries generates irregular movements from the region to Europe. By mid-2013, there were more than 31,000 asylum-seekers registered with UNHCR in North Africa. In addition, UNHCR has registered 141,000 Syrians in the NA sub-region, some 127,000 of them in Egypt (UNHCR, 2014). Population migration has been associated with the spread of diseases ranging from plague, smallpox, measles, and syphilis to, more recently, HIV, and TB. Air travel has facilitated the spread of diseases with short incubation periods such as influenza and measles. Some chronic conditions and cancers are associated with the remote acquisition of infections, such as liver cirrhosis due to hepatitis B and C infections. Immigrants may have a direct role in transmitting acute infectious diseases from one geographical location to another. This concern is especially great when large groups are concerned, such as refugees’ resettlements (Barnett and Walker, 2004). In the absence of vigilant registration and surveillance, migration movements into NA countries pose the threat of importing previously controlled, eradicated, and newly emerging infectious diseases into the region. CD prevalent within or imported from outside the region can be further propagated into destinations in Europe and worldwide. Transmission of indigenous Wild Polio Virus (WPV) was thought to have stopped in Egypt with the last reported case dating to May 2004, followed

by WPV-1 being isolated from sewage samples collected in December 2012 in Cairo, Egypt. Later genetic sequencing showed that the virus strains were closely related to isolates from northern Sindh, Pakistan, confirming ongoing international spread of WPV. Based on the history of previous importations to Egypt and the ongoing response, WHO assessed the risk of further international spread of these virus strains from Egypt (Global alerts and responses, WHO, 2013). Rabies transmission is an example of infectious diseases being re-introduced into Europe from the NA region. In 2005, only 5% of international tourists from France visited Algeria, but persons injured in Algeria accounted for 21.4% of patients seeking care in France after a possible rabies exposure while abroad (Gautret *et al.*, 2011).

4- Conclusion

In Africa, infectious and parasitic diseases are responsible for about half of all deaths, versus only 2% in Europe. Clearly, understanding and combating the spread of disease is among the most serious challenges we face today. Due in part to the adaptability of pathogens, re-emerging diseases such as TB and previously unrecognized diseases, such as hepatitis C and HIV, have emerged as new threats. There is also a situation for leishmaniasis endemic for visceral and major outbreaks for cutaneous forms in the region. Leishmaniasis is expected to increase due to global and ruralization of suburban space and the zoonotic CL would pose more problems in the future unless significant control measures are taken. The role of migration movements in NA countries is of increasing importance, regarding their influence on the infectious diseases map both in the region and in the world. Suitable strategies are needed to address the health needs of immigrants and to protect the health of native populations, in order to preserve the progress resulting from decades of fighting against CD.

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Infections in migrants: global and local epidemiological issues

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Abstract - Infectious diseases, although represented in part in the context of the well-known pathologies of which migrants are affected, are frequently observed in our health facilities. Most of these are common infections, caused by widespread pathogens in Italy and influenced by the living conditions of migrants. There are no health emergencies so far, indicating that migration flows are not associated with an increased risk of communicable disease transmission in Italy. Thus, the risk of importation of infectious diseases related to immigration is negligible. Here we will make an overview of the most important infectious diseases of the immigrants observed in Italy, especially in the setting of Ferrara city, Emilia-Romagna, Italy. Interventions adopted in order to improve access to health services to receive immigrants for early recognition of particular infectious diseases and prevention/treatment programmes, will be also examined.

Abstract - Le malattie infettive, anche se in parte rappresentate nell'ambito delle note patologie di cui i migranti sono affetti, vengono frequentemente osservate nelle nostre strutture sanitarie. La maggior parte di queste sono infezioni comuni, causate da agenti patogeni assai diffusi in Italia ed influenzate dalle condizioni di vita dei migranti. Non ci sono emergenze infettivologiche; il che sta ad indicare che i flussi migratori non sono associati ad un aumentato rischio di trasmissione di infezioni nel nostro Paese. Pertanto, il rischio di importazione di malattie infettive in materia di immigrazione è trascurabile. In questa rassegna verrà fatta una panoramica delle più importanti malattie infettive del migrante osservate in Italia e nel contesto della città di Ferrara, Emilia-Romagna. Verranno anche esaminati i possibili interventi volti a migliorare l'accesso ai servizi sanitari dei migranti per il riconoscimento precoce di alcune malattie infettive ed i programmi di prevenzione/trattamento.

1. Introduction and background

Define immigration to Italy a sea change in our society can possibly seem disproportionate at a time of great cultural and economic changes, such as globalization and the social dynamics dictated by levels of communication getting faster and more widespread.

In recent years, the "Human Mobile Population" has stood the figure of one billion and 400 million. These people come from Africa, South America, Asia and Eastern Europe, leaving a permanent or temporary borders of their country of origin for economic or professional reasons or to escape political and religious persecutions. Only in 2013 there were 230 million migrants. That year was also the worst year for migrants, with a record of estimates more than 7,000 people died trying to cross the seas and deserts to improve their standard of living.

Migrants come in our country from more than 190 countries; they are a total of 5.186 million, constitute the 8.6% of the Italian population, and are distributed in the following proportions: 24.2% in the centre, 61.8% in the North and 14% in the South and Islands (Figure 1).

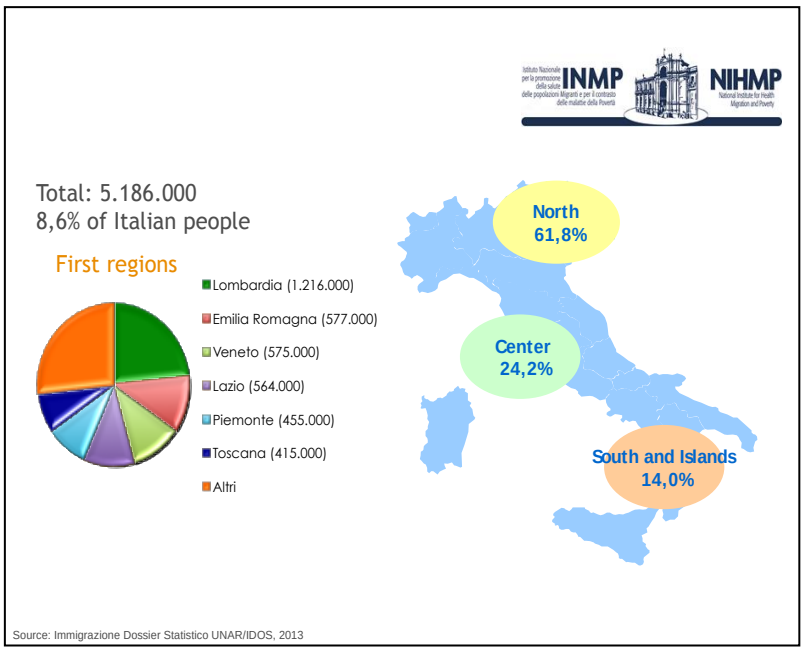

Figure 1 - Foreigners in Italy to January 1, 2013: geographical distribution (Prestileo et al, 2013).

2. Dynamics of health of the immigrant population and infectious diseases

The immigrant, appears today as a person generally strong, young, with greater psychological stability and initiative; therefore healthier, because being healthy is the only certainty to invest in their own future and that of the family; their body in fact, together with the working capacity represents the only means of exchange, at least initially, that occurs with the new country (Bollini et al, 2009).

However, the stock of health in each immigrant dissolves more quickly for a number of risk factors present in the host country: psychological distress related to the condition of immigrants, lack of jobs and income; under-employment in hazardous work and unprotected, housing deterioration compounded by the lack of family support, different dietary habits and climate. These factors have an impact to the point of triggering what is now called, "exhausted migrant effect" compared with the previous "health migrant effect" (Bollini et al, 2009; Parkin et al, 1992).
Throughout history, migration and migrants have been associated with the suspicion and fear that they carry infectious diseases, arousing unfounded fears and increasingly medical error because not known and often stigmatized (*The* so called *Salgari syndrome*) (Bollini et al, 2009).

The Black Plague was linked with the movement of travellers, and city states and countries quickly began to enact laws governing the entry (and rejection) of people thought to be at risk. The movement of people between countries by ship led to even greater fears about the capacity of travellers to introduce different types of diseases and gave rise to the quarantine regulations that remain operative in many parts of the world today (Sehdev et al, 2002; Gensini et al, 2004; Contini et al, 2014 [2].

So far, the risk of importation of infectious diseases related to immigration is negligible. The health profile of the immigrant population, according to case studies from hospital discharge records and analysis of multi-ethnic, is generally characterized by a wealth of good health evidenced by the fact that most of the accesses to the hospitals are linked to accidental traumatic or physiological events such those related to pregnancy, or caused by lack of prevention measures such as injuries for men and abortion for women (Geraci et al, 2005; Geraci et al, 2010). Foreign workers are exposed to a risk of getting accident higher than Italian workers. Even if the myth of immigrants 'spreaders' of infectious diseases resists, there is a low prevalence of infectious diseases imported and minimal risk of infection of the host population. The phenomenon of

"globalization," however, has favoured the emergence of new infectious diseases and the resurgence of others, which seemed likely to decline or even to extinct.

3. Infectious Diseases in Migrants

Infectious diseases, although represented in part in the context of the pathologies of which migrants are affected, are frequently observed in our health facilities.

In 2011, the total number of migrants from various countries arrived in Lampedusa, Sicily, one of the most important Italian reception centre of immigrants in Italy, was 60.000.

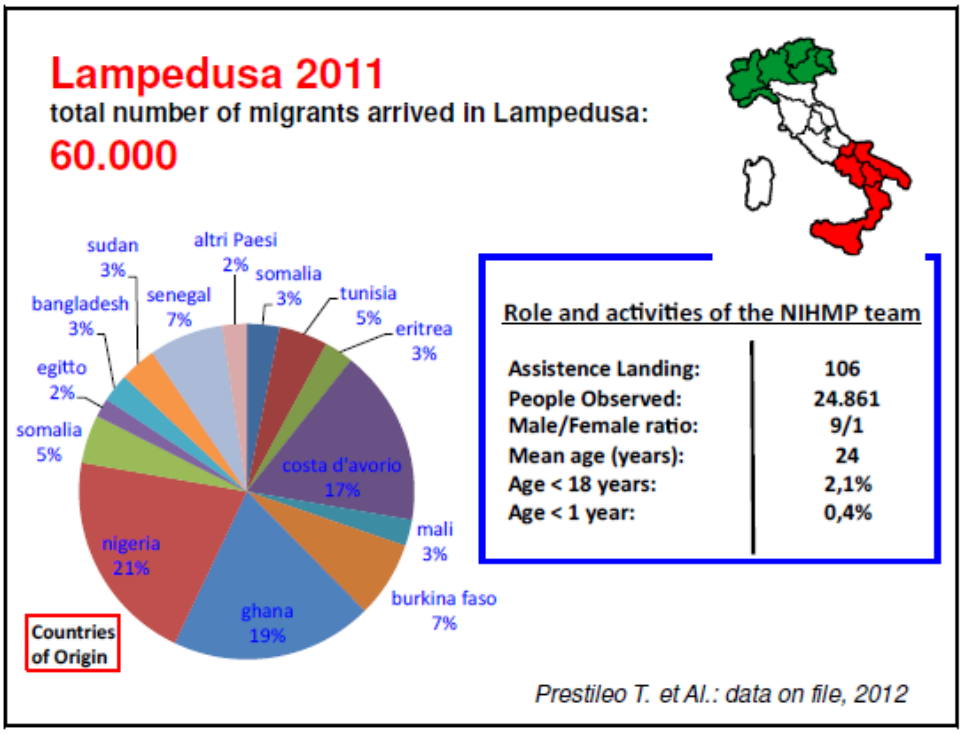

Figure 2 - Country origin of immigrant in the reception centre of Lampedusa, Italy (2011).

Twelve main syndromes were defined as potentially indicative of infectious diseases and/or unusual adverse health events: respiratory tract

diseases, tuberculosis (also suspected), bloody and/or watery diarrhoea, fever and rash, meningitis/encephalitis or encephalopathy/delirium, lymphadenitis with fever, botulism-like illness, sepsis (with or without shock) or unexplained shock, haemorrhagic illness, acute jaundice, parasitic skin infection, unexplained death. Infections accounted for less than 1% (Prestileo et al, 2013).

The most important infections in the migrant population are tuberculosis, hepatitis, sexually transmitted diseases (STD), faecal-oral transmitted diseases, HIV/AIDS and parasitic diseases.

There were no health emergencies, however, indicating that this migration flow was not associated with an increased risk of communicable disease transmission in Italy.

We will here discuss here the major diseases of the migrant observed in Italy and in the setting of Ferrara city, Emilia-Romagna.

3a. Tuberculosis (TB)

TB is the leading cause of death in the world from a bacterial infectious diseases. The disease affects one billion people/year which is equal to one-third of the entire world population. After HIV/AIDS, TB is the second single disease which causes more deaths in the world; almost 9 million people contracted TB in 2013 and about 1.5 million have been deaths, including those relating to the co-infection HIV/AIDS (360.000) according to the Global TB report (WHO: Global Tuberculosis Report 2014) of World Health Organization (WHO) of Geneva in 2014 (Figure 3). According to this report, in 2013, 48% of TB patients globally had a documented HIV test result. In the African region that has the highest TB/HIV burden, three out of four TB patients knew their HIV status. Globally, 70% of the TB patients known to be living with HIV in 2013 were started on antiretroviral therapy (ART). In 2013, 5.5 million people enrolled in HIV care were screened for TB, up from 4.1 million in 2012. Of the people newly enrolled in HIV care in 2013, 0.6 million were provided with isoniazid preventive therapy.

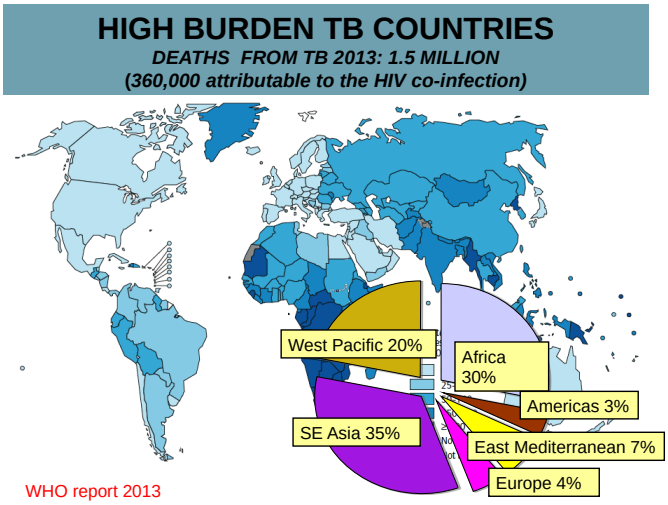

Figure 3 - General TB distribution and countries with highest TB burden: Afghanistan, Bangladesh, Brazil, Cambodia, China, Congo, Ethiopy, India, Indonesia, Kenya, Mozambico, Birmania, Nigeria, Pakistan, Philippines, Russia, South Africa, Tanzania, Thailand, Uganda, Vietnam and Zimbabwe.

According to the recent ECDC surveillance report of WHO, TB cases in Europe represent 4.7 % of the world and most of migrants are concentrated In Eastern Countries where TB incidence is highest (WHO: Global Tuberculosis Report 2014). In EU well as in the rest of world, the large cities, are characterized by higher TB incidence rates compared with national territory (Zellweger et al, 2013). This phenomenon was described as "Urban TB" (Figure 4) as in the big cities, such as London, the incidence of TB is up to 44.4/100,000 habitants compared with England which is 14.8/100,000 (Amato-Gauci et al, 2008). This imbalance is due by presence, in the big city, of vulnerable groups, such as migrants, refugees, homeless, prisoners, drug addicts, alcoholics and HIV-positive persons (ECDC 2012).

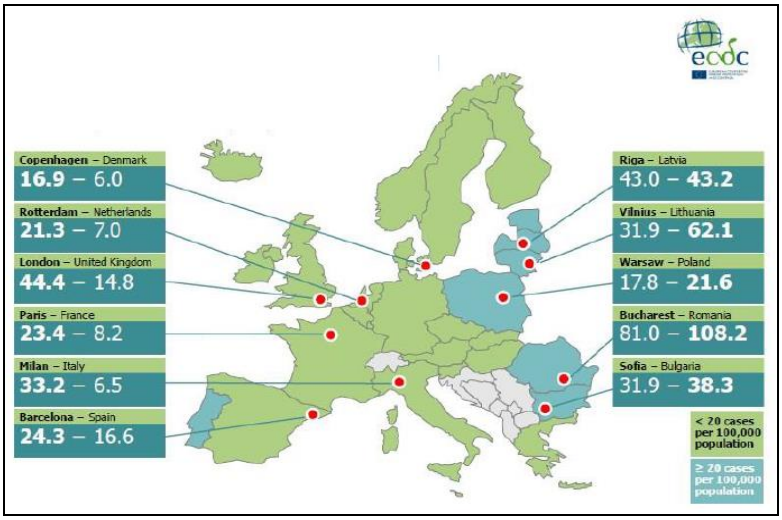

Figure 4 - Incidence rates of TB per 100,000 population in the regions and major cities of the EU/EEA (Urban TB).

The particular condition of "immigrant" predisposes to an increased risk of developing TB either for increased incidence rates in the countries of origin or conditions of social fragility and complexity related to the process of migration and multiculturalism.

The migrant that arrives in Italy is generally a healthy person, (healthy migrant effect) who rarely develops TB; it is more likely to be a carrier of latent infection (LTBI). The active disease occurs because of high prevalence of LTBI in the country of origin and of the conditions of life related to the social fragility and difficulties regarding the process of migration and multiculturalism) that affects migrant after its entry into the host country.

In this setting, LTBI screening approaches vary considerably among countries and identifying models of best practice remains difficult. Screening of LTBI has been demonstrated to be effective in two groups of subjects: those at risk of getting an infection by *M. tuberculosis* and those at risk of progression from a latent infection to active TB Infection. In this setting, different inflammatory patterns were found in TB patients with various Ethnics, as recently shown (Coussens et al, 2013) (Figure 5).

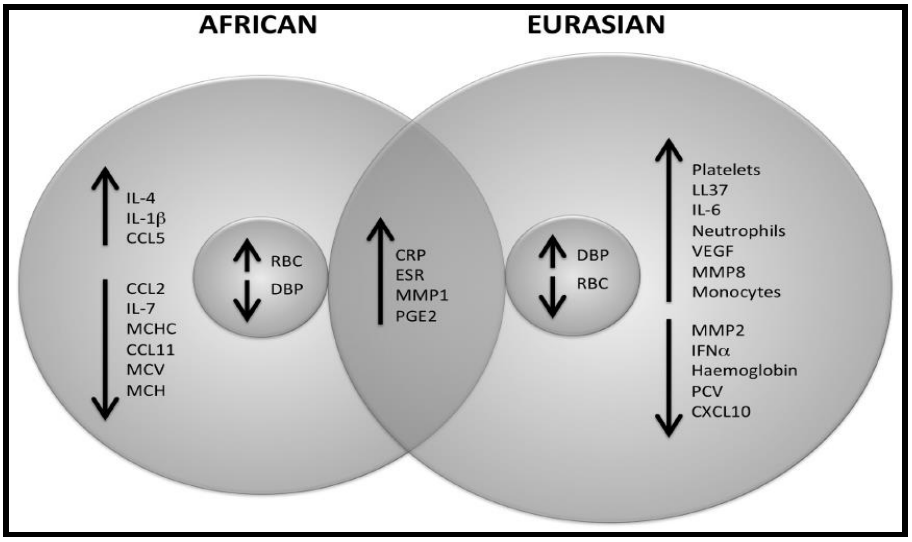

Figure 5 - Ethnic variation in inflammatory profile in TB (Coussens et al 2013). The imbalance of particular cytokines and chemokines can promote, for some ethnic groups, the evolution towards the active disease.

3b.TB in Italy

The increasing acceleration of the processes of globalization, accompanied by an increase in migration not always adequately supported by effective policies of integration, has revived since the 90s a return of the TB disease even in developed countries, territories in which it was wrongly thought that tuberculosis was under control.

In general, the current epidemiological situation of TB in Italy is characterized by a low incidence and mortality rate in the general population. Most TB cases are concentrated in some risk groups and in certain classes of age and the emergence, of multidrug-resistant tuberculosis strains (MDR) is stable. Most of TB cases occur in some risk groups and in certain classes of age (La tubercolosi in Italia, Regione RER, 2008).

From the second half of the twentieth century, there has been a progressive reduction in the incidence and mortality of TB in the Italian population, while in the last twenty-five years, this trend has been basically stable fluctuating around 5.8-7 cases per 100,000 inhabitants (corresponding to about 4500 cases per year) in contrast with strangers, in whom the crude incidence rate by country of birth is 70/100.000 inhabitants. Moreover, in 2008, almost two-thirds of TB cases in foreigners occurred in Northern Italy and young adults were most affected people. 73% of the total cases come

from Lombardy, Lazio, Veneto, Emilia Romagna and Piedmont. In contrast, the regions of Central, South and Islands showed a downward trend (South and Islands in 2008, have notified only 10% of the total cases nationwide). 25% of the total cases reported nationwide in 2008 come from the provinces of Rome and Milan.

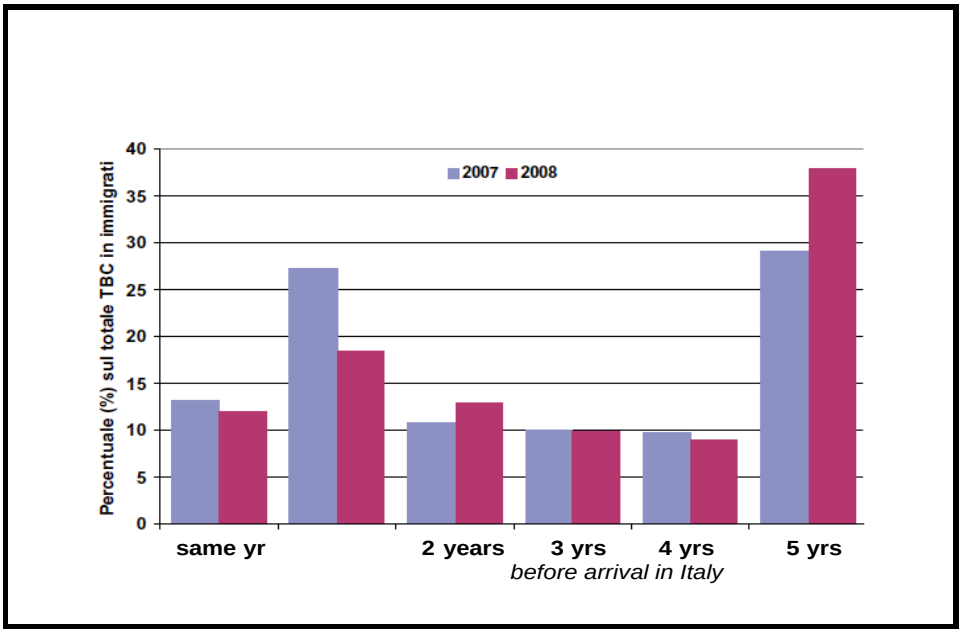

Figure 6 - Onset of TB cases in immigrants according the year of arrival in Italy (years 2007-2008).

Until 2007, more than 50% of TB cases in foreign-born persons occurred within the first 2 years after the arrival in Italy; now, the majority of cases occur after at least 5 years from the arrival. In the communities of migrants, TB can persist for long periods after arrival (Figure 6).

These observations are consistent with the widely accepted hypothesis in part derived from molecular epidemiologic studies, that are indicative that foreign-born people were infected in their country of origin and then they developed either primary active disease shortly after migration, or progression from a latent infection to disease reactivated after arrival in the host country. Moreover, the risk to undergo TB in migrants, is 10-15 times higher compared to Italian population.

Of the 16 countries with the highest rate of immigration in Italy, 8 have an incidence of TB higher than 100/100,000 (value beyond which a country or a group of the population is considered at high risk for TB);

among these, the Philippines (287/100,000) and Senegal (270/100,000) are the countries with highest incidence of TB; the other 8 have an incidence of <100/100,000 (in five cases below 50/100,000). In these 16 countries, the frequency of cases of TB supported by multi-resistant strains (resistant to isoniazid and rifampicin contemporary-MDR-TB) is very variable, ranging from 19.4% and 16% respectively in Moldova and Ukraine to 0.2 Sri-Lanka. In the developing world, multi-drug-resistant TB is usually a death sentence.

3c. TB in the setting of Emilia Romagna and Ferrara

In our region, of the 287 cases of TB notified in 2009 in foreign-born, 39.4% came from the African continent, 29.3% from Asia, 27.2% from Europe and 4.2% from the Americas. Of the 287 TB cases notified in 2009 foreign-born, 39.4% came from Africa, 29.3% from Asia, 27.2% from Europe and 4.2% from the Americas (Figure 7).

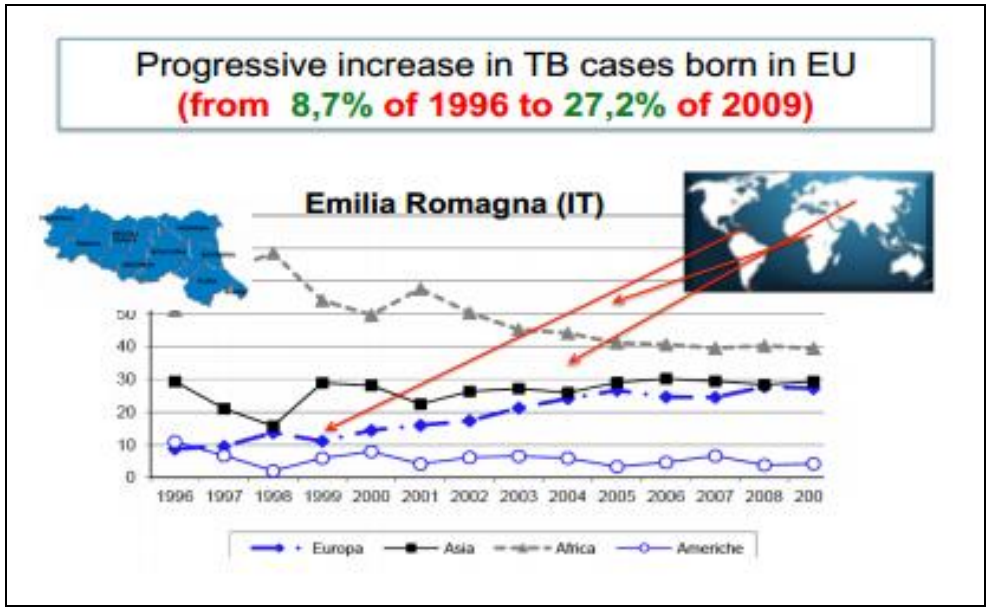

Figure 7 - TB cases (%) reported in foreign-born citizens by continent of origin (years 1996-2009) according to Regione Emilia Romagna (RER) 2008.

Looking at the whole period, however, a significant decrease in cases born in Africa (from 68.6% in 1998 to 39.4% in 2009) was noticed, together with a slow but steady increase in cases born on the European continent (from 8 7% in 1996 to 27.2% in 2009). Among migrants, get sick with TB especially males between the ages of 25 and 34, which is also the age group most represented among migrants in Italy. The increasing trend of TB aged 15-44 is related to the increasing proportion of foreign-born persons resident or domiciled in the region, who get on the territory (Morandi R et al, RER 2008).

One our recent study (submitted) aimed to identify and evaluate the clinical features and epidemiology of TB in 75 migrants (43 males, 32 females; M: F = 1.3: 1; mean age 34.6 years (Figure MC), admitted to the University-Hospital of Ferrara, in the period 2007-2013 (Figure 8).

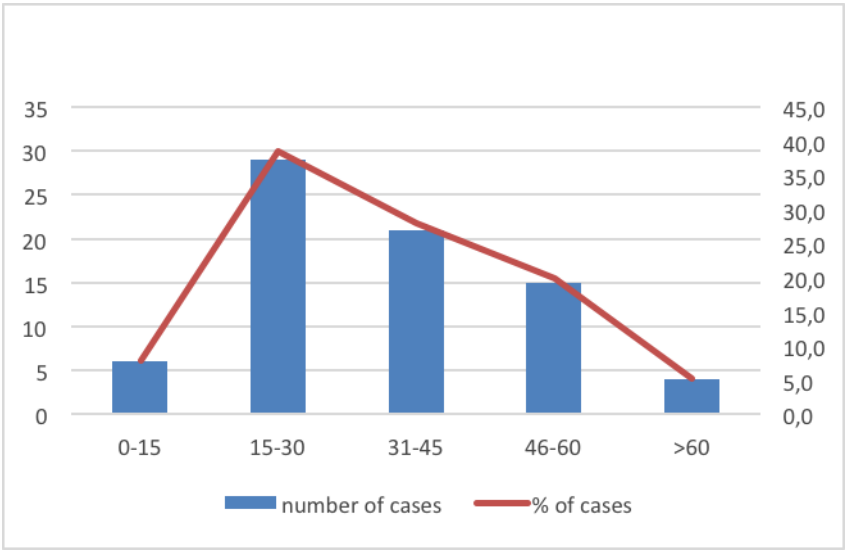

Figure 8 - TB cases by age among immigrants.

In particular, we analysed the role of gender and ethnicity in relation to the profile of the TB pattern (Di Nuzzo et al, 2014). The subjects came from 19 different countries, of which 73% are from a country with high endemic TB (TB incidence> 50 cases/100,000). 22 cases (29%) were from Pakistan, 15 (20%) from Romania and 12 (16%), Morocco.

From a comparative assessment between the rated of people living in the province of Ferrara with those of subjects of the same ethnic group who

developed TB, emerged that the Pakistanis had a higher risk of developing TB than other ethnic groups (p <0.01). In addition, to be migrant represented itself a risk of TB (p <0.01), especially for those coming from Morocco (OR = 1.9; CI 1.08-3,5), Romania (OR = 2.5; CI 1.5-4 5) and Pakistan (OR = 2.5: CI 1.6-3.9). 52% of the patients developed PTB, 39%, EPTB, while 9%, disseminated TB (PTB + EPTB) (Figure 9).

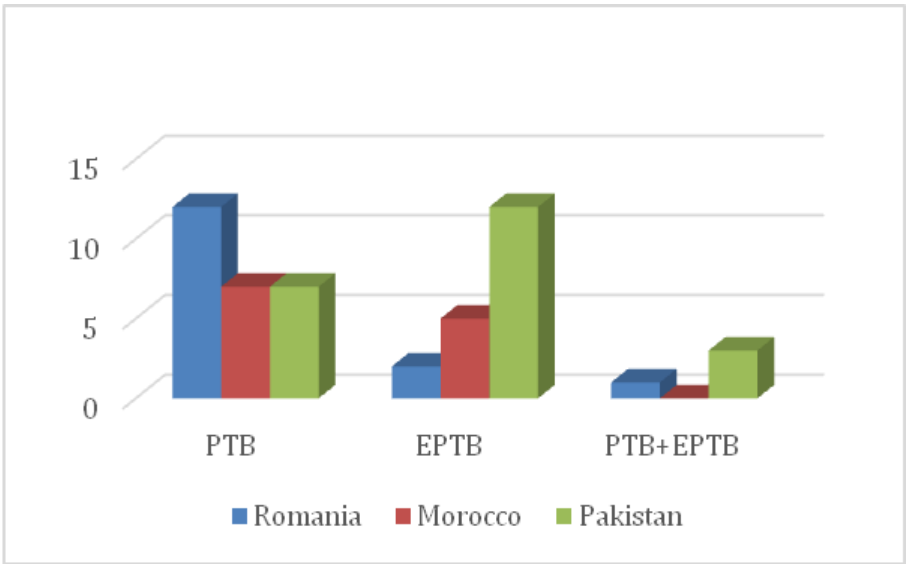

Figure 9 - TB site by ethnicity. Immigrants from Romania presented a statistically significant risk of PTB (p<0.05); those from Pakistan had a statistically significant (p<0.05) risk of EPTB.

The extrapulmonary sites involved were mainly the lymph node (64%), gastrointestinal (3 cases), multiple extrapulmonary (10%), bone, pleural, chorio-amniotic and genitourinary (3%). Romanians developed preferably PTB, while the Pakistanis, EPTB (P <0.05). In these latter, the location mostly affected was lymph node (76.9%). Also, belonging to the female sex was more strongly associated with EPTB (P <0.01). With concern to the possible link between gender and ethnicity, a higher risk of PTB was statistically significant among Romanian males, while EPTB, among Pakistani women (p <0.05).

Regarding the date of entry into Italy of immigrants, 63.2% developed TB within the first five years after entering our country, 31.6% in the first year. These findings agree in part with those of literature regard the

geographic origin (Malik et al, 2005) and race (Fiske et al, 2010; Pasipanodya et al, 2012) as shown in Figure 10 and 11. Black males in fact, have a higher incidence of TB than white males in childhood and from 40 to 50 years; the black females, have instead an increased incidence in childhood and up to 20 years of age (Fiske et al, 2006).

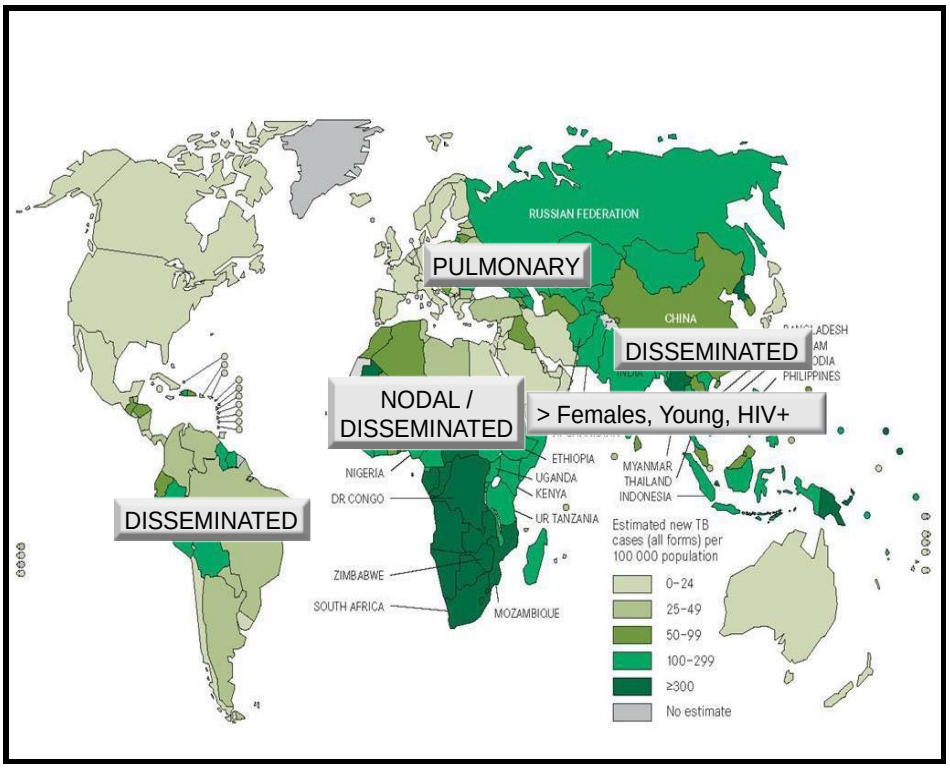

Figure 10 - Subjects from Eastern Europe have a higher risk of developing PTB, while those with nodal TB came generally from Africa, who are often young females and HIV+. These forms are more associated with disseminated TB rather the Asian, South American and African origin.

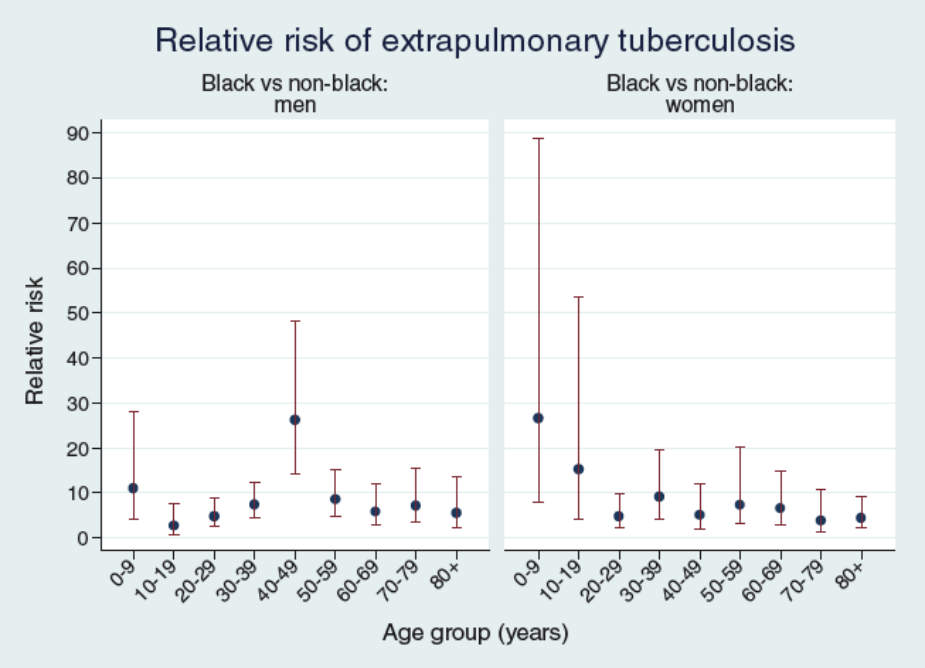

Figure 11 - Risk of EPTB in men and women by race and age (Fiske et al, 2010).

Finally, in the disadvantaged socio-demographic settings as those countries so-called "high burden TB," the delay in diagnosis and inadequate treatment offered might be cause which can favour the progression of disease towards extrapulmonary sites or purely disseminated forms.

In summary, three important aspects emerged from our study: first, immigrants predominantly males and young adults aged between 15 and 29 developed active TB more frequently than those aged between 30 and 44 and this result was statistically significant; second, the localization of disease was different among different ethnicities. In particular, immigrants from Romania developed preferably PTB compared with immigrants from Pakistan, in whom a statistically significant association with EPTB forms was found; third, females presented significant higher rates of EPTB (nodal TB), although they had lower rates of TB tout-court. Since EPTB diagnosis is often delayed or misdiagnosed, health care workers should consider these features in order to improve medical practice.

Thus, hormonal, social, economic and cultural pattern, other than ethnical and genetic polymorphisms or gender themselves, together with

tubercular lineages (co-evolved with specific ethnicities), could influence TB localization and determine immigrant TB features. HIV infection also influences clinic presentation with frequent development of EPTB or may hide TB diagnosis especially in absence of specific clinical and radiological signs.

With regard to the the age and the average cost of hospitalization in the migrant and Italian population (data in progress), the average age of those migrants has been shown lower than that of the Italians (33.85 years vs. 62.25 years), while hospitalization costs were found to be overlapping (€ 6110.71 and € 6382.69, respectively). Finally, as regards the cost of screening and prophylaxis of the LTBI, it was found to be of € 54.05 using the intradermal Mantoux, € 87.90, with the QuantiFERON test (Di Nuzzo et al, unpublished results).

3d. TB-related issues and management of infection

TB is an infectious re-emerging worldwide disease and in migrants is growing in countries with low incidence of disease. HIV exacerbates TB and MDR is somehow increasing. Moreover, EPTB forms increase diagnostic delay and hence the cure.

Control strategies need to be adapted to local realities after evaluation of data prevalence/incidence, feasibility and cost/effectiveness. TB transmission among immigrants and natives is still rare, although it could increase in case of scarce TB control. Thus, interventions such as expansion of the free service package and education about TB diagnosis among community health personnel are urgently required for early LTBI or case detection among migrants, particularly those born in a country with a high incidence of disease or in persons exposed to the contact with TB, like close relatives of infectious patients.

In order to achieve these objectives a number of interventions should be adopted:

- Support services to receive and treat migrants
- Improving access to health facilities
- Prevent the development of drug resistance through high quality treatment of drug-susceptible TB
- Improve adherence to anti-TB treatment
- Promote research programs for active case of tuberculosis infection and disease
- Offer vaccination for TB

Due to decreasing knowledge and experience with the diagnosis and management of TB, many cases are diagnosed at a late stage. Medical doctors are encouraged to share their questions with experts and refer to existing guidelines.

4. *HIV/AIDS*

Key facts according the WHO (2014)

- HIV continues to be a major global public health issue, having claimed more than 39 million lives so far. In 2013, 1.5 million people died from HIV-related causes globally.
- There were approximately 35.0 million people living with HIV at the end of 2013 with 2.1 million people becoming newly infected with HIV in 2013 globally.
- Sub-Saharan Africa is the most affected region, with 24.7million people living with HIV in 2013. Also sub-Saharan Africa accounts for almost 70% of the global total of new HIV infections.
- HIV infection is usually diagnosed through blood tests detecting the presence or absence of HIV antibodies.
- There is no cure for HIV infection. However, effective treatment with antiretroviral (ARV) drugs can control the virus so that people with HIV can enjoy healthy and productive lives.
- In 2013, 12.9 million people living with HIV were receiving ART globally, of which 11.7 million were receiving ART in low- and middle-income countries. The 11.7 million people on ART represent 36% of the 32.6 million people living with HIV in low- and middle-income countries (Global AIDS Report 2014; Global Report AIDS. UNAIDS report on the global AIDS epidemic 2013).
- Paediatric coverage is still lagging in low- and middle-income countries. In 2013 less than 1 in 4 children living with HIV had access to ART, compared to over 1 in 3 adults.

4a. HIV/AIDS in Europe and in Italy

HIV/AIDS is a serious public health problem in Europe, where the epidemiological situation, photographed by the European Centre for Disease Prevention and Control (ECDC) in collaboration with WHO Regional

Office for Europe (ECDS, European, is heterogeneous if observed for different geographic areas (Figure 12).

Three decades after the beginning of HIV surveillance in Europe, HIV infection continues to be of major public health importance in the Region. In 2013, 136.235 new HIV infections were diagnosed in 51 of the 53 countries of the WHO European Region (ECDC 2013). Of those infections, 56.507 were officially reported to ECDC/WHO Regional Office for Europe by 50 countries including 29.157 infections from the European Union and European Economic Area (EU/EEA), while information about 79.728 infections was published by the Russian Federal Scientific and Methodological Centre for Prevention and Control of AIDS.

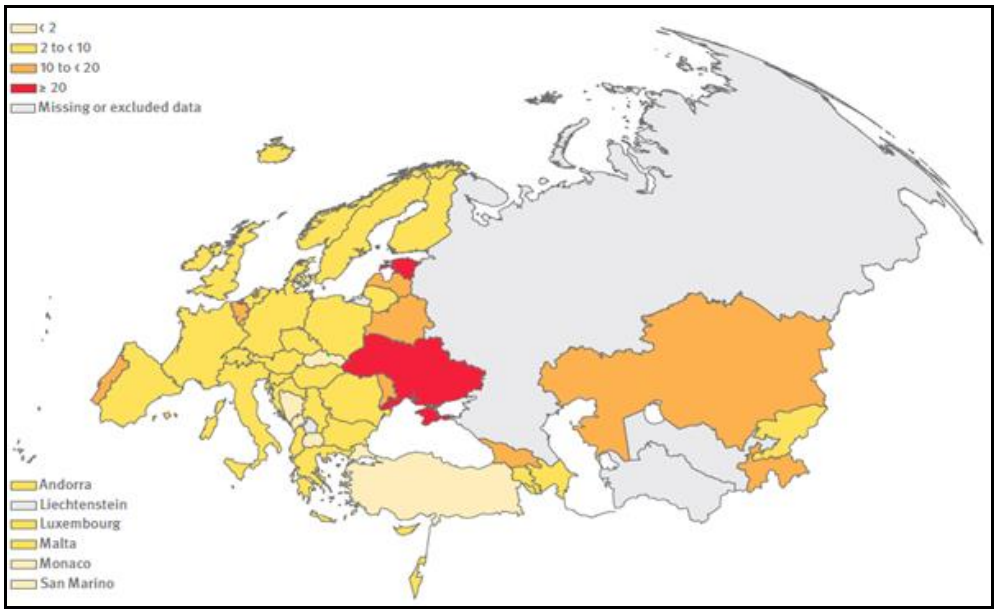

Figure 12 - HIV diagnoses (all cases) per 100.000 population in European Country (WHO, 2013).

The report shows that the highest rates were reported by Latvia and Portugal. In the EU/ EEA, the number of AIDS cases has consistently declined since the mid-1990s.

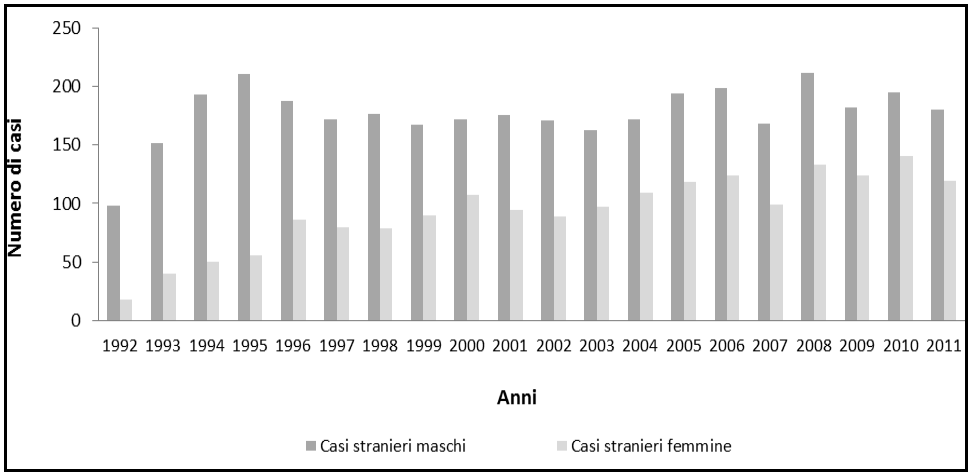

Figure 13 - Increasing number of foreigners in Italy: there were about 5,400 foreigners of 51,000 AIDS cases in the period 1992-2011.

In Italy, the proportion of foreigners among cases has increased from 3% to 20% (Figure 13). In 2013, 24% of people diagnosed as HIV positive is of foreign nationality.

Always in 2013, the incidence was 4.9 of new cases per 100,000 between Italian residents and 19.7 new cases per 100,000 foreign residents (Camoni L, 2014). The incidences observed among foreigners were higher in Lazio, Campania, Sicily and Sardinia (Figure 14). Among the foreigners, the largest share of cases consists of heterosexual females (38.3%), while among Italians, of men who have sex with men (MSM) (45.9%).

Figure 14 - AIDS incidence (per 100,000 residents), region of residence (2013).

Moreover, despite the decreased incidence of AIDS in time, in 2011, still persists a significant difference in rates of foreign residents and those of Italian, from 4 to 10 times higher: 9.1 and 2.7 per 100,000, respectively, among men; 5.3 and 0.5 per 100,000 among women (Figure 15).

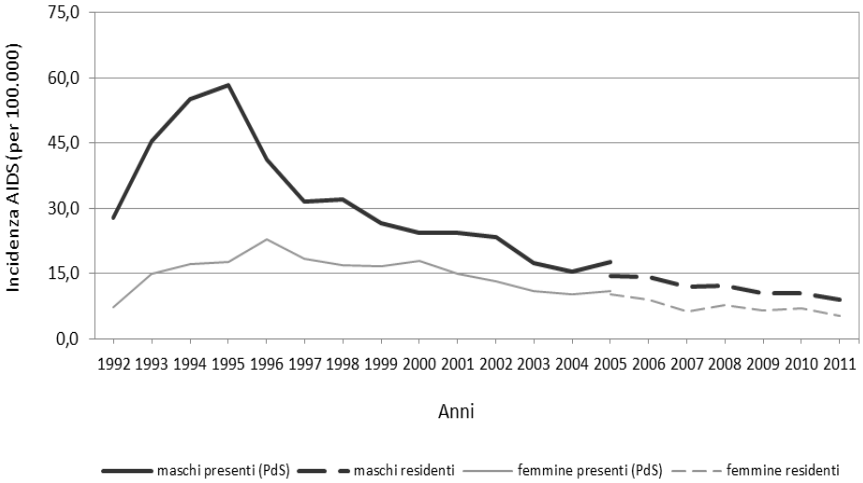

Figure 15 - Incidence rates of AIDS in Italy among foreigners aged over 18 years, by sex.

4b. Features of the foreign population in Europe with newly diagnosed HIV infection

According to Istituto Superiore di Sanità (Camoni et al, 2014), the proportion of foreigners among the new diagnoses of HIV infection has increased from 11% in 1992 to a maximum of 32.9% in 2006; in 2013 (Figure 16) was 24.0%, with an absolute number of cases lower compared to 2012 (865 *vs* 1077).

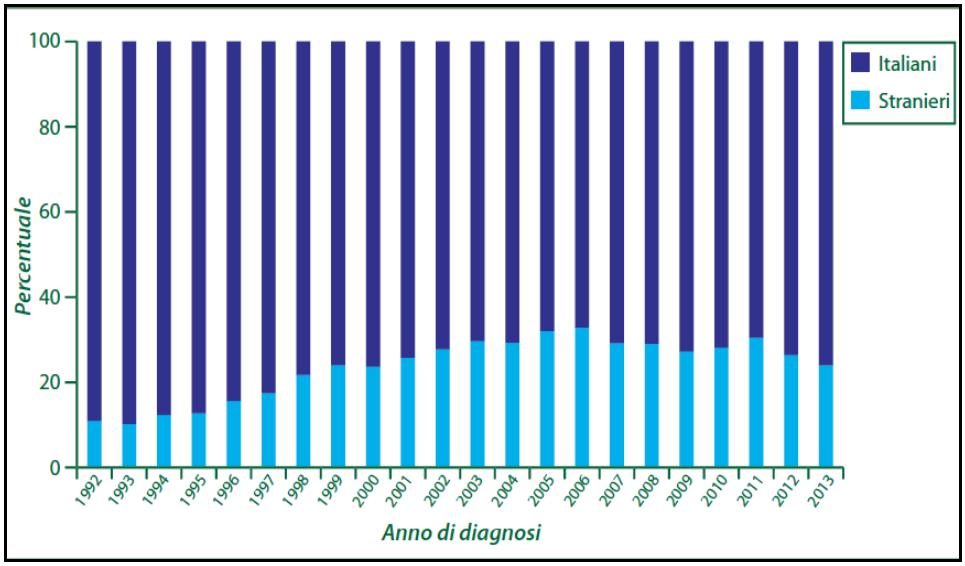

Figure 16 - Percentage distribution of new diagnoses of HIV infection, by nationality and year of diagnosis (1992-2013). Source: ISS, 2014.

In 2013, 43.5% of foreigners with a new diagnosis of HIV infection came from Africa, 27.1% from countries of central and eastern Europe, 21.7% from South America, 4,5% from Asian and 3.1% from Western Europe countries.

The heterosexual intercourse were the most common mode of transmission among foreigners: 26.6% were heterosexual males and 38.3% of heterosexual females. MSM accounted for 18.8% and 2.5% of IDUs total of new diagnoses of HIV infection in foreigners. Among the foreigners, the higher proportion of new diagnoses are found in heterosexual females and heterosexual males, while among Italians in MSM, which make up almost half of new diagnoses among Italians (Figure 17).

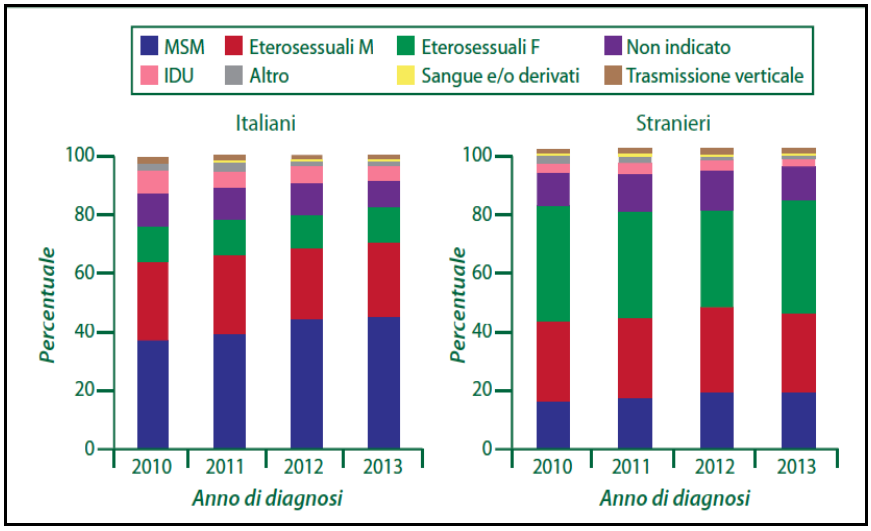

Figure 17 - Distribution of new diagnoses of HIV infection, by mode of transmission, nationality and year of diagnosis (2010-2013).

4c. Incidence of new diagnoses of HIV infection in the foreign population in Italy

In 2013, the incidence of new diagnoses of HIV infection was 19.1 new cases per 100,000 foreign residents compared with an incidence between Italian residents of 4.9 new cases per 100,000 (Figure 17). The incidences were higher among foreigners than Italians in the regions of Centre and Southern Italy (Lazio, Campania, Sicily), while among the Italians, the highest rates were recorded in the Centre-North (Lombardy: 9.9 new cases per 100,000 Italian residents). This prevalence is distributed differently on the Italian territory between Italians and foreigners (Figure 18).

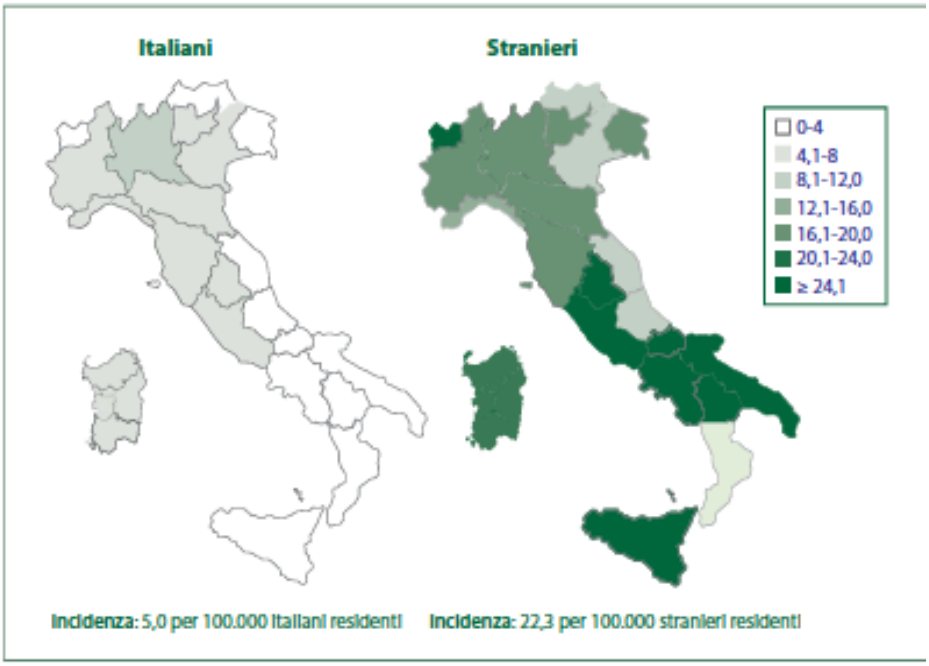

Figure 18 - Incidence of new diagnoses of HIV infection (per 100.000 residents) by nationality and region of residence.

4d. Temporal distribution of AIDS cases

Since 1982, the year of first diagnosis of AIDS in Italy, to 31 December 2013, there have been notified to the COA 66. 336 AIDS cases. Of these, 51,154 (77.1%) were males, 797 (1.2%) occurred in children (<13 years) or transmitted from mother to child, and 6,482 (9.8%) were foreigners. The median age at diagnosis of AIDS, calculated only among adults (≥ 13 years), was 35 years (IQR: 13-88 years) for males and 33 years (IQR: 13-84 years) for females.

4e. HIV/AIDS in the setting of Emilia Romagna

Figure 19 shows the incidence of AIDS cases in Emilia Romagna number of cases of AIDS since the epidemic began.

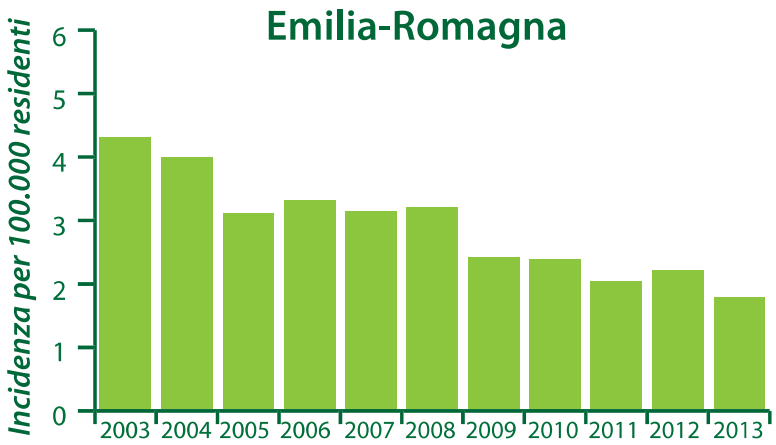

Figure 19 - Incidence of AIDS cases per 100,000 residents per year of diagnosis in Emilia Romagna (not adjusted for notification delay) (2003-2013).

Table 1 - Number AIDS since the epidemic began, by province signaling, residence and incidence (per 100,000 residents) and province of residence (based on cases diagnosed in 2013).

AIDS Cases (n.) in Emilia Romagna

	Segnalazione	Residenza	Incidenza
Bologna	**1744**	**1625**	**2.0**
Ferrara	494	524	1.4
Forlì	461	617	1.5
Modena	814	764	1.7
Parma	533	486	2.6
Piacenza	386	381	1.4
Ravenna	1240	931	2.1
Reggio Emilia	540	491	1.1
Rimini	757	541	1.8

Fonte: ISS 2014

Also with regard to foreigners, the proportion of newly diagnosed HIV infection appears heterogeneous on the territory: the provinces with the

highest percentages of foreign-born cases are Parma (51.2%), Reggio Emilia (41.3%), Piacenza (39.9%) and Modena (35.0%), all provinces belonging to Emilia, an area characterized by a greater presence of foreigners in the resident population. The provinces which contain most cases are Modena and Bologna with more than 200 cases each, then Parma, Rimini and Reggio Emilia. (Camoni et al, 2014) With regard to the country of birth, 40.5% of the foreign born together with the provinces that have a higher proportion of foreigners than Italians are: Parma (66.8%), Reggio Emilia (57.1%) and Piacenza (50.0%). Rimini turns out to be the province that has within it the smaller number of foreigners infected through heterosexual relations (Table 1). Considering the geographical area of origin of the foreign-born, almost 65.1% of reports belongs to people who come from Sub-Saharan Africa, the remainder from Central Europe (10.6%), Eastern Europe (7.5%) and North Africa (7.1%).

4f. HIV-related issues and management of infection

In Italy, one in four people are unaware of being HIV positive; 11 people are infected every day and every year become infected about 4000 people. Mostly are males (male/female ratio is 3: 1) and the most common mode of transmission is by far the unprotected sex (approximately 40% heterosexual cases, 36 % homosexual). Unfortunately, about half of people is diagnosed with the infection recently discovered at an advanced stage (late presenters), when the virus has already produced significant damage to the immune system and the absolute number of CD4 + T-lymphocytes is less than 350 cells/mm^3.

The delay of diagnosis is related to the people who are unaware of their HIV status, now estimated between 15% and 25% of all HIV positive people living in Italy, represented by those subjects unaware of their infection status, who delay or do not perform the test. This is the consequence of the low perception of risk of infection, peculiar trait, today, of the HIV epidemic in the sexually active population in many European countries.

The delay in diagnosis in foreigners as well as in Italians has several consequences: it reduces effectiveness of the therapy, increases the probability of a clinical progression and transmission, as the unwitting subjects of their infection status are also the main source of the infection.

Early access to diagnosis and treatment is now the main challenge global epidemic of HIV/AIDS. Mathematical models applied to different geographical and epidemiological patterns in the planet suggest that to

encourage expanded access and capillary test and treat patients early, not only brings clinical benefits (greater efficiency, better immune recovery, less morbidity, reduced mortality), but also epidemiological (reduced number of new infections, reduced prevalence of HIV in the population), and economic advantages (reduced treatment costs, reduced overall costs of the disease).

Another aspect is that people with HIV, especially the elderly, have most frequent comorbidities including cardiac, neurological, metabolic, renal, liver, cancer diseases. These are the main cause of death related to HIV and are the result of complex pathogenic mechanisms, related to immune dysfunction and state of persistent immune activation and chronic inflammation that characterizes even the natural history of the disease of drug treatment.

Finally, HIV dramatically increases (21-34 times) the risk of development of TB in persons with LTBI, accelerates the progression of TB in persons who have recently acquired infection by M. tuberculosis and is frequently associated to multi-resistant TB (INI e RFP) in Hospitals and prisons. In many cases the infection is linked to that of HCV.

5. Hepatitis

Despite the fact that viral hepatitis has become a global public health threat, both HBV and HCV have remained neglected relative to the attention given to HIV and other diseases.

Given the nature and pace of contemporary migration there is a growing capacity for viral hepatitis to be moved rapidly by people, or acquired by them, as they go from one part of the world to another. WHO estimates that about 2 billion people are living with viral hepatitis, and that around 350 million have a chronic form of the disease.

However, the true figure may be much higher. About 4.5 million people around the world are newly infected with HBV and/or HCV every year, and between 1-10% of adults and 30-90% of infected babies, become carriers, who are likely to develop serious liver diseases that account for around 620,000 deaths each year (Zanetti et al, 2008).

5a. Hepatitis C virus (HCV)

The prevalence of hepatitis C virus (HCV) infection is very high in many African countries, averaging between 5 and 10%, in sharp contrast with the majority of Europe, where it is around 1% (Sroczynski et al, 2009).

In the case of HCV, estimates indicate that three to four million persons are newly infected each year, 170 million people are chronically infected (Figure 20). In North-Eastern Italy, pregnant women have shown a prevalence of HCV infection of 1.9% .

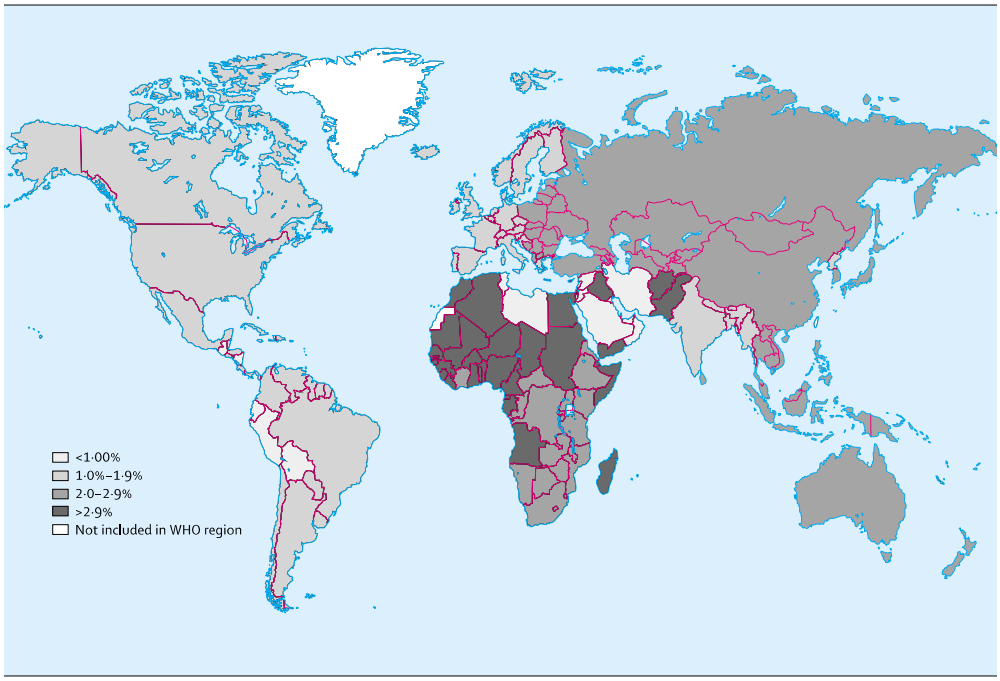

Figure 20 - Estimated prevalence of HCV infection by WHO region (WHO data, 2012).

About 85% of those people infected also become chronic carriers (Merkinaite et al, 2008) and between 15-25% of them go on to develop to life-threatening liver disease in the 30 or so years, following infection (Mühlberger et al, 2009) and are at risk of developing liver disease including cirrhosis and liver cancer. Moreover, 350,000 deaths occur each year due to all HCV-related causes (Shepard et al, 2005).

The high prevalence of HCV infection requires a global commitment to primary prevention, including the development of vaccines, as well as new strategies for secondary and tertiary prevention to reduce the burden of chronic liver disease and to improve survival for those who already have evidence of liver disease.

5b. Hepatitis B virus (HBV)

Hepatitis B virus (HBV) infection is a global health problem, approximately 2 billion people in the world have been infected by HBV, and more than 350 million are chronic carriers of the virus. Approximately 1 million people die each year due to HBV infection.

This infection is present mainly in some countries such as Middle-East and South-East Asia, sub-Saharan Africa, Central and South-America and East-Europe, with a prevalence > 8% of population and an HBsAg positivity rate of 1% (Figure 21).

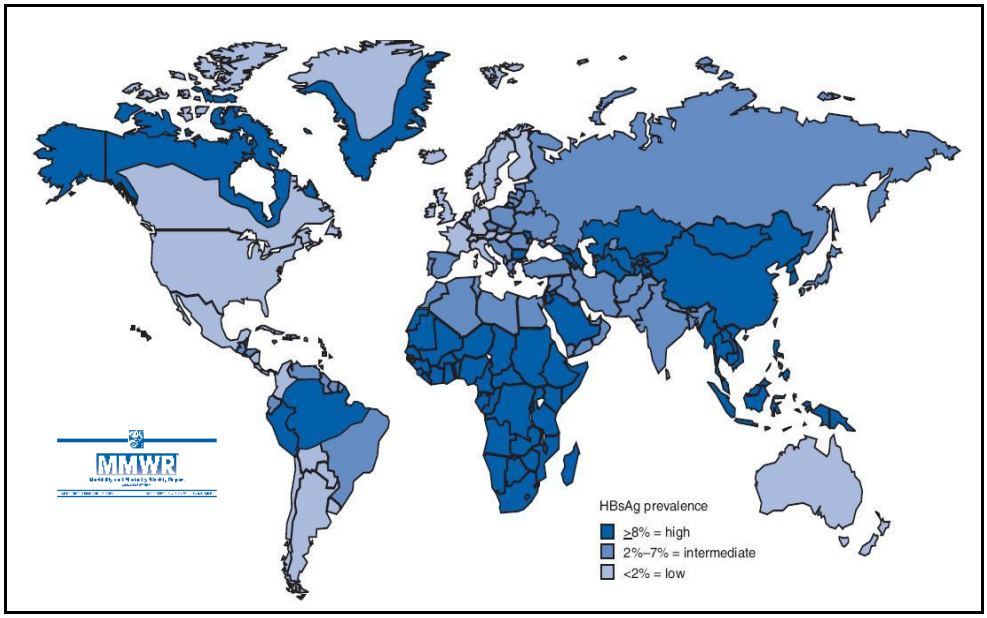

Figure 21 - Geographic distribution of HBV infection according MMWR 2011. In areas with high prevalence of HBV infection, the risk of hepatocellular carcinoma is about 100 times greater in infected than non-infected.

5c. Hepatitis B in Italy

The epidemiology of hepatitis B in Italy has undergone significant changes over the past 25 years. Until the '80', Italy was considered a highly endemic country with wide geographical variations in the prevalence of chronic carriers of HBsAg (the prevalence in the general population was

equal to 2-8% with the highest levels found in southern areas and the islands); moreover, intrafamilial transmission was the most common mode of virus spread, the majority of chronic carriers were HBeAg positive, and infection by virus Delta was frequently found. Now Italy has become a country at low endemicity for HBV infection. This derived from the progressive improvement of hygienic and economic conditions (especially use of disposable syringes), better knowledge of the routes of transmission, better prevention and the extended use of vaccination since 1991 (Piazza et al, 1988).

The constant increase of the migratory flows of individuals with chronic HBV infection from endemic countries (Middle-East and South-East Asia, sub-Saharan Africa, Central and South-America, East-Europe and China) where the prevalence is > 8% of population, contributed substantially to the prevalence of chronic HBV infection in low-endemic countries including our country.

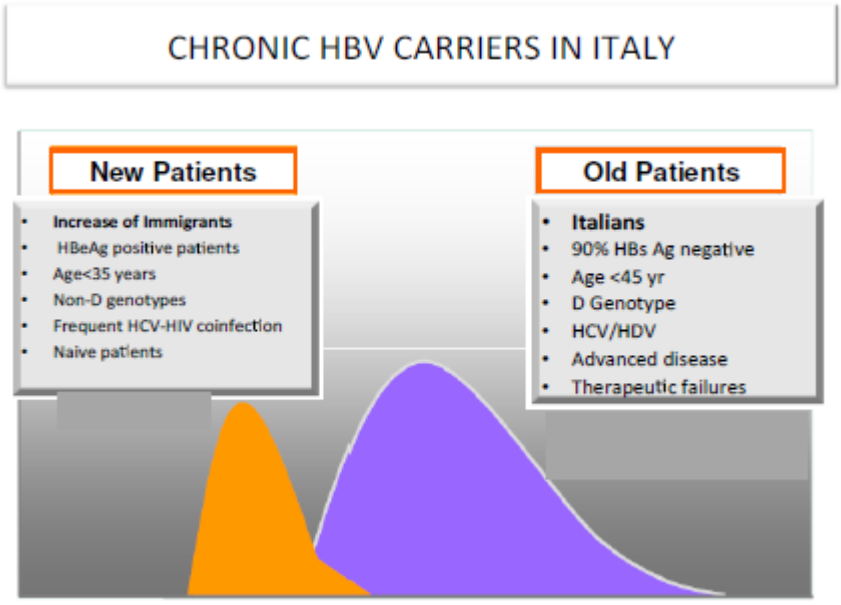

Figure 22 - Type HBV carriers between Italians and immigrants. "Old patients" refer to the Italian situation in 70-80 years.

After thirty years, the epidemiological picture has completely changed: in Italy the percentage of chronic carriers in the general population is probably less than 1%; geographic variations in the prevalence of chronic

carriers no longer exist; sexual transmission is the most common mode of infection acquisition and most chronic carriers including foreigner patients are anti-HBeAg positive, while only 10-15%, HBeAg positive. Differences between new and old patients are shown in Figure 22.

5d. Hepatitis B in migrants in Italy

Italy is one of the European countries with the largest number of immigrants coming from endemic areas for infectious diseases, including HBV and HCV hepatitis.

In migrant populations, viral hepatitis is the third most infectious disease observed, chronic B hepatitis being the prevalent form. Of the six hundred thousand carriers of the virus in Italy, two hundred and fifty are immigrants.

Despite the continuous immigration of subjects from endemic countries, the overall prevalence of HBV infection is unchanged. However, as immigration from non-EU countries continues to grow, the integration of HBsAg positive immigrants into the local social context might lead to the spread of HBV infection among the unvaccinated resident population, increasing the number of new adult infections through risky life-style habits (i.e. promiscuous sexual contacts, prostitution, drug addiction, etc.) or professional accident (i.e. needle prick in non-immune health care workers) that in some way can contribute to changing the epidemiology of HBV infection in Italy.

A further emerging problem is the increase of carriers of HBV resistant to anti-viral drugs, which could lead to infections from HBV resistant virus.

5e. Hepatitis B in the setting of Ferrara

In Ferrara, a city in the north of Italy, there are 22,000 prevalently young resident foreigners, most of whom come from Morocco, Romania, Albania, Ukraine, Moldavia and Pakistan, all areas considered to be intermediate-high endemic for HBV infection.

Early diagnosis in these populations is very important either to prevent serious complications such as cirrhosis and hepatocellular carcinoma to the health of patients, or to reduce the spread of infection in the general population.

Considering that immigrants often present demographic, clinical and virological characteristics different from those of Italian patients and

expecting a change in the scenario of HBV-related disease in our area, we carried out a retrospective analysis of the demographic and clinical/laboratory characteristics of chronic HBV infection in migrant patients observed in our Institution from a ten year period (1997-2009).

We retrospectively investigated the patterns of chronic hepatitis B in 154 patients (76 foreigners, 78 Italians) observed in our Institution, with regard to demographic and clinical/laboratory characteristics (Contini et al, 2012 [1]). The immigrants were younger compared to Italians (Figure 23), mainly came from Eastern EU countries, sub-Saharan Africa and Asia and have lived in Italy for < than 2 years).

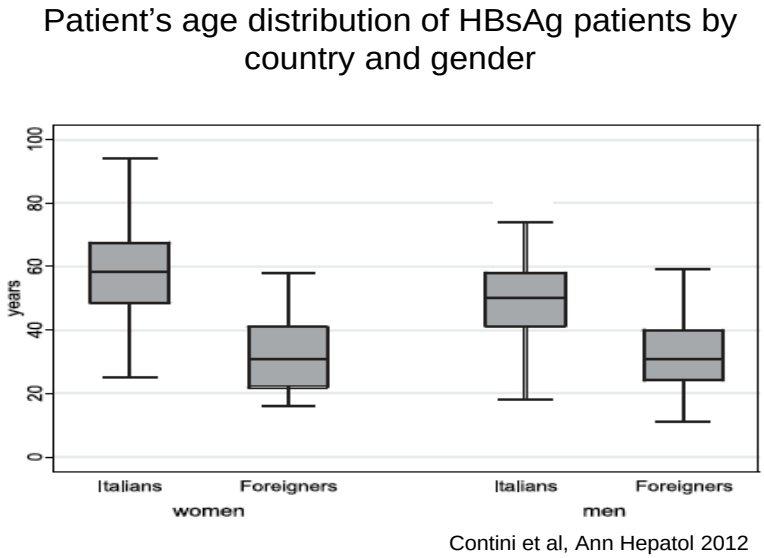

Figure 23 - Patient's age distribution by country and gender. There were no differences by age between total women (n = 55; mean value: 42.9 years) and total men (n = 99; mean value: 41.9). Mean age values are higher in Italian women (56.6 years) than in foreign women (32.2 years; $p < 0.001$) and also in Italian men (49.8 years) than in foreign men (32.2 years; $p < 0.001$).

Regarding exposure to HBV, the intra-familial risk factor was most frequently observed in foreigners, compared to Italians ($p = 0.03$) (Figure 24).

Risk factors	Italians (n = 18/78; 23%), n (%)	Foreigners (n = 19/76; 25%), n (%)	Crude OR (95% CI)	Statistics*	Adjusted OR (95% CI)	Statistics*
Classical	10 (55.6)	2 (10.5)	0.15 (0.02-0.84)	0.011	0.29 (0.05-1.64)	0.16
Intrafamilial	6 (33.3)	15 (78.9)	7.5 (1.41-43.44)	0.03	3.78 (0.73-19.48)	0.11
Inapparent	2 (11.1)	2 (10.5)	0.44	0.51	0.44 (0.02-7.39)	0.52

OR: Odds Ratio. p value (t test).

Contini et al, Ann Hepatol 2012

Figure 24 - Distribution of risk factors for HBV infection in Ferrara, Italy. Estimated crude OR by univariate analysis (Foreigners vs. Italians) and adjusted estimated OR by model with age.

Foreigners also showed a higher prevalence of HBeAg positive forms, HDV co-infection (7.9%) and abnormal ALT and/or HBV-DNA values, compared to Italians. HBeAg positivity was more associated with increased ALT (OR = 36.6, p = 0.001) than with elevated HBV viremia (OR = 6.5, p = 0.049); age was a protective factor (OR = 0.1; p = 0.014). No significant association was found between increased ALT and foreign nationality. The simultaneous presence of increased ALT and viremia was more frequent among foreigners, (OR = 7.6, p = 0,014) and increased with age (OR = 1.06, p = 0.013). Antiviral therapy was given in 7.8% of foreign citizens. In this setting, young migrants, especially those from Eastern EU, who are well-integrated into the local society, without hepatic failure and reluctant to commit a long duration with treatment, were more willing to undertake treatment with INF-therapy, which, as well known, may reduce work ability and decisively affects the residence permits and economic maintenance of family members. African or Chinese people with contraindications to IFN and willing to commit to long durations of treatment, underwent NUC administration as initial therapy. NUCs, however, raise the question of possible long-term toxic effects in young subjects other than the lack of opportunity to continue treatment after a possible return to the country of origin (Contini et al, 2012 [1]).

Regarding the HBV genotypes, the non-D HBV genotype was found in the majority of patients. Only one of them had a C genotype normally diffused in Asia only and demonstrative either of the spread in the Italian

population through sexual transmission, or the potential redistribution of HBV genotypes in our country.

The careful monitoring of the diffusion of different genotypes in the immigrants infected by HBV especially among individuals from areas with strong migratory pressure and high endemicity, in particular Eastern EU, North and Sub Saharan Africa and China, is of importance as they may require a different clinical and therapeutic approach as compared to genotype D.

The data on viral genotype, although preliminary, testify the need of monitoring in future years, in order to highlight the spread in our country of HBV of genotype non-D.

5f. HBV-related issues and management of infection

Immigrants constitute a vulnerable population subgroup that would benefit from a more active approach regarding doctor-patient relationship for early recognition of HBV and treatment programmes. There is however the need for *i*) screening subjects at risk for hepatitis and to implement the use of the vaccine against HBV; *ii*) working to reduce barriers to treatment: the doctor-patient relationship is in fact more difficult owing to language and cultural barriers and probably represent the basis of the small number of foreign patients who undergo regular clinical and laboratory follow-up and who accept the liver biopsy; *iii*) need to recruit foreigners in a health care programme aimed at antiviral therapy; *iv*) policies adapted to local needs.

6. Parasitic and rare diseases in migrants

Migrants are particularly vulnerable to several persistent parasitic diseases due to exposure in their country of origin and their specific living conditions.

With regards to the parasites (intestinal and not), the notification data are practically unusable, for two reasons: a) the great majority of cases are not diagnosed for the absence of clinical suspicion and for the low sensitivity of the direct laboratory methods, especially if carried out in non-specialized centres; b) even when they are diagnosed, these are not normally notified. It is therefore necessary to set, in laboratories which also make parasitology, an organized and reasoned operation to applying all the diagnostic methods available and coded paths, according to the national guidelines and international. It should also be noted that for the highlight of

a parasitosis bowel is necessary to analyse more faecal samples from the same subject in order to ensure a better diagnostic performance and avoid dangerous underestimated and false negativity.

There is however, a number of parasitic diseases potentially serious and fatal, for which data are available only in a few specialized and equipped centres for diagnostics.

American Trypanosomiasis or Chagas disease is an endemic disease mainly in Central and South America. The Bolivian immigrant population has the highest prevalence of Chagas carriers (6.7%–25%) compared to the overall Latin American population (1.3%-2.4%). A part with the transmission with the feces of *vinchuca*, the disease can be transmitted through blood transfusion and organ transplant or tissue, as well as by maternal-fetal route.

Because of human migration, many Latin American immigrants arrived in Europe, especially in Spain, Italy, and Switzerland. As to be expected, the distribution of the prevalence of carriers in Europe is determined by the prevalence in the country of origin (Ortí-Lucas et al, 2014). Therefore, the highest prevalence is found in Bolivian immigrants living in Spain (Barona Vilar et al, 2012). Italy is the second European country for the estimated number of cases, after Spain. There is an estimated number of at least 7,000 people, mostly of Bolivian origin, for which there is no capillary screening program or available treatment. So far, only Negrar, Bergamo, and Florence in Italy, are the only centres which take preventive measures through screening of blood donors. The cases are concentrated mainly in Northern Italy and in particular in Lombardy.

Table 2 shows a review of the articles published in the last five years with prevalence data from nonendemic European countries for Chagas disease.

Chagas disease in immigrants subjects generally unaware of their infection status, is an emerging health problem in non-endemic countries of destination. Not treated-Infected individuals can be source of disease transmission for the entire life.

Table 2 - Estimation of the Bolivian immigrant population infected with *T. cruzi* residing in European countries.

Country	Immigrant population of Bolivia (*n*)*	Prevalence (%)	Affected population (*n*)
Spain	199.080	18.52†	36.867
Italy	40.080	17.80‡	7.134
Switzerland	10.200	25.00¤	2.550
France	6.050	25.00+	1.513
Belgium	2.900	14.80**	429
The Netherlands	2.600	6.75β	176
United Kingdom	4.000	N.A.	N.A.
Germany	3.000	N.A.	N.A.
Sweden	2.000	N.A.	N.A.
Austria	1.900	N.A.	N.A.
Croatia	1.100	N.A.	N.A.
Denmark	1.350	N.A.	N.A.
Portugal	1.800	N.A.	N.A.
Romania	1.200	N.A.	N.A.

The cases observed in Italy show that in over half the cases, the disease is often indefinite, as chronic. It not always could benefit from a treatment that would reduce the rate of progression to severe forms with organ localization (myocardium, gastrointestinal system) with a fatal outcome.

Chagas disease has been defined as the "*New Aids of Americas*": 50,000 deaths per year, people affected, between 10 and 20 million people and debilitating chronic infection in 30-40% (Tarleton et al, 2012).

Strongyloidiasis, is a rare disease responsible of preventable deaths due to the disseminated form, unleashed by immunosuppression by concomitant disease or drug-induced, both in the immigrant or in native population (Abrescia et al, 2009). This disease is still prevalent in the submerged Italian elderly population but it is almost never diagnosed and has a significant load of morbidity/mortality. The only drug with proven efficacy, ivermectin, has never been recorded in our country for human use. Recent data have documented a very high prevalence in both the immigrant population from Latin America (about 10%), and in immigrants of various nationalities with HIV infection, of which a significant part also had a history of corticosteroid treatment, which represents a recognized risk factor for the disseminated form (Mascarello et al, 2009).

According to a recently published work, the prevalence of positivity for intestinal parasites among the foreign immigrants regularly residing in the province of Pavia (Italy), was 16.9% (27/160) compared to 6.2% (84/1343), of subjects who were born in Italy (Guidetti et al, 2009). This probably because of the precarious hygienic conditions in which migrants

are forced in our country. *Giardia intestinalis, Dientamoeba fragilis, Enterobius vermicularis, Blastocystis and Taenia spp*. parasites are encountered more frequently. This epidemiological investigation revealed the need to pay more attention to those immigrants and travellers to endemic areas, as potential carriers of parasites in the community.

Schistosomiasis ranks second only to malaria among the parasitic diseases affecting humans with regard to the number of people infected and the risk of becoming infected globally. The World Health Organization (WHO) recognizes schistosomiasis as one of the 17 neglected tropical diseases, which are mostly persistent and prevalent in people and communities living in poverty and social exclusion, and jointly affects more than 1 billion people worldwide. It is estimated that schistosomiasis infects more than 200 million people globally and causes an annual loss of between 1.7 and 4.5 million disability adjusted life years (DALYs). Genitourinary schistosomiasis (bilharziosis) is endemic in subtropical Africa, South America, Middle East, Portugal and Cyprus, and is the main disease of genitourinary for about 200 million people. The evolution of the disease and chronicity depends on the host immune response to schistosome eggs deposited in tissues and granulomatous reaction evoked by the antigens secreted by Schistosoma haematobium.

The increase of migration flows in Italy resulted from globalization and the international mobility of people, has seen in the Italian territory, the appearance of some parasites practically non-existent in our country including Schistosoma, leading to a real difficulty of diagnosis and treatment in a short time especially when are present haematuria associated with dysuria and / or urinary incontinence in patients from endemic areas.

The macroscopic haematuria associated with dysuria and/or urinary incontinence observed in 2 our patients from endemic areas (Ghana), should therefore be considered as one of the hallmarks of urinary schistosomiasis or bladder cancer associated with it. The definitive diagnosis resides, as in cases observed by us, in the timeliness of histology and sero-immunological examination. The medical therapy led to eradication in the absence of side effects.

Cysticercosis remains a challenge for European care providers, since they are often poorly aware of this infection and have little familiarity in managing this disease. Cysticercosis should be included among mandatory reportable diseases, in order to improve the accuracy of epidemiological information. European health care providers might benefit from a transfer of knowledge from colleagues working in endemic areas and the development

of shared diagnostic and therapeutic processes would have impact on the quality of the European health system.

Although documented since antiquity, leprosy is still endemic in large areas of Asia, Africa, Latin America and Oceania and it is concentrated (92% of cases) in 25 countries of tropical regions of which 80% of these are registered in India, Brazil, Bangladesh, Indonesia and Burma.

In Italy, between 1990 and 2009, a total of 159 cases have been diagnosed almost exclusively in extra-EU immigrants. It is currently included among the rare diseases and can occur in any part of the national territory as an imported pathology in native individuals, or, especially, in immigrants from these regions. Native outbreaks of Liguria, Puglia, Sicily and Sardinia are now virtually extinct.

In 2012 we described a case of Leprosy with simultaneous skin lesions and neuropathy. Although the absence of the positivity of the skin smear, this was a paradigmatic example of Hansen's disease and was the first occurred in Italy since 2009 (Maritati M et al, 2012). The MEDLINE and PubMed databases were searched for publications on imported leprosy in Italy from 2009 to 2013. No cases were found during this period.

The lack of knowledge of the geographical epidemiology of tropical diseases makes the medical class unaware of the aetiology, resulting in delayed diagnosis. In addition, the different "faces" of clinical disease, easily create difficulties in the differential diagnosis with other pathologies, particularly during the early stages.

7. Sexually Transmitted Diseases

Sexually Transmitted Diseases (STDs) represent an important group of infectious diseases widespread throughout the world. According to the WHO, the impact of four STDs between the most widespread, corresponds every year, to 498.9 million of new cases (WHO 2012). These consist in 276.4 million of new cases of infection from *Trichomonas vaginalis*, 106.1 million new cases of gonorrhea, 105.7 million new cases of infection from *Chlamydia trachomatis*, 10.6 million new cases from syphilis, among women and men aged 15 to 49 years. Figure 25-27 show the occurrence of most STDs in the world and their prevalence for nationalities and geographic areas.

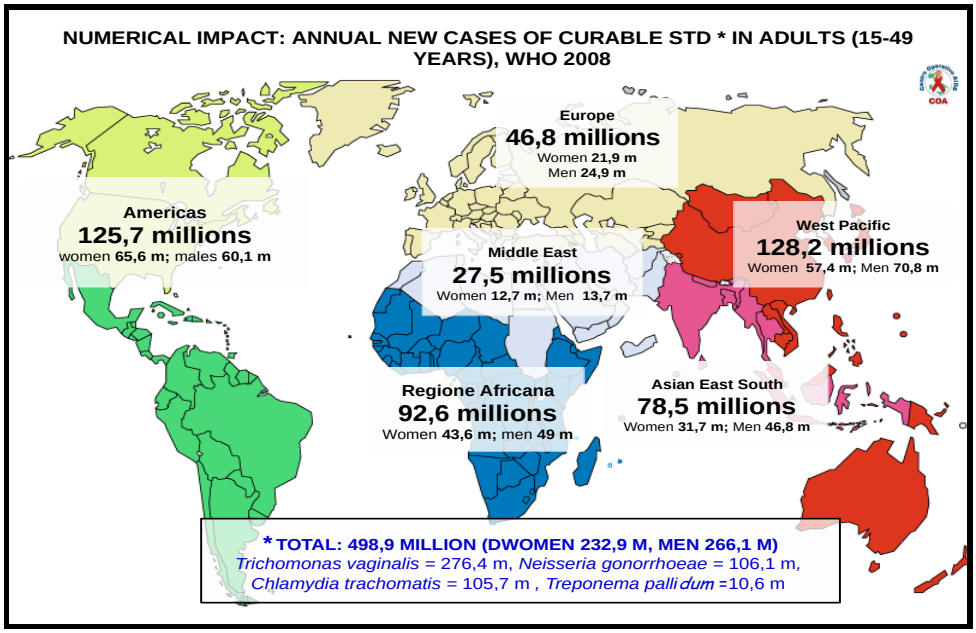

Figure 25 - Most STDs occur in the Western Pacific Region (128 million of new cases per year), Americas (125.7 million of new cases per year) and in the African Region (92.6 million of new cases per year). STDs are also spread in the European Region (46.8 million of new cases per year).

The prevalence of *T. vaginalis* is greater in immigrants than Italians, whereas there are not differences between Italians and immigrants in the prevalence of Neisseria gonorrhoea (Figure 26).

Syphilis affects more men than women, with an incidence rate, in 2011, almost four times compared to women (7.5 cases per 100,000 men vs. 1.9 cases per 100,000 women). The trend of syphilis cases I-II has remained relatively stable until 2000. After 2000, cases of syphilis I-II showed a significant increase (2005) in diagnoses of about ten times compared to 2000 and, subsequently, a reduction and stabilization until 2012 (Salfa et al, 2012).

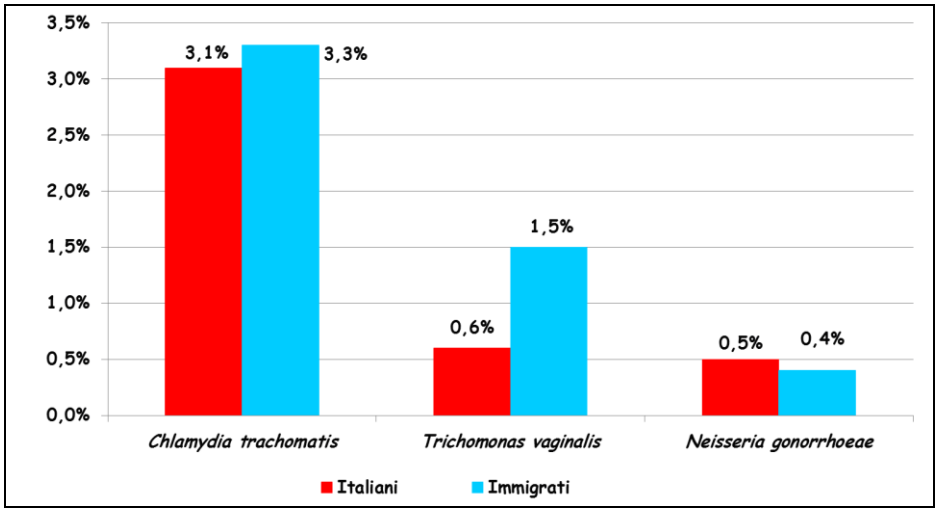

Figure 26 - Prevalence of the *C. trachomatis, T. vaginalis and N. gonorrheae* infections for nationalities (Surveillance System of STIs based on clinical microbiology laboratories, April 2009 - December 2012. Source, ISS 2014).

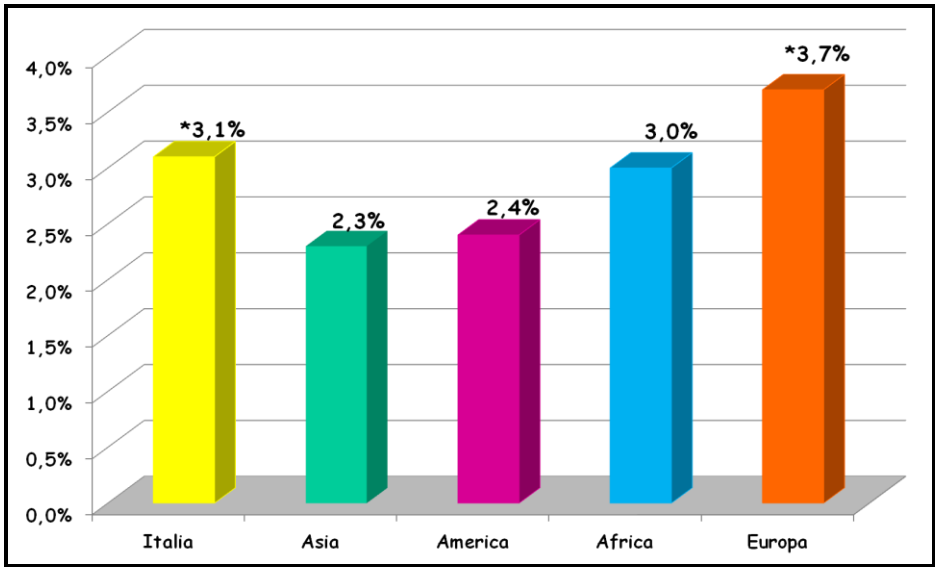

Figure 27 - Prevalence of *C. trachomatis* by geographical area (Sentinel Surveillance System of the IST-based laboratories, April 2009-December 2012): Strangers =3.3%; Italians = 3.1%.

In Italy, 1/6 of patients with STDs are foreigner. Immigrant women have a higher prevalence of C. trachomatis than the Italian, especially when young and pregnant. Approximately 40% of immigrant women with *C. trachomatis* are asymptomatic. The highest share is in pregnant women and young people (Table 3).

Table 3 - Asymptomatic people with *C. trachomatis* infections can undergo many complications to reproductive apparatus such as: endometritis, salpingitis, sterility, ectopic pregnancy, spontaneous abortus and epididymitis.

Rates of Asymtomatic Persons: According to WHO

	MALES	FEMALES
GONORRHEA	5%	95%
CHLAMYDIA	20%	75%
TRICHOMONIASIS	90%	50%

In recent years, there has been, among immigrants, an increase of the main bacterial STIs and anogenital condilomas; approximately 25% of immigrants with STDs is not tested for HIV (Fenton et al, 2004; Salfa et al, 2014). In this setting, there is a high prevalence of HIV infection in immigrants with STDs (5.2% of positive HIV persons in 2009-2012) which is about 25 times higher than that estimated in the general population (Figure 28).

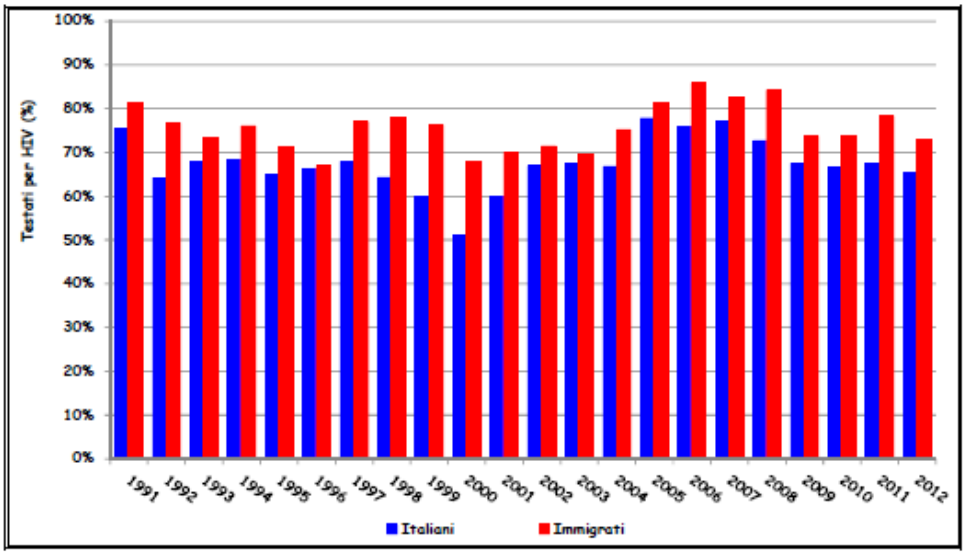

Figure 28 - Percentage of patients with STDs tested for HIV, by nationality (Sentinel Surveillance System of the IST-based clinical centres, 1991-2012: Italians =73. 153; immigrants = 17 920).

There are also numerous and widespread genital viral infections such as those caused by Herpes simplex virus type 1 and 2 (HSV-1 and 2) or by Human papillomavirus (HPV) (2, 3). Most of the MST occurs in developing countries, but are also common in more developed countries. In Europe, in the mid-90s, after a decade of decline, there was a unexpected resurgence of bacterial STDs (syphilis, gonorrhoea, C. trachomatis), especially in large cities and in some groups of the most at risk population (foreign females and young male homosexuals). Persons with syphilis have a 7 times greater risk of contracting HIV infection. Moreover, condilomas are increasing and HIV diffusion among foreigners with STDs is particularly high in some patient subgroups (Salfa et al, 2014).

7a. STD-related issues and management

STDs are widely spread worldwide, affecting millions of people every year. In Italy, 1/6of patients with STDs are foreigner. A number of issues should be taken into account:

- Encourage prevention, early diagnosis and treatment (eg. anti-HBV vaccination and HPV, Pap tests, therapeutic control even of partners, promoting HIV and syphilis testing, especially considering the elevated rate of immigrants with HIV and STD who are unaware of their serostatus for both infections).
- Educate to sexual health through information and teaching (eg, condom use, reducing the number of sexual partners);
- Increase and facilitate the offer of diagnostic tests to identify even asymptomatic cases (eg. *C. trachomatis* screening in young women, prenatal screening for latent syphilis).
- Involve the different immigrant communities, scientific societies, the various professionals and institutions, to ensure the effective implementation of measures for the promotion of sexual and reproductive health.
- To develop a national plan for the prevention of STDs and activate surveillance programs of behaviour.

The European Centre for Disease Prevention and Control (ECDC) coordinates the European surveillance of STDs in 30 countries of the European Union (EU) and the European Economic Area (EU/EEA). Following the recommendation of international guidelines, a sentinel STDs surveillance system started in Italy in 1991, coordinated by the National AIDS Unit (Centro Operativo AIDS - COA) of the Italian National Institute of Health. The data collected by the ECDC system serve to integrate and compare those collected from other European active surveillance for STDs, helping to shape the European framework of the spread of STDs.

8. Conclusions

Infectious diseases, although represented in part in the context of the well-known pathologies of which migrants are affected, are frequently observed in our health facilities. Most of these are common infections, caused by pathogens widespread in Italy and influenced by the living conditions of migrants. There are no health emergencies so far, indicating that migration flows are not associated with an increased risk of communicable disease transmission in Italy. The phenomenon of "globalization," however, has favoured in part the emergence of new infections and the resurgence of others, which seemed likely to decline or even to extinct. The risk of contracting TB is equal to 10-15 times higher

among immigrants than the Italian population; HIV/AIDS, according to data from the National Institute of Health, shows a steady and rapid increase in the time of AIDS cases reported in foreigners. STDs including other than AIDS, syphilis, hepatitis B, HPV infection, gonorrhoea, Chlamydia, etc., also facilitated by the conditions of sexual exploitation faced by women and men migrants, can cause acute symptoms, chronic infection and serious long-term complications for millions of people every year, and whose care absorb substantial financial resources. Finally, parasitic infections and rare diseases cannot be neglected.

In this setting, a number of interventions should be adopted in order to improve access to health services to receive immigrants constituting a vulnerable population subgroup that would benefit from a more active approach regarding doctor-patient relationship for early recognition of some infectious diseases and prevention/treatment programmes.

In view of the findings emerged so far, some considerations need to be done:

i) TB transmission among immigrants and natives is still rare, although it could increase in case of scarce TB control. Thus, interventions such education about TB diagnosis among community health personnel, are urgently required for early LTBI or case detection among migrants, particularly those born in a country with a high incidence of disease.

ii) Early access to diagnosis and treatment is now the main global epidemic challenge of HIV/AIDS. The delay in HIV diagnosis in foreigners (as well as in Italians), reduces effectiveness of the therapy, increases the probability of a clinical progression and transmission.

iii) There is the need of screening subjects at risk for hepatitis and to implement the use of the vaccine against HBV and working to reduce barriers to treatment.

iv) STDs are widely spread worldwide, affecting millions of people every year. Prevention, sexual education and developing a national plan for the prevention of STDs and activate surveillance programs of behaviour, now represent the greatest challenges.

9. Final considerations

1. It’s necessary to promote the awareness that the decrease of the level of health in vulnerable groups of the population, increases the economic burden of health costs.
2. The responsible of the spread of the diseases is not the “foreigner”, the “other”, the “different”, according to the centuries-old habit of downloading the blame on those who are perceived as foreigners". The true “infector” is a system that produces inequality and marginalization.
3. The binomial “Migrant-Infectious-Diseases” should not lead to prejudices and fears” often unjustified regarding the actual health risk caused by the presence of migrants in our country.
4. The migrations are a source of stress and health hazards, resulting in a total uprooting from the country of origin and from their safeties. The migrant should instead be considered a resource to protect for the welfare of the society in which we live.

To date, the protection of the health of migrants is of strategic importance. One of the challenges in public health concerns the need to ensure protection for that people who for various reasons is still living on the margins of the system, in terms of social, economic and cultural vulnerability.

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Assessment of nutritional status and body image perception on immigrants

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Abstract - The valuation of the nutritional status and body image perception of the immigrant population is important to detect exposed groups at risk and to make nutritional recommendations. The assessment of nutritional status can be carried out through different methods, among which Anthropometric ones are especially recommended in case of large immigrant flow. This assessment is an important basis for developing an effective strategy to improve nutrition and health status in immigrants.

Abstract - La valutazione dello stato nutrizionale e della percezione della immagine corporea nella popolazione d'immigrati è importante per l'individuazione di gruppi a rischio, in modo da fornire le opportune raccomandazioni nutrizionali. La valutazione dello stato nutrizionale può essere effettuata mediante diverse metodologie. Il ricorso ai metodi antropometrici è particolarmente consigliabile nel caso di un grande flusso d'immigrati. Questa valutazione può costituire un'importante base di partenza per sviluppare una strategia utile a migliorare lo stato nutrizionale e di salute dell'immigrato.

1-Introduction on nutritional status

The nutritional status is the current condition of health of a person or a group related to their intake and utilization of nutrients. It is influenced by endogenous (age, gender, ethnicity) and exogenous (nutrition behavior, physical activity, cultural, social and economic circumstances, etc.) factors.

Malnutrition is the consequence of a lack or excess of nutrients and/or faulty utilization of them. Currently malnutrition, leading to either underweight or overweight, is one of the major public health problem (Livingstone, 2001; Kaur et al, 2003; United Nations Children's Fund et al, 2012; Olearo et al, 2014; etc.).

The ethnic groups are different in anthropometric characteristics related to the genetic component (Gualdi-Russo et al, 2014a). However, in addition to genetic differences, behavioral differences in diet and exercise habits between ethnic groups could also contribute to disparities in the onset of obesity.

The process of migration generally occurs in few stages (Bhugra, Becker, 2005). The initial stage of migration generally has a lower incidence on health than the later stages (Gadd et al. 2006). During the post-migration stage, the impact of low-income condition and the high prevalence of poor lifestyle habits are associated with differences in attitudes towards healthy foods, limited knowledge about healthy diets, decreased awareness of the benefits of a healthy diet (Jonnalagadda, Diwan, 2002). An inadequate diet, combined with an inactive lifestyle, contributes to the tendency toward centralized obesity (Toselli et al, 2008).

Immigrants, generally coming from nations with high prevalence of malnutrition due to nutritional deficiency, arrive in a new country characterized by high prevalence of malnutrition due to an excess of food. In a recent review on nutritional status of children of immigrants in Europe (Gualdi-Russo et al, 2014c), an increase in overweight and obesity has been reported with a higher prevalence among immigrants from North African countries.

Obesity is associated with a variety of chronic diseases including hypertension, diabetes, cardiovascular disease, and hyperlipidemia (Wilson et al, 2002; Wellman and Friedberg, 2002; Lear et al, 2009). Therefore, subsequent monitoring may be necessary to guarantee the health of the immigrants and to avoid the risk of a transition to poor health over time.

The nutritional status can be assessed by anthropometric, clinical, biochemical and dietary methodologies. Only the first one assessment will be examined in this paper with reference to its applicability on immigrants. The assessment of nutritional status by anthropometrics is a good strategy in case of immigrants. Basic nutritional assessment by anthropometry is useful not only in developing countries, but also in countries in emergency conditions for immigration as European countries. It involves simple direct measurements to monitor people. The well-known advantages coming from an anthropometric evaluation are reported in Table 1.

Table 1 - Assessment of nutritional status in immigrants

ANTHROPOMETRIC ADVANTAGES
➢ **This simple and quick method may be used on many people;**
➢ **anthropometric instruments are simple, non-expensive and need minimal training;**
➢ **anthropometric method is safe and non-invasive;**
➢ **it measures many variables of nutritional significance;**
➢ **the measurements ratio ("anthropometric index") may give further important information.**

Despite the clear advantages, there are also some limitations in an anthropometric assessment of nutritional status, such as, in particular, the methodological inability to identify specific nutrient deficiencies. Among anthropometric parameters (Table 2), the most frequently used measure of underweight, overweight and obesity is the body mass index (BMI). Waist girth, especially, and waist-to-hip ratio could be, however, more useful as measures of visceral fat than BMI to predict morbility and mortality in well-nourished subjects (Larsson et al., 1984; Lee et al, 2008) and, in particular, in immigrants (Gualdi-Russo et al, 2014b). MUAC is the most appropriate indicator of the nutritional status in under-nourished children (WHO, 2013), especially when used with age-specific cut-offs (Laillou et al, 2014). Ethnic- and gender-specific equations were suggested for predicting parameters of body composition (FM; FFM) from Bioelectrical impedance analysis in children (Nightingale et al, 2013). Other detailed methodological indication on the nutritional assessment in children are reported in the following paragraph, while specific anthropometric technical notes were added in the appendix of this issue (Rinaldo, Gualdi-Russo, 2015).

Table 2 - Main anthropometric traits used in the assessment of nutritional status

INDICES OF MALNUTRITION	
1.	**Weight-for-age**
2.	**Length/Stature-for-age***
3.	**Weight-for-Length/Stature***
4.	**MUAC (Mid-Upper Arm Circumference)**
5.	**BMI**
6.	**Skinfold Thicknesses**
7.	**Waist girth**
8.	**Waist-to-hip ratio**
9.	**Bio-impedance parameters**

* According to anthropometric rules, the length of the body on supine children below 2-3 years of age and the stature upright for children above are recommended.

Recent reviews of the literature about immigrant malnutrition in Europe found important differences in prevalence of obesity by ethnicity both in adults (Toselli et al, 2014b) and in children (Gualdi-Russo et al, 2014a, c).

Therefore, with particular reference to immigrants, Anthropometry can lead to: (1) identification of individuals/population groups at risk; (2) selection of individuals/population groups for intervention; (3) check of the situation after the intervention action.

2-Anthropometric indicators in children

Malnutrition assessment in children generally considers the first three traits reported in Table 2 or BMI. With reference to this assessment, the choice of appropriate reference standards and cut-offs for categories at risk is difficult. Some researchers suggest the local reference data -as ethnically more similar-, others the international reference data, according to more internationally acceptable definitions. Percentiles, percentage of the median or z-scores are used in the definition of cut-off points. Starting from a different terminology (overweight, obesity, at risk of overweight), different methods have been used according to a variety of reference data sets and developing specific centiles charts (Flegal et al, 2006). A scheme of the main cut-offs used is shown in Table 3.

Table 3 - Comparison among main traditional cut-off points used in the world.

NUTRITIONAL STATUS	WHO	EUROPE	USA
• **Underweight**	**<-2 z-scores**	**< 3rd centile**	**< 5th centile**
• **Overweight**	**>+2 z-scores**	**> 90th centile**	**> *85th centile***
• **Obese**	**>+3 z-scores**	**> 97th centile**	**> *95th centile***

As reported, underweight can be defined as BMI-for-age <5th centile (in US) or <3rd centile (in Europe). BMI-for-age cutoffs indicate risk of overweight in USA when >85th centile or overweight in Europe when >90th centile. Obesity is defined in case of BMI values >95th centile in USA or >97th centile in Europe.

The main methods for the current assessing of under-nourishment and over-nourishment are shown below.

Assessment of under-nourishment

Method 1

According to the World Health Organization standards (WHO, 2006), a large sample of data collected on children of different nationalities have been used to classify children as underweight, wasted, or stunted, each based on a cut off < −2 z-scores on growth charts. Among the most commonly used charts of weight-for-age, length/stature for age, weight-for-length/stature, the first one is reported in Figure 1 - female sex-, with application examples.

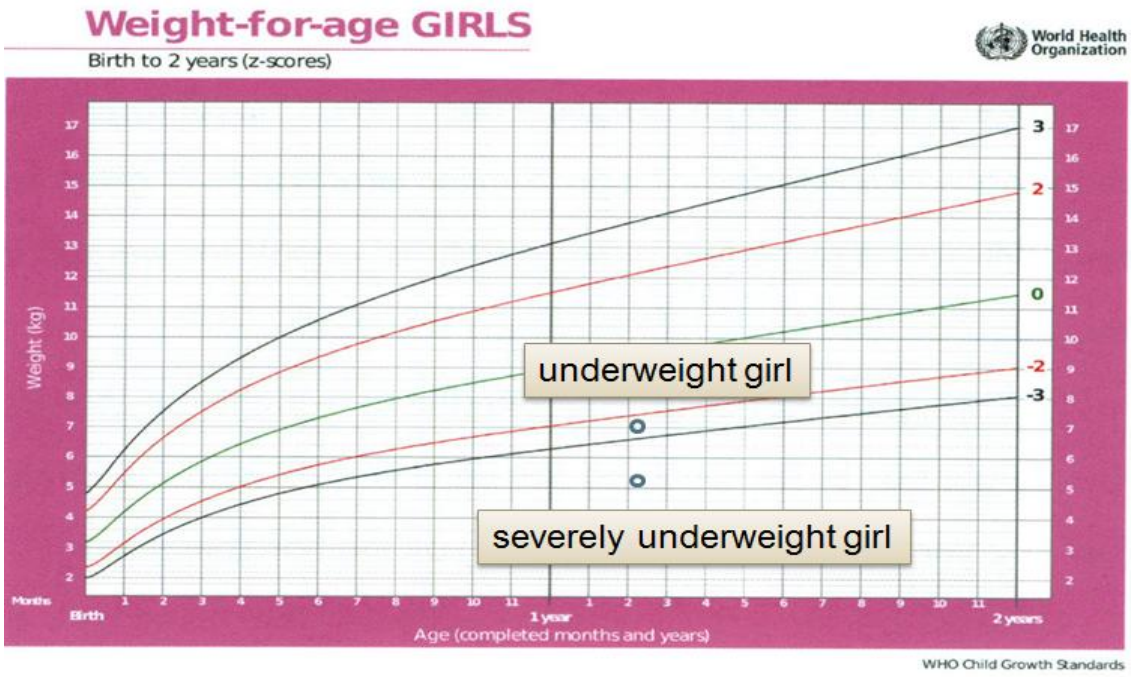

Figure 1 - Weight-for-Age chart for girls (0-2 years of age) *(*from WHO 2006, *modified)*: the plotted point below -2 z-score and above -3 z-score indicates a condition of moderate malnutrition; the point below -3 z-score indicates a condition of severe malnutrition.

Method 2

New international standards and cut-offs for thinness were proposed from 2-18 years on the basis of pooled international data for BMI, averaging curves defined to pass through BMI 16, 17, and 18.5 at 18 years (Cole et al, 2007). The following different definitions of thinness grades 1, 2, and 3 were provided: 1.Mild (18.5); 2.Moderate (17); 3.Severe ($\leq$16).

According to this method, a BMI value of 12.00 kg/m^2 in a 8-years-old girl, for example, indicates a condition of severe thinness, since the cut-off point for the thinness grade 3 for girls at 8 years is 12.31 kg/m^2.

Assessment of over-nourishment

Method 1

Excess weight can be assessed by z-scores or percentiles on growth charts (WHO, 2006), as done for under-nourishment. On the same weight-

for-age chart chosen previously, children are classified as overweight or obese when cut off point is >+2 or >+3 z-scores on weight for length/stature charts (Figure 2).

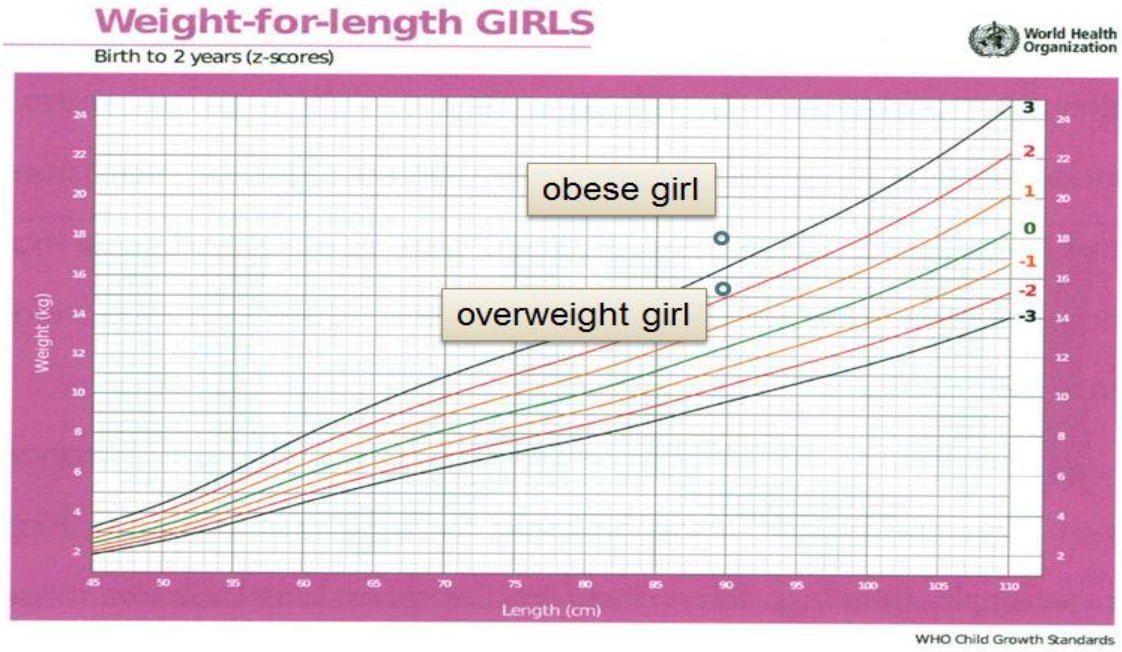

Figure 2-Weight-for-length chart for girls (0-2 years of age) *(*from WHO 2006, *modified)*: the plotted point above +2 z-score and below +3 z-score indicates a condition of overweight; the point above +3 z-score indicates a condition of obesity.

Method 2

On the basis of an international cross-sectional growth survey, Cole et al. (2000) provided new age and sex specific cut-off points from 2 to 18 years by centile curves passing through the widely used cut off points of 25 and 30 kg/m^2 for adult overweight and obesity at age 18 years. Children are classified as overweight or obese when their BMI value is above these centile curves.

For example, if a girl, aged 8 y, has a BMI of 22.00 kg/m^2, this indicates a condition of obesity, as 21.57 kg/m^2 is the cut-off point for this nutritional status in 8-years-old girls.

These values are often referred to as the International Obesity Task Force (IOTF) cut-off values. This method may be be used for international comparisons of prevalence of overweight/obesity without depending on reference data and on a specified percentile of a specific population (Flegal et al, 2006).

3- Body Image perception

Differences in nutritional status among ethnic groups can be related, in addition to differences in diet, physical activity and heredity, to differences in body image perception and ideal body image (Schuler et al, 2008). The relationship between BMI and body dissatisfaction can be influenced by ethnicity with different standards of beauty and, consequently, different desire to be more or less thin (Fitzgibbon et al, 2000; Neumark-Sztainer et al, 2002).

Healthy eating, exercise habits and a positive body image need to be developed and nurtured at younger ages across ethnic groups (Fitzgibbon et al., 2000).

Body image perception and body satisfaction can be assessed by the following methods:

1. Questionnaires;
2. Body Silhouette charts.

A large number of questionnaires to measure a generic aspect of body satisfaction or body shape are available from literature. Using the "Physical appearance state and trait anxiety scale: trait version" (Thompson, 1995), the personal anxiety or general feel about own body or specific parts of own body may be descripted, answering to various questions, such as "Do you feel anxious, tense, or nervous about the extent to which you look overweight?", by a scale from 0 (never) to 4 (almost always).

Among the methods that are commonly employed there are figure drawings representing physiques from lean to obese with reference to BMI. Thompson and Gray (1995) developed a set of nine male and female schematic figures ranging from underweight to overweight to be used in adults. Similarly, sets of figures for preadolescent children (Collins, 1991) and for adolescents (Sánchez-Villegas et al, 2001) have been proposed.

In North-America, Asians and Whites prefer the thin body ideal and Hispanics and African-Americans tend to prefer a larger body size (Schuler et al, 2008). As a consequence, African-American women are less preoccupied with dieting and weight loss and less negative about their body image than White and Latin Americans (Miller et al, 2000). Satisfaction,

wealth, and happiness resulted associated to obesity in Caribbean adolescents of African descent (Simeon et al, 2003). The majority of European immigrants come from Africa where, according to literature, larger body size is an ideal of beauty as observed among Sahraoui women (Morocco), who show an high prevalence of overweight and obesity (Rguibi, Belahsen, 2006). Ghanaians, Ugandans, Kenyans and Zimbabweans rated larger female figures as ideal compared to US or British women (Cogan et al, 1996; Furnham, Baguma, 1994; Swami et al, 2012).

4-European studies on immigrants

Only few studies concerned ethnic differences in nutritional status and body image perception in Europe. Some interesting results were reported from three different researches carried out both on adults of different origin in Northern Europe and on children in Southern Europe, as follows:

- *Study on African adult immigrants in Northern Europe*

Authors: Nicolau et al, 2012;
Design: cross-sectional;
Sample: Dutch Moroccan women living in Netherland (N=22) and Moroccan women living in Morocco (N=31);
Setting: Amsterdam (Netherland) and coastal Rif region of North Morocco.
Tool: interview and silhouette drawings.

Results: there was an high prevalence of overweight and obesity among migrant women of Moroccan origin. Overweight was attributed to traditional Moroccan foods and food culture by participants in Amsterdam and to adoption of the Western diet by participants in Morocco**.** There was a general lack of knowledge regarding appropriate physical activity. All participants reported a cultural shift in preference towards slimmer body sizes, also if weight gain still tends to be seen as a sign of success.
Conclusions: the high prevalence of overweight and obesity among migrant women of Moroccan origin may partly be explained by a preference for large body sizes. Although there is a shift in body size preferences, both in Morocco and among Moroccans in the Netherlands, traditional ideals regarding body weight generate ambivalence and form a potential barrier to weight loss.

- *Study on Asian adult immigrants in Northern Europe*

Authors: Raberg et al, 2009;
Design: cross-sectional;
Sample: Pakistanis and Sri Lankans (N= 629);
Setting: Oslo (Norway);
Tool: anthropometry and questionnaire.

Results: both bodily dissatisfaction and unrecognized overweight resulted among South Asians in Norway with an overestimation of one's own weight among under- and normal-weight women and underestimation in overweight and obese have been found in South Asian immigrants. In comparison to ethnic Norwegian women, showing that 80% of those overweight and 90% of those obese were slimming, the Pakistani and Sri Lankan women show that about 40% of the overweight and obese had been slimming the past year. There are differences in how men and women attempt to diet: fewer daily meals in dissatisfied women, physical activity to gain weight in dissatisfied men.

Conclusions: there are both weight dissatisfaction and unrecognized overweight among South Asian immigrants in Norway. Associated factors and interrelationship require further research.

- *Study on children of immigrants in Southern Europe*

Authors: Gualdi-Russo et al, 2012;
Design: cross-sectional;
Sample: 2706 schoolchildren (1405 boys and 1301 girls) aged 8–9 years and their mothers;
Setting: Emilia-Romagna region (North Italy);
Tool: Anthropometry and Collins' body image silhouettes.

Results: The BMI values were lower in children of immigrant mothers than in Italian children. The prevalence of overweight was lower and prevalence of underweight higher in children of immigrant mothers than in Italian children. The misperception of body image shows a frequency of three times greater in underweight boys with immigrant mothers than in those ones with Italian mothers, while the misperception of body image of overweight children with Italian mothers is greater than children with immigrant mothers. The ideal figure values were higher in the immigrant mothers of male children and lower in the Italian mothers of female children.

Conclusions: cultural and behavioral factors linked to ethnicity play an important role in the nutritional status of children and in the perceived and ideal body image.

5- Discussion and conclusions

Changes in environment, lifestyle and dietary behavior affect health and nutritional status of migrants. In many European countries, overweight and obesity prevalence is higher in migrants from developing countries than in host populations (Kumar et al, 2006; Gualdi-Russo et al, 2009, 2014c; Toselli et al, 2014a). Therefore, the nutritional status of immigrants must be assessed and regularly monitored.

In some immigrants, particularly women, over-weight prevalence is higher than in their compatriots residing in their country of origin (Nicolau et al, 2012). Additionally, overweight prevalence may increase with duration of residence in the host society (Oza-Frank, Cunningham, 2010). According to a recent review on immigrants in Europe (Toselli et al, 2014b), the highest obesity values were observed in Moroccan women in the Netherland and in Tunisian men in Italy. Women show higher frequencies of overweight and obesity than men in all ethnic groups.

The use of anthropometric parameters as rapid indicators of health status in screening of a large number of subjects is an effective and cheap method to provide preliminary indications in individuals or ethnic groups at greater risk of poor health. For these reasons anthropometry is largely used, both in developing and developed countries, when it is necessary to measure and monitor large samples of immigrant people in emergency conditions. The anthropometric parameters may be an important tool to identify immigrants at high cardiovascular and metabolic risk who therefore require lifestyle and medical intervention. In addition to the reported anthropometric traits, sagittal abdominal diameter resulted an excellent marker of metabolic and cardiovascular risk factors (Petersson et al, 2007) comparing different other anthropometric measures in migrant women in Sweden. In general the superiority of measures of centralized obesity, especially waist-to-stature ratio (Lee et al, 2008), was recognized for detecting cardiovascular risk factors in both men and women. However, the most frequently used measure of underweight, overweight and obesity is the body mass index (BMI). The cut-off points proposed by Cole et al (2000; 2007) are recommended for international comparisons in children and adolescents both in case of undernourishment, as thinness, and in case of over-

nourishment, as overweight/obesity, overcoming the problem of different centile cut-off points used.

In the development of health promotion activities relating to migrants in Europe more research is needed regarding bodily dissatisfaction and the relationship between perception of weight and weight-change attempts to prevent and treat both obesity and eating disorders. Body image perception and anthropometric assessment of nutritional status could play an important role in future programs of nutritional surveillance as they provide indications of dissatisfaction, body image disturbances and of possible trends closely associated with ill health in children and adults of different ethnic origin.

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L'obesità nelle popolazioni immigrate

[Obesity among immigrant populations]

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Abstract - Obesity is spread worldwide, and although in some countries it is long-standing problem, it has not yet found a definitive solution. This article shows the data of the literature on the incidence of overweight /obesity in both the adult and childhood population and the variations that this has undergone over time. It also considered the incidence of these weight disorders in the immigrant population, which generally shows higher values. The causes of this superiority are multifactorial, but the main factors are represented by ethnic group, by socio-economic factors, lifestyle and the residence time in the country of immigration. It should be stressed that immigrants and ethnic minorities are heterogeneous groups with regard to their ethnic characteristics, their historical and cultural roots, knowledge about behaviors and healthy lifestyles. The resolution of the problem "obesity" must necessarily be multifactorial.

Abstract - L'obesità è un problema ormai diffuso a livello mondiale, e, nonostante in alcuni paesi sia presente da lunga data, non si è ancora trovata una risoluzione definitiva. Nel presente articolo vengono riportati i dati della letteratura relativi all'incidenza di sovrappeso/obesità sia nella popolazione infantile che adulta e le variazioni che questa ha subito nel tempo. Viene inoltre considerata l'incidenza di questi disordini ponderali nella popolazione immigrata, che presenta generalmente valori più elevati. Le cause di questa superiorità sono multifattoriali, ma i principali fattori sono rappresentati dal gruppo etnico di appartenenza, dai fattori socio-economici, dallo stile di vita e dal tempo di permanenza nel paese di immigrazione. Va sottolineato che gli immigranti e le minoranze etniche costituiscono gruppi eterogenei per quanto riguarda le loro caratteristiche etniche, le loro radici storiche e culturali, le conoscenze

riguardo a comportamenti e stili di vita salutari. La risoluzione del problema "obesità" dovrà essere necessariamente multifattoriale.

1- Introduzione

L'obesità viene definita come un eccessivo accumulo di grasso corporeo che comporta un rischio per la salute. Tale condizione porta infatti a gravi conseguenze, quali malattie cardiovascolari, diabete mellito di tipo 2, disturbi muscoloscheletrici come l'osteoartrite e alcuni tipi di cancro (Ezzati et al., 2002; Ni Mhurchu et al., 2004; Finucane et al., 2011).

Le cause che determinano l'obesità sono multifattoriali, e possono essere suddivise in genetiche e non genetiche (stile di vita, eccessivo introito alimentare, mancanza di attività fisica, ecc...). Discernere il coinvolgimento e il peso dei singoli fattori nell'eziologia di questa patologia non è semplice, dal momento che un particolare genotipo non determina necessariamente lo sviluppo di obesità, ma aumenta il rischio di svilupparla in un particolare ambiente (Senekal, 2012).

Tali interazioni gene-ambiente sono molto complesse e ancora poco conosciute. La valutazione di sovrappeso e obesità durante il periodo accrescitivo risulta fondamentale, dal momento che i bambini obesi hanno una elevata probabilità di diventare degli adulti obesi (Wisemandle et al., 2000; Balistreri and Van Hook, 2011). Le basi per lo sviluppo delle malattie associate all'obesità vengono infatti poste durante l'infanzia. I fattori di rischio per le malattie cardiovascolari (iperinsulinemia, ridotta tolleranza al glucosio, dislipidemia e ipertensione) risultano fortemente associati all'obesità e alla sua durata (Field et al., 2005; Freedman et al., 2001).
Ma qual è la prevalenza di obesità nel mondo? Qual è stata la variazione delle frequenze nell'arco del tempo?

2- Incidenza di sovrappeso e obesità nelle popolazioni e andamento nel tempo

Bambini e adolescenti

L'incidenza di sovrappeso e obesità risulta diversificata all'interno dei vari Paesi. La prevalenza combinata di sovrappeso e obesità risulta elevata nei paesi occidentali e industrializzati come Stati Uniti, Canada, alcuni paesi europei, alcuni paesi del Sud America, alcune paesi del Medio Oriente e del Nord Africa, e nella regione Asia-Pacifico (ad esempio l'Indonesia e in Nuova Zelanda). Secondo Wang e Lim (2012), in America (circa il 25-30%) e nel Mediterraneo orientale (circa il 20-40%) si osserva

una maggiore prevalenza di sovrappeso/obesità rispetto ai territori del sud-est asiatico e delle regioni del Pacifico occidentale tra cui l'India, la Malesia, Vietnam, Cina, Australia, Corea del Sud e Giappone.
Si osservano inoltre differenze anche tra paesi all'interno della stesso territorio: nelle ragazze della regione del Mediterraneo orientale le prevalenze combinate di sovrappeso/obesità in Egitto e Kuwait si aggirano intorno al 30% e al 45%, rispettivamente, mentre la prevalenza risulta solo del 14% tra le ragazze iraniane.

La prevalenza di obesità standardizzata per età nei bambini e negli adolescenti varia da più del 30% per le ragazze di Kiribati e degli Stati federati della Micronesia a meno del 2% in Bangladesh, Brunei, Burundi, Cambogia, Eritrea, Etiopia, Laos, Nepal, Corea del Nord, Tanzania, e Togo (Ng et al., 2014). Si osservano notevoli variazioni geografiche, con tassi di obesità elevati in molti paesi del Medio Oriente e del Nord Africa per le ragazze, e in diverse isole del Pacifico e paesi caraibici per entrambi i sessi (Ng et al., 2014). In Europa occidentale, i tassi di obesità infantile variano dal 13,9% in Israele al 4,1% nei Paesi Bassi. Per l'America Latina, le frequenze più elevate di obesità si registrano in Cile (11,9%) e Messico (10,5%) nei ragazzi, e in Uruguay (18,1%) e Costa Rica (12,4%) nelle ragazze.

Nel corso degli ultimi due decenni i dati che sono stati rilevati in molti paesi "sviluppati" consentono l'analisi delle tendenze temporali dell'obesità negli adulti e nei giovani. Dati comparabili per i paesi in via di sviluppo sono limitati. Dal 1970 alla fine del 1990 l'aumento nella prevalenza combinata di sovrappeso/obesità è raddoppiata o triplicata in molti paesi quali Nord America (Canada e Stati Uniti), e in Europa (Finlandia, Francia, Germania, Italia, e Spagna) (Wang e Lim, 2012).
Nel 2010, 43 milioni di bambini (35 milioni nei paesi in via di sviluppo) risultavano in sovrappeso o obesi, e 92 milioni erano a rischio di sovrappeso. Questo corrisponde ad un aumento globale di prevalenza combinata di sovrappeso/obesità dal 4,2% del 1990 al 6,7% nel 2010. Se queste tendenze continueranno, le frequenze potranno raggiungere il 9,1% nel 2020.

Per i paesi in via di sviluppo, la stima di prevalenza combinata era pari al 6,1% nel 2010 e si prevede un aumento fino a raggiungere l'8,6% entro il 2020. Nel 2010 i tassi risultavano più bassi in Asia che in Africa (4,9 contro 8,5%), ma il numero di bambini affetti era molto più elevato (17,7 milioni contro 13,3 milioni) in Asia rispetto all'Africa. Dato il drammatico aumento della prevalenza combinata a partire dal 1990, sono

necessari interventi mirati, già a partire dall'infanzia, per invertire le tendenze previste.

In alcuni paesi in via di sviluppo, la prevalenza di sovrappeso e obesità infantile è notevolmente aumentata negli ultimi decenni, raggiungendo livelli comparabili a quelli di alcuni paesi industrializzati. Questo è il caso di paesi in cui si sta verificando una transizione economico-sociali (es. Cina, Brasile e Messico) (Wang e Lim, 2012). In Cina, in particolare, si è riscontrato un aumento drammatico di obesità.

La conoscenza esaustiva della epidemia di obesità infantile e l'andamento temporale dei dati globali rimane limitata, nonostante un numero crescente di studi in questo settore. Ciò è dovuto alla mancanza di dati aggiornati, comparabili e rappresentativi in diversi paesi. Negli Stati Uniti, dove questo fenomeno è presente a partire dalla fine degli anni 1970, e per cui i dati a disposizione sono numerosi, la prevalenza di sovrappeso e obesità nei bambini è aumentata per tutte le età comprese tra 2-19 anni, ma l'aumento dell'obesità pare essersi stabilizzato negli ultimi anni. Nei soggetti di età compresa tra 2-19, sulla base dei dati NHANES II dal 1976-1980 al 2003-2004, risulta che il tasso medio annuo di aumento nella prevalenza dell'obesità è stato di circa 0,5 punti percentuali. Tuttavia, questo tasso è stato più lento nei bambini di età inferiore. In questo periodo, infatti, la prevalenza di sovrappeso è aumentata dal 7,2% al 13,9% nei bambini di età compresa tra 2 e 5 anni, mentre è quasi triplicata nei bambini di età compresa tra 6 e 11 anni. Negli adolescenti (12-19 anni) la prevalenza è più che triplicata, passando dal 5% al 17,4% . In contrasto, i dati di NHANES 2007- 2008 mostrano una diminuzione della prevalenza di obesità tra i bambini di età compresa tra 2 e 5 anni, dal 13,9% nel NHANES 2003-2004 al 10,4% del 2007-2008 (Wang e Lim, 2012).

Nello stesso periodo, la prevalenza sia nei bambini di età compresa tra 6-11 anni che negli adolescenti è leggermente aumentata. Nel 2009-2010 la prevalenza nazionale di obesità (16,9%) era simile a quella del 2007-2008, essendo del 12,0%, 18,0%, e il 18,4% nelle fasce età 2-5, 6-11, e 12-19, rispettivamente.

Dal 1980, la prevalenza di sovrappeso e obesità nei paesi sviluppati è considerevolmente aumentata: il 23,8% dei ragazzi e il 22,6% delle ragazze erano sovrappeso o obesi nel 2013, rispetto al 16,9% dei ragazzi e al 16,2% delle ragazze nel 1980. La prevalenza di sovrappeso e obesità è in aumento in bambini e adolescenti nei paesi in via di sviluppo, aumentando dall'8,1% nel 1980 al 12,9% nel 2013 per i ragazzi e dall'8,4% al 13,4% nelle ragazze (Ng et al., 2014).

Adulti

Per quanto riguarda gli adulti, la prevalenza di obesità ha superato il 50% negli uomini a Tonga e nelle donne in Kuwait, Kiribati, negli Stati Federati di Micronesia, Libia, Qatar, Tonga, Samoa (Ng et al., 2014). Il Nord America si distingue per le sue elevate frequenze: nel 2013, circa un terzo degli uomini (31,6%) e delle donne (33,9%) erano obesi. In 14 paesi dell'America Centrale e dell'America Latina la prevalenza per il sesso femminile risultava superiore al 20%. L'incidenza di obesità risultava particolarmente elevata nelle donne dell'Africa sub-sahariana (42,0% nel 2013) (Ng et al., 2014).

Più del 50% dei 671 milioni di individui obesi nel mondo è ripartito in dieci paesi, elencati di seguito, in ordine di numero di individui obesi: Stati Uniti, Cina, India, Russia, Brasile, Messico, Egitto, Germania, Pakistan e Indonesia. Nel 2013 gli Stati Uniti comprendevano il 13% delle persone obese presenti in tutto il mondo, mentre la Cina e l'India ne comprendevano congiuntamente il 15%. Anche se i tassi standardizzati per età risultavano inferiori nei paesi in via di sviluppo rispetto ai paesi sviluppati, il 62% degli individui obesi del mondo vive in questi paesi (Ng et al., 2014).

A partire dal 1980, i maggiori incrementi del tasso di obesità si sono registrati in Egitto, Arabia Saudita, Oman, Honduras, e Bahrain per le donne, e in Nuova Zelanda, Bahrain, Kuwait, Arabia Saudita, e gli Stati Uniti per gli uomini (Ng et al., 2014). Gli Stati Uniti figurano tra i primi 15 paesi in termini di aumenti di obesità sia per gli uomini e le donne. Altri paesi ad alto reddito in cui si sono riscontrati aumenti significativi durante questo periodo di tempo sono l'Australia e Regno Unito.

A livello mondiale (Finucane et al., 2011), nel 2008, la prevalenza di obesità, standardizzata per età, negli uomini, è risultata del 9,8%, valore quasi doppio rispetto a quello del 1980 (4,8%). Per gli uomini, le frequenze più elevate di obesità si riscontrano del Nord America, con una prevalenza standardizzati per età pari al 29,2%, mentre le più basse nel Sud (1,4%), seguite da quelle relative all'Africa centrale e orientale.

Nelle donne le frequenze sono risultate del 13,8% nel 2008, quasi il doppio rispetto al 1980 (7,9%). I valori più elevati si sono riscontrati nelle donne del sud Africa (36,4%), con valori superiori anche rispetto al Nord America (30%) (Finucane et al., 2011). I valori più bassi si riscontrano in Sud Asia (2,9%), seguiti dai valori dei territori ad alto reddito dell'Asia-Pacifico e dell'Africa centrale e orientale.

Dal 2008 al 2013, i maggiori incrementi del tasso di obesità si sono osservati in Egitto, Arabia Saudita, Oman, Honduras, e Bahrain per le

donne e in Nuova Zelanda, Bahrain, Kuwait, Arabia Saudita e Stati Uniti per gli uomini (Ng et al., 2014).

I dati relativi all'incremento globale di sovrappeso e obesità standardizzata per età tra il 1980 e il 2013 mostrano che in tutto il mondo, la percentuale di uomini in sovrappeso è aumentata dal 28,8% nel 1980, al 36,9% nel 2013, e la percentuale di donne in sovrappeso è aumentata dal 29,8% al 38,0% (Ng et al., 2014). Gli incrementi sono stati registrati sia nei paesi sviluppati che in via di sviluppo, ma con modelli diversificati in base al sesso. Nei paesi sviluppati, più uomini che donne erano in sovrappeso e obesi, mentre nei paesi in via di sviluppo, il sovrappeso e l'obesità erano più frequenti nelle donne che negli uomini, e questa associazione persisteva nel tempo (Ng et al., 2014). I tassi di obesità sembrano essere in aumento in entrambi i paesi, sia sviluppati che in via di sviluppo, e nel 2013, la prevalenza dell'obesità risultava maggiore nelle donne che negli uomini sia nei paesi sviluppati che in via di sviluppo. Il tasso di incremento del sovrappeso e dell'obesità è risultato maggiore tra il 1992 e il 2002, ma è rallentato negli ultimi dieci anni, soprattutto nei paesi sviluppati (Ng et al., 2014).

3- Incidenza di sovrappeso e obesità nella popolazione immigrata

Bambini e adolescenti

Stati Uniti- Un problema emergente tra gli immigrati è l'alto tasso di prevalenza di sovrappeso e di obesità, in particolare tra le donne, i bambini e gli adolescenti.

Vari fattori influenzano lo sviluppo del sovrappeso e obesità, tra questi il gruppo etnico di appartenenza, il sesso, le condizioni socioeconomiche (reddito, istruzione, lavoro), lo stile di vita, l'acculturazione e durata del soggiorno nel nuovo paese giocano un ruolo importante.

Per quanto riguarda i bambini, le differenze etniche relative ai tassi di obesità sono ben documentate negli Stati Uniti, in cui i bambini ispanici e di origine africana presentano tassi molto più elevati (Hamilton et al., 2011; Ogden et al 2010;. Kimbro et al., 2007). I ragazzi e le ragazze ispaniche, oltre a mostrare una maggiore probabilità di sviluppare sovrappeso/obesità, hanno anche maggiore probabilità di mantenerlo nel tempo rispetto ai bambini bianchi non ispanici (Van Hook 2010).

Per quanto riguarda i dati relativi alla nascita e ai primi mesi di vita, secondo vari Autori (Landale, Oropesa, e Gorman 1999; Acevedo-Garcia,

Soobader, e Berkman 2005 Martinson et al., 2012), avere una madre di origine straniera rappresenta un fattore protettivo rispetto ad un basso peso alla nascita. Inoltre le madri nate all'estero perseguano comportamenti più sani di quanto non facciano le madri native, mostrando tassi più elevati di allattamento al seno e tassi più bassi legati al fumo (Jackson, McLanahan, e Kiernan 2009).

Uno dei fattori più che maggiormente influiscono sullo sviluppo di sovrappeso/obesità è lo stato socioeconomico, tuttavia le relazioni con questo parametro risultano complesse. Da un lato, un reddito più elevato può consentire una maggiore disponibilità economica per acquistare alimenti di qualità migliore e permettere ai bambini di praticare con più facilità attività fisica. D'altra parte, il reddito più elevato può portare all'acquisto di calorie in eccesso, soprattutto tra gli immigrati provenienti da paesi in cui il cibo è meno abbondante rispetto agli Stati Uniti. In particolare, i genitori appartenenti a gruppi etnici svantaggiati o con un background di immigrazione possono avere idee diverse rispetto al sovrappeso, che può essere considerato come indicatore di salute ed essere associato ad un vantaggio economico.

Allo stesso modo, l'educazione materna può essere un fattore protettivo o di rischio per lo sviluppo di sovrappeso in età infantile. In generale, un livello elevato di istruzione materna dovrebbe portare ad una maggiore conoscenza degli alimenti e di attività sane, che di conseguenza comportano un minor rischio di sovrappeso. Per alcuni gruppi di minoranze etniche, tuttavia, e in particolare per le madri immigrate, il basso livello di istruzione può comportare l'adesione a pratiche culturali tradizionali, tra cui la preparazione del cibo, che sono in realtà fattori di protezione contro il sovrappeso. Inoltre, per le madri immigrate negli Stati Uniti che sono stati educate in un paese diverso, l'istruzione può non avere la stessa valenza rispetto alle pratiche legate alla dieta e all'esercizio fisico che ha per le madri istruite. Per quanto riguarda l'evidenza empirica, per la popolazione in generale, negli Stati Uniti, reddito e istruzione elevati sembrano essere protettivi rispetto al sovrappeso infantile. I dati del National Health and Nutrition Examination Survey (NHANES) mostrano gradienti di obesità nei bambini bianchi negli Stati Uniti, dove un reddito e un'istruzione superiore risultano protettivi contro l'obesità. Tuttavia, si verifica il contrario nei bambini di origine africana e ispanica (Ogden et al. 2010; Martinson et al., 2012). I figli di genitori immigrati con livelli di reddito e di istruzione superiore sembrano infatti presentare un maggior rischio di sovrappeso, specialmente se le loro madri sono nate in un paese economicamente sottosviluppato (Van Hook e Balistreri 2007). Balistreri e Van Hook (2009)

hanno evidenziato che all'aumentare del reddito si verifica un incremento elevato del peso corporeo nei figli degli immigrati ispanici.

I fattori culturali giocano un ruolo importante nell'instaurarsi del sovrappeso/obesità, in quanto i modelli di attività fisica e le abitudini alimentari sono fortemente influenzati dai modelli culturali/religiosi. Una dieta ad alto contenuto energetico da un lato e la ridotta attività fisica caratterizzata da lunghi periodi guardare la TV dall'altro sembrano essere i motivi principali per gli elevati livelli di sovrappeso e obesità tra i bambini immigrati (Singh et al., 2009). Dallo studio effettuato da Van Hook and Baker (2010) fattori condizionanti lo sviluppo di sovrappeso/obesità risultano le ore di sedentarietà (ore passate davanti alla televisione), l'elevato peso alla nascita , il lavoro a tempo pieno della madre, bassi livelli di istruzione dei genitori, basso reddito familiare. Avere più figli nel nucleo familiare riduce il rischio di sovrappeso. Da questo studio sono emerse alcune differenze legate al sesso: l'educazione dei genitori risulta essere un fattore predittivo più debole di sovrappeso tra i ragazzi che tra le ragazze. Solo tra i ragazzi, avere genitori di più recente immigrazione aumenta significativamente le probabilità di avere un sovrappeso che persiste nel tempo. Infine, solo tra le ragazze, quelle di origine africana sperimentano un rischio molto più elevato di mantenere il sovrappeso rispetto coetanei di alte etnie.

Anche se al loro arrivo gli immigrati sono protetti contro il sovrappeso e l'obesità, il rischio aumenta con la durata della permanenza nel nuovo paese, probabilmente a causa di esposizione a fattori ambientali che promuovono comportamenti sedentari e altri stili di vita non salutari. Sovrappeso e obesità aumentano all'aumentare della acculturazione e della durata della residenza negli Stati Uniti (Singh et al., 2009).

Un altro fattore che influisce sul sovrappeso/obesità è la generazione di appartenenza. Secondo lo studio di Harris et al. (2009) il BMI risulta più basso tra la gli immigrati di prima generazione. Rispetto agli immigrati di seconda e terza generazione, quelli di prima generazione hanno un BMI inferiore durante l'adolescenza e mostrano un incremento più lento di BMI al passaggio nell'età adulta. Anche se i giovani nati negli Stati Uniti sia di seconda che di terza generazione hanno valori simili di BMI durante la prima adolescenza, durante l'età adulta i soggetti di terza generazione mostrano un aumento molto più rapido di quelli di seconda generazione. Gli adolescenti ispanici e di origine africana hanno un BMI superiore a quello dei giovani bianchi e asiatici durante l'adolescenza, e le loro traiettorie indicano un aumento delle disparità nel tempo, soprattutto tra i giovani ispanici. Tuttavia i modelli di cambiamento associati alla generazione di

appartenenza sono identici tra gruppi etnici, mostrando che la prima generazione manifesta di crescita in BMI più lenta nel tempo rispetto ai soggetti di seconda e terza generazione. I soggetti di origine africana e ispanici risultano più a rischio durante la transizione verso l'età adulta. La cattiva alimentazione e la mancanza di esercizio fisico sono probabilmente i maggiori determinanti tra i gruppi minoritari in America, soprattutto a causa degli ambienti sociali in cui vivono.

Singh et al. (2009) riportano che la prevalenza di obesità e sovrappeso aumenta ad ogni generazione successiva per i bambini bianchi e di origine africana, mentre la prevalenza tra i bambini ispanici non presentava variazioni rispetto allo status generazionale.

Europa- Per quanto riguarda l'Europa, analogamente a quanto visto per gli Stati Uniti l'influenza del gruppo etnico di appartenenza emerge da vari studi relativi all'Inghilterra che mostrano che l'obesità è più diffusa tra i bambini di origine Caraibica o di origine africana e asiatica (Pakistan, Bangladesh, indiana) che tra i bambini bianchi (Jebb, Rennie, e Cole 2004; Wardle et al. 2006; Balakrishnan, Webster, e Sinclar 2008; Harding et al., 2008).

In Germania gli immigrati provengono principalmente dalla Turchia, dal Medio Oriente, dall'ex Jugoslavia e dall'Europa orientale. I risultati dello studio di Dannemann et al. (2011) indicano chiaramente un rischio elevato sia per l'obesità che per le comorbidità metaboliche ad essa associate nei bambini/adolescenti turchi.
I risultati sono in accordo con altri studi effettuati in Europa (Kirchegast e Schober 2006 Kolsgaard et al., 2008; van Vliet et al., 2009) da cui emerge che l'etnia è un forte predittore di sindrome metabolica in bambini/adolescenti. Questi risultati sottolineano l'influenza del background culturale e della migrazione di bambini/adolescenti nello sviluppare obesità e nell'essere a rischio di comorbidità metaboliche.

Kirchegast e Schober (2006) hanno riscontrato livelli estremamente elevati di sovrappeso nelle ragazze di 15 anni di origine turca. Queste ragazze sono sottoposte a forti pressioni culturali e religiose, che limitano la pratica di attività fisica o di attività al di fuori della famiglia. Inoltre, né i bambini né gli adolescenti, né i loro genitori sono preoccupati per il loro elevato stato ponderale. Ciò può essere dovuto al fatto che fino ad oggi il sovrappeso in Turchia è un fenomeno che viene prevalentemente associato ad un reddito medio-alto (Manios et al., 2004). Pertanto il sovrappeso è culturalmente interpretato positivamente e non viene percepito come un

importante fattore di rischio a lungo termine per la salute da parte della maggioranza della popolazione turca.
Sempre nello stesso studio una elevata percentuale di sovrappeso è stata riscontrata tra i bambini di 10 anni provenienti dalla ex Jugoslavia (27,5%). Inoltre, il 9,2% dei ragazzi jugoslavi in questa fascia di età sono stati classificati come obesi. Ciò indica che oltre il 35% dei ragazzi di 10 anni provenienti dalla ex Jugoslavia potrebbe essere classificato come sovrappeso o obeso.

In Norvegia, Kolsgaard et al. (2008) hanno riscontrato una maggiore prevalenza della Sindrome Metabolica nei bambini/adolescenti di origine turca, pakistana e Tamil rispetto ai loro coetanei norvegesi obesi. Ciò suggerisce che le minoranze etniche possono avere una maggiore sensibilità per l'adiposità e sottolinea la necessità di programmi di prevenzione più mirati rispetto ai loro coetanei norvegesi.
Anche nello studio di van Vliet et al. (2009), relativo ad una coorte olandese di bambini sovrappeso/obesi, si è riscontrato un BMI più elevato nei turchi rispetto ai bambini autoctoni olandesi. I bambini turchi hanno mostrato inoltre una prevalenza più elevata di fattori di rischio cardio-metabolico rispetto ai loro coetanei di altre etnie. Al contrario, i bambini di origine marocchina sembrano avere un basso profilo di rischio cardio-metabolico. Anche per l'Europa lo stato di immigrazione, il basso livello d'istruzione dei genitori, l'uso dei media e le abitudini alimentari meno salutari sono i fattori maggiormente collegati all'aumento di adiposità.

Secondo Ebenegger et al. (2011), le famiglie con un basso reddito hanno la tendenza a comprare alimenti ad alta densità energetica, in quanto forniscono calorie a basso costo. Inoltre, la disparità tra questo tipo di alimenti e quelli più sani continua ad aumentare. Le differenze correlate allo stato migratorio non sono esclusivamente imputabili a disparità economiche; credenze culturali, diverse norme sociali e lacune nella conoscenza della nutrizione possono influenzare l'acquisto di cibo e le abitudini alimentari e di conseguenza l'adiposità. I bambini e gli adolescenti sono particolarmente sensibili all'ambiente obesogenico del loro nuovo paese ospitante in quanto tendono a partecipare alla cultura locale e ad integrarsi dal punto di vista sociale più rapidamente rispetto ai loro genitori.

Adulti

Alcuni autori sostengono che l'elevata obesità negli immigrati sia il risultato di vari fattori, tra i quali vengono più comunemente inclusi il basso

livello socio-economico, l'alimentazione malsana, la durata della residenza nel paese di immigrazione.

Gli immigrati adulti negli Stati Uniti, sembrano inizialmente mostrare un effetto protettivo contro l'obesità a causa della selezione delle persone che migrano, che risultano in buono stato di salute o a causa delle abitudini culturali che possono risultare protettive, anche se l'effetto si perde con la durata della permanenza (Antecol e Bedard 2006).

Subito dopo l'immigrazione, gli immigrati rappresentano una minoranza spesso con una posizione socio-economica svantaggiata rispetto alla popolazione ospitante.

Questo determina un aumento di stress cronico, come testimoniato dagli elevati tassi di morbilità (Dotevall et al. 2000; Landman e Cruishank 2001; Bongard et al. 2002; Ujčić-Voortman et al. 2009). Diversi studi hanno dimostrato che l'incidenza di malattie croniche negli immigrati cambia rapidamente, diventando simile a quella del paese ospitante (Dotevall et al. 2000; Landman e Cruishank 2001; Bongard et al. 2002; Ujčić-Voortman et al. 2009).

I tassi di mortalità e morbilità legati alle malattie non trasmissibili collegate alla nutrizione sono superiori negli immigrati rispetto alla popolazione nativa e rispetto a quelli della popolazione del paese di origine. Gli immigrati provenienti dai paesi non occidentali che migrano in quelli occidentali adottano in parte il loro "stile di vita", caratterizzato da una elevata prevalenza del fumo di sigaretta, consumo di alcool e inattività fisica, che ha come conseguenza un eccessivo aumento ponderale. Questo stile di vita è un importante determinante per le malattie cardiovascolari, diabete e alcuni tipi di cancro (Gadd et al., 2006; Patel et al., 2006).

Gli immigrati più a rischio sono quelli ispanici negli Stati Uniti (Kaplan et al 2004;. Parco et al 2009.) e gli immigrati provenienti dai paesi del Mediterraneo o dal Medio Oriente in Europa centrale e settentrionale (Brussard et al 2001;. Hoppichler e Lechleitner 2001; Uitewaal et al 2004; Fredriks et al 2005; Kirchengast e Schober 2006 Misra e Ganda 2007; Dijkshoorn et al 2008;. Wolin et al 2009).

Stati Uniti- Negli Stati Uniti, i tassi di obesità sono aumentati da 1999 al 2007 da circa 27% al 31% tra gli adulti non-ispanici e dal 29% al 36% tra gli adulti messicani-americani (Flegal et al., 2010).

Oltre ai fattori di cui abbiamo già parlato per l'età infantile, e che condizionano anche l'obesità negli immigrati adulti (livello socio-economico, acculturazione, stile di vita, tempo di permanenza) (Delavari et al., Ahluwalia et al, 2007; Barcenas et al, 2007; Hazuda et al, 1991; Khan et

al., 1997, Tovar et al., 2013), alcuni studi suggeriscono che una delle motivazioni legate agli alti tassi di obesità in queste popolazioni sia la percezione dello stato ponderale, che può essere percepito e valutato in modo diverso dalle diverse popolazioni. Le donne ispaniche mostrano più soddisfazione verso il loro corpo pur essendo pesanti (Crago, Shisslak e Estes 1996).

Uomini e donne di origine messicana mostrano anche pesi desiderati superiori rispetto alla popolazione americana autoctona (Winkleby, Gardner e Taylor 1996).

Tra i messicani-americani, molti soggetti che rientrano nella categoria del sovrappeso sulla base dell'indice di massa corporea, non si classificano come tali.

La conoscenza della percezione della propria immagine e del proprio stato ponderale è importante, poiché la classificazione errata dello stato di sovrappeso/obesità può rappresentare un fattore di rischio per lo sviluppo e la permanenza dell'obesità e per le conseguenze negative che essa ha sulla salute. Questo è particolarmente vero per i messicani-americani rispetto ai bianchi non ispanici nati negli Stati Uniti. Come abbiamo già osservato, l'obesità può favorire l'instaurarsi del diabete, disturbi cardiovascolari, ipertensione. Gli adulti messicani possono essere meno propensi a riconoscere il loro peso come un problema di salute rispetto alla popolazione non-ispanica e non intraprendere misure preventive.

Europa- Molti immigrati nell'Europa centrale e del Nord provenienti dai paesi del Mediterraneo e del Vicino Oriente risultano estremamente vulnerabili nel diventare sovrappeso o obesi (Fredriks et al 2005; Dijkshoorn et al 2008; Bongard et al 2002; Uitewaal et al 2004; Kirchengast e Schober 2006; Faskunger et al 2009).

In uno studio condotto sulla popolazione norvegese al fine di valutare le differenze etniche nei fattori di rischio per le malattie cardiovascolari, Rabanal et al. (2013) hanno rilevato un rischio più elevato negli immigrati provenienti dal subcontinente indiano. Essi mostravano bassi livelli di lipoproteine ad alta densità (HDL), più alti livelli di glucosio nel sangue, trigliceridi, colesterolo totale, rapporto tra colesterolo totale e HDL, rapporto circonferenze vita-fianchi e prevalenza del diabete. Gli immigrati dalla ex Jugoslavia hanno mostrato elevati livelli di pressione sanguigna, alto rapporto colesterolo totale e HDL, livelli di sovrappeso e incidenza del fumo. Un basso rischio cardiovascolare è stato invece osservato tra gli immigrati dell'Asia orientale.

Nello studio di Alkerwi et al. (2012) gli immigrati portoghesi mostrano percentuali più elevate di sovrappeso e obesità rispetto ai lussemburghesi, anche dopo la standardizzazione rispetto all'età e al genere.

Le differenze nella prevalenza dei disturbi ponderali sono legate al genere. In Norvegia Gele e Mbalilaki (2013) riportano una prevalenza significativamente più alta di obesità (66%) nelle donne rispetto agli uomini (28%). Anche l'obesità addominale è risultata più elevata nelle donne rispetto agli uomini (53% vs 28%). Dall'analisi di regressione logistica condotta dagli Autori è risultato che sia l'obesità addominale che quella generale sono significativamente e positivamente associate alla durata di residenza in Norvegia e all'essere fisicamente meno attivi.

Anche dallo studio condotto in Italia da Gualdi-Russo et al. (2009) emergono sostanziali differenze nei valori di BMI e di sovrappeso/obesità legate al gruppo etnico di appartenenza. Per i maschi si osservano valori più elevati nei Rom, mentre nelle femmine nelle Kosovare.

Per quanto riguarda la relazione con i fattori socio-economici, nelle donne turche immigrante che vivono a Vienna, Kilaf e Kiechengast (2011) hanno riscontrato un'associazione inversa tra obesità e fattori socio-economici. Bassi livelli socio-economici e di istruzione rappresentano importanti fattori di rischio per sovrappeso o obesità.

Nel corso del tempo gli immigrati assimilano atteggiamenti e comportamenti tipici della popolazione del paese ospitante ad esempio riguardo alla dieta, all'attività fisica e ad altri fattori favoriscono l'insorgenza di obesità.

Come abbiamo già sottolineato parlando dei bambini, alimenti caratterizzati da alta densità di energia, sono economicamente molto più convenienti rispetto alla verdura o alla frutta fresca.

Per quanto riguarda l'associazione tra sovrappeso/obesità e durata del soggiorno, mentre per gli Stati Uniti si riscontra una associazione positiva, i dati relativi all'Europa sono discordanti.

Lahmann et al. (2000) hanno osservato un effetto negativo della durata della residenza in Svezia in immigrati provenienti da diverse parti d'Europa sull'obesità centrale, mentre un effetto positivo è stato rilevato sulla percentuale di grasso corporeo, ma solo per le donne.

Lindström e Sundquist (2005) hanno riportato un debole effetto della durata del soggiorno degli immigrati sull'obesità, che si è rilevata solo in immigrati provenienti da determinati paesi. Gutiérrez-Fisac et al. (2009) hanno riportato una frequenza più bassa di obesità in immigrati che risiedono nella città di Madrid rispetto alla popolazione spagnola. La

lunghezza del tempo di residenza dei migranti nella città di Madrid non è risultato associato con la frequenza dell'obesità.

A Vienna, nelle donne migranti turche, Kilf e Kiechengast (2011) non hanno riscontrato nessuna correlazione tra durata del soggiorno e stato ponderale.

Ad Amsterdam Dijkshoorn et al. (2008) in uno studio relativo agli immigrati di origine turca e marocchina hanno mostrato un effetto positivo della durata della residenza sull'obesità negli immigrati marocchini, ma non in quelli turchi.

In Italia uno studio longitudinale relativo alla variazione di dati antropometrici (peso, BMI) e di quelli relativi alla pressione sanguigna nei maschi (Toselli et al., 2008) ha mostrato incrementi significativi di sovrappeso e obesità nel periodo considerato (10 anni).

Gele e Mbalilaki (2013) nel loro studio sul sovrappeso e obesità tra gli immigrati africani a Oslo hanno rilevato che sia l'obesità addominale che quella generale risultano significativamente associati con l'aumento della durata di residenza in Norvegia, e con l'essere fisicamente meno attivi.

I diversi risultati degli studi in Nord America e nei paesi europei suggeriscono che l'effetto della durata della residenza sull'obesità può essere soggetta alla variabilità interculturale e che l'acculturazione degli immigrati vari in relazione alla regione geografica di immigrazione e agli aspetti culturali.

Le differenze riscontrate suggeriscono che essendo nei paesi dell'Europa meridionale il fenomeno dell'immigrazione molto più recente, l'ambiente economico, sociale e culturale potrebbe avere un effetto diverso sulla frequenza dell'obesità rispetto a quanto si verifica negli Stati Uniti.

4-Conclusioni

Gli immigrati, sia in età accrescitiva che adulti presentano un fattore di rischio elevato per quanto riguarda i disturbi ponderali e di conseguenza per le malattie ad essi associati. Le percentuali si sovrappeso/obesità risultano infatti generalmente più elevate in queste popolazioni.

Poiché gli immigrati costituiscono il segmento in più rapida crescita della popolazione, le cause degli incrementi di peso corporeo, che si manifestano con il succedersi delle generazioni meritano particolare attenzione e devono essere identificati. Ciò consentirà di avere un quadro esaustivo relativo ai problemi di salute pubblica presenti tra i gruppi di immigrati e intraprendere misure preventive.

E' importante sottolineare che gli immigranti e le minoranze etniche costituiscono gruppi eterogenei per quanto riguarda le loro caratteristiche etniche, le loro radici storiche e culturali, le conoscenze riguardo a comportamenti e stili di vita salutari.

Nell'eziologia dell'obesità, questi fattori sono tutti importanti, ma il peso dei singoli determinanti non è ancora chiaramente identificato.
La risoluzione del problema "obesità" dovrà essere necessariamente multifattoriale.

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APPENDIX A

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Anthropometric Techniques

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Abstract - This tutorial of Anthropometry is designed to give an overview of various anthropometric traits and indices providing indication of the general health and nutritional status of a person or a population. The main anthropometric procedures are briefly presented along with explanatory figures and tables, when necessary.

Abstract - Questa guida di Antropometria è progettata per fornire una panoramica dei diversi caratteri antropometrici e indici che possono fornire indicazioni utili sullo stato di salute generale e nutrizionale di una persona o di una popolazione. Le principali procedure antropometriche sono brevemente presentate, impiegando, quando necessario, figure e tabelle esplicative.

1. Introduction

Measuring the human body is one method of assessing the general health and nutrition status of an individual or a population. The study and technique of measuring human body is called *Anthropometry*. The procedure requires adherence to specific international rules, starting from the International Congress held in Geneva in 1912 (Fig.1) when the International Convention for the unification of anthropometric measurements in living was signed. Measurements are taken at particular anatomical sites (anthropometric landmarks) by an anthropometric equipment.

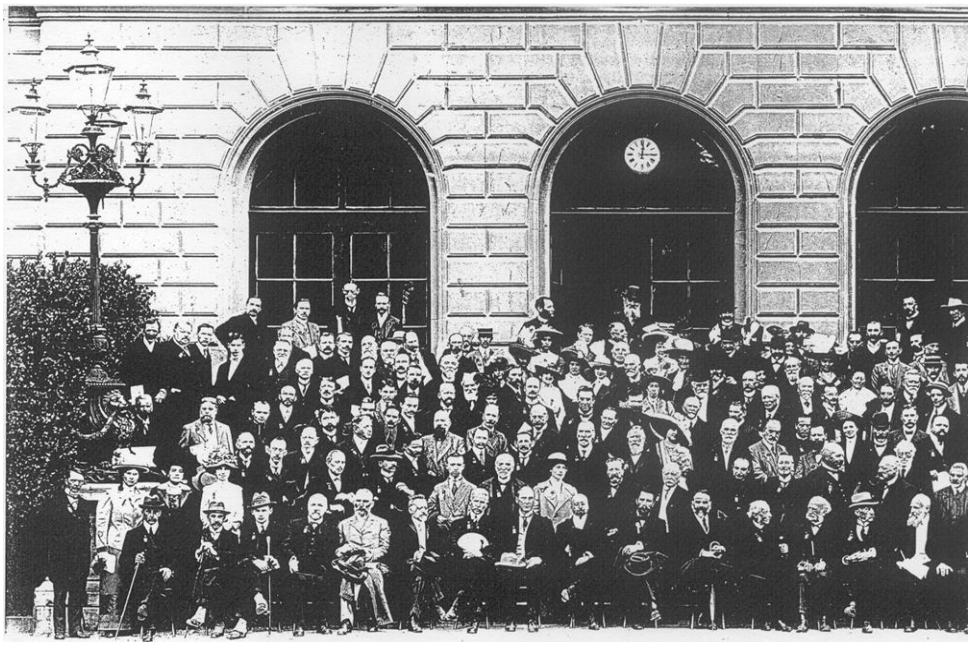

Figure 1- The International Congress of Geneva (1912) (from the archive of the former Institute of Anthropology, University of Bologna, Italy).

2. Techniques for main body measurements

- **STATURE**

Instrument: Stadiometer (anthropometer or altimeter)

Description: This height is the distance (measured in cm) between the highest point of the subject's head (*vertex*) and the sole of the feet (*planta*). It's one of the anthropometric measurements utilized for the calculus of Body Mass Index (BMI).

Procedure:

1. Ask the subject to remove his/her shoes and anything that would interfere with the stature measurement (i.e. glasses).
2. Ask the subject to place his/her feet flat and together in the center of the base of the board
3. Subject's legs have to be straight with heels and calves against the board.

4. Arrange the subject's head in the Frankfort horizontal plane (Fig. 2) -it passes through the upper margin of the auditory canal and the lower margin of the orbit-. This plane has to be parallel to the floor.
5. Make sure that the subject's shoulders are level, the hands are at his/her side and that the head, shoulders blades and buttocks are against the measuring device. The subject has to maintain a fully erect position (upright straightened).
6. Push gently down the movable block until it touches the mid-sagittal plane of the subject's head, compressing the hair.
7. Read the measurement to the nearest 0.1 cm.

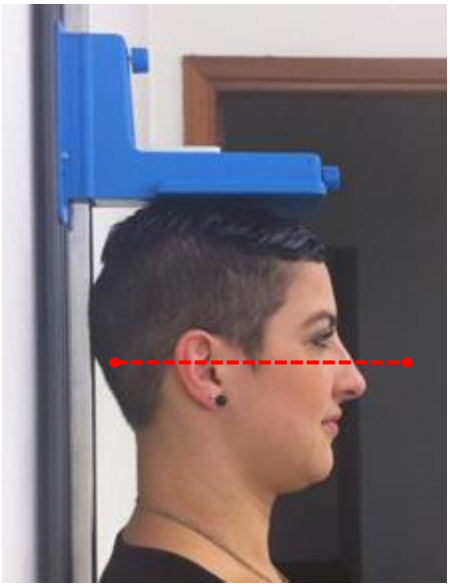

Figure 2 – Correct position on subject's head. The red line states the Frankfort orientation plane.

- **WEIGHT**

Instrument: Weighting scale.

Description: The weight is considered one of fundamental anthropometric traits, together with stature. It's one of the anthropometric measurements utilized for the calculus of Body Mass Index (BMI).

Procedure:

1. Ask the subject to remove his/her shoes and anything that would interfere with the weight measurement (i.e. wallet, keys etc.).
2. He/she has to wear light clothes.
3. Make sure that the subject is standing still over the center of the platform with the body weight equally distributed between both feet.
4. Read the measurement to the nearest 0.1 kg (Fig. 3).

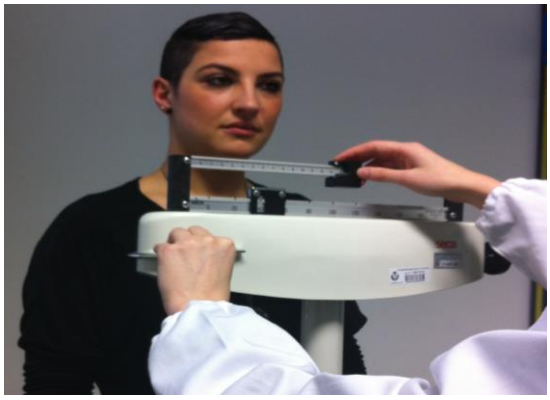

Figure 3 – Measurement of the weight with a platform-beam weighting scale.

- **WAIST GIRTH**

Instrument: Non-stretchable tape

Description: It measures the narrowest part of the torso. It's one of the anthropometric measurements necessary for the calculus of Waist To Hip Ratio (WHR). It is useful to assess health risk (table 1).

Procedure:

1. Ask the subject to stand erect with the abdomen relaxed, the arms at the side of the body and the feet together.
2. He/she has to wear light clothes.

3. Stand in front of the subject and put the tape around him/her in the narrowest part of the torso if determinable (otherwise halfway between the lower costal border and the iliac crest), without compressing the skin with the tape (Fig. 4).
4. Make sure that the plane of the tape is horizontal.

Figure 4 – Waist girth.

5. Make sure that the subject is breathing normally. In case you can ask the subject to count.
6. Read the measurement to the nearest 0.1 cm.

Table 1 - World Health Organisation waist girth sex-specific cut-off points.

Waist girth (cm)		**Risk of metabolic complications**
Men	**Women**	
≥ 94	≥ 80	Increased
≥ 102	≥ 88	Substantially increased

Source: WHO (2000)

- **HIP (GLUTEAL) GIRTH**

Instrument: Non-stretchable tape

Description: It measures the maximum protuberance of the buttocks. It's one of the anthropometric measurements necessary for the calculus of Waist To Hip Ratio (WHR).

Procedure:

1. Subjects have to wear light clothes. Ask him/her to remove anything that would interfere with the measurement (i.e. cell-phone or wallet in the pockets).
2. Ask the subject to stand erect with the abdomen relaxed, the arms at the side of the body and the feet together.

3. Stand at the side of the subject so you can see the maximum posterior extension of the buttocks.

Figure 5 – Hip (gluteal) girth.

4. Put the tape at the maximum extension of the buttocks (Fig. 5).
5. Make sure that the plane of the tape is horizontal and that you are not compressing the skin with the tape.
6. Read the measurement to the nearest 0.1 cm.

- **MID-UPPER ARM GIRTH (relaxed)**

Instrument: Non-stretchable tape

Description: It is the girth of the upper arm (hanging in a relaxed position) taken in the midpoint between the acromion process of the scapula and the olecranon process of the ulna.

Procedure:

1. In order to calculate the midpoint of the subject's left arm ask him/her to bend the elbow to make a right angle.
2. The measurement have to be taken on the left arm.

3. Touch with your fingertips the acromion process of the scapula (the body protrusion on the posterior of the upper shoulder) and the olecranon process of the of the ulna (the tip of the elbow).
4. Using a non-stretchable tape measure the distance between the two landmarks (the acromion and the olecranon). Read the number at the tip of the elbow to the nearest centimeter and divide this number by two to estimate the midpoint. If you want you can mark the midpoint with an indelible ink.
5. Ask the subject to relax his/her arm.
6. Put the tape around the subject's arm at the midpoint (Fig. 6).
7. Make sure that the tape is not too tight or too loose and that its plane is perpendicular to the line of the arm.
8. Read the measurement to the nearest 0.1 cm.

Figure 6 – Mid-upper arm girth (relaxed).

- **TRICEPS SKINFOLD THICKNESS**

Instrument: Skinfold thickness caliper

Description: It is a rapid and simple method used to estimate the percentage of body fat. It is the amount of skin and subcutaneous adipose tissue, opportunely separated from the muscle, measured in the midpoint between the acromion process of the scapula and the olecranon process of the ulna.

Procedure:

1. In order to calculate the midpoint of the subject's left arm ask him/her to bend the elbow to make a right angle.
2. The measurement have to be taken on the left arm.
3. Touch with your fingertips the acromion process of the scapula (the body protrusion on the posterior of the upper shoulder) and the olecranon process of the of the ulna (the tip of the elbow).

4. Using a non-stretchable tape measure the distance between the two landmarks (the acromion and the olecranon). Read the number at the tip of the elbow to the nearest centimeter and divide this number by two to estimate the midpoint. You may mark the midpoint with an indelible ink.
5. After that, have the subject's left arm relaxed and hanged at the side of his/her body.
6. Palpate the subject's measuring site at the posterior surface of the arm (over the triceps muscle) and try to recognize and to separate the muscle from the adipose tissue and the skin.
7. Grasp with your left hand, between thumb and forefinger, a vertical pinch of skin and subcutaneous fat at the previous site, separating it gently from the underlying muscle.
8. Put with your right the skinfold caliper at the measuring point, not pulling away the grasp of the skinfold (Fig. 7).
9. The skinfold has to be vertical.
10. Read the measurement in the caliper after 4 seconds from the full pressure to the nearest 1 mm.

Figure 7 – Triceps skinfold thickness taken with a Lange Skinfold Caliper.

3. Anthropometric Indices

When two measurements are used together, they are called an *Index.* The anthropometric index can provide important information on health and nutritional status of a person. Indexes generally have a classification system that helps in the interpretation of data.

- **BODY MASS INDEX (BMI)**

Description: Body mass index (BMI) is calculated as body weight/height^2 (kg/m^2) and is used to assess each subject's weight status. It is also known as Quetelet's Index. To classify adults as underweight, normal weight, overweight and obese are used the World Health Organization (WHO,

2000) cut-off points (Table 2). Table 3 shows the use of waist girth associated with overweight and obesity for defining diseases risk, in particular type 2 diabetes, hypertension and CVD (NHLBI Obesity Education Initiative (2000).

Table 2 - WHO cut-off points for BMI associated with the risk of comorbidities.

Classification	**BMI (kg/m^2)**	**Risk of comorbidities**
Underweight	< 18.5	Low (but risk of other clinical problems increases)
Normal range	18.5 to 24.9	Average
Overweight	≥ 25	
Pre-obese	25.0 to 29.9	Increased
Obese class 1	30.0 to 34.9	Moderate
Obese class 2	35.0 to 39.9	Severe
Obese class 3	≥ 40.0	Very severe

Source: WHO (2000).

Table 3 - Diseases risk associated with combined BMI and waist girth cut-off points sex-specific.

Classification	**BMI**	**Obesity class**	**Disease risk***	
			Men waist girth < 102 cm Women waist girth < 88 cm	Men waist girth > 102 cm Women waist girth > 88 cm
Underweight	< 18.5			
Normal	18.5 to 24.9			
Overweight	≥ 25		Increased	High
Obesity	25.0 to 29.9	I	High	Very high
		II	Very high	Very high
Extreme obesity	30.0 to 34.9	III	Extremely high	Extremely high

* Disease risk for type 2 diabetes, hypertension and CVD.
Source: NHLBI Obesity Education Initiative (2000).

- **WAIST TO HIP RATIO (WHR)**

Description: Waist to hip ratio (WHR) may help in an evaluation of subject's adiposity and fat distribution. It is calculated as waist girth, that

reflects changes in subcutaneous and visceral fat, divided to hip girth, indicative of variations in bone structure, gluteal muscle and subcutaneous gluteal fact. It therefore indicate the risk of metabolic complications. The World Health Organization (WHO) cut-off points (WHO, 2000) are used to evaluate if the subject is at low risk of metabolic complications or at increased risk (Table 4).

Table 4 - World Health Organisation waist-hip ratio sex-specific cut-off points.

Waist-Hip Ratio		**Risk of metabolic complications**
Men	**Women**	
< 0.90	< 0.85	Increased
≥ 0.90	≥ 0.85	Substantially increased

Source: WHO (2000)

- **ARM FAT INDEX (AFI %)**

Description: Arm fat index (AFI) is based on measurements of the upper arm girth and triceps skinfold thickness (Frisancho, 2008). In the table below (Table 5), the formulae used for the calculus of AFI (%), passing through other indices, are listed.

Table 5 – Formulae for the calculus of upper arm area (TUA), upper arm muscle area (UMA), upper arm fat area (UFA) and arm fat index (AFI) (C: middle upper-arm girth; Ts: skinfold thickness in cm).

Index	**Formula**
Total Upper Arm Area (TUA)	$(C^2) / (4\pi)$
Upper Arm Muscle Area (UMA)	$[C – (Ts \cdot \pi)]^2 / (4\pi)$
Upper Arm Fat Area (UFA)	TUA – UMA
Arm Fat Index (AFI %)	(UFA / TUA) ·100

Source: Frisancho (2008).

5. Other anthropometric techniques

- **BIOELECTRIC IMPEDANCE**

Instrument: Bioelectrical impedance analyzer (Fig. 8)

Description: It is a rapid and accurate method used for the evaluation of fat free mass (FFM), fat mass (FM) and other body composition and nutritional status indicators (i.e. total body water, total muscle area, body cellular mass, etc.). Bioelectric impedance analysis(BIA) measures the resistance and the reactance of a body at the passage of a weak current of electricity in controlled conditions and according to a codified methodology (Gualdi-Russo et al, 1997; Gualdi-Russo, Toselli, 1997). It is based on the principle that FFM and FM do not have the same electrolyte concentrations so they conduct the alternating electric current at low frequency differently. The measurement should be made within 10 minutes from when the subject lies supine.

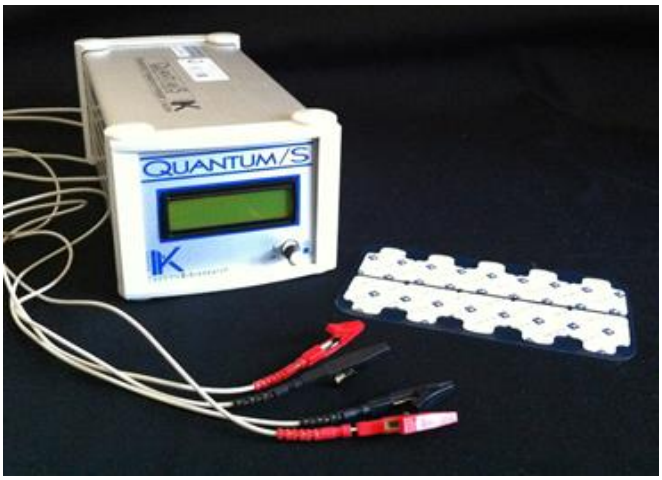

Figure 8 – Bioelectrical impedance analyzer.

Patient's Conditions:

1. To be without food and alcohol for at least 4 hours.
2. Urinary bladder must be empty.
3. Not to have played physical activity for at least 2 hours.
4. Not to use diuretics.
5. Not to have pacemaker, titanium prosthesis or hearing aid.
6. Not to wear any metallic stuff (i.e. bracelets, necklaces, keys);
7. To breathe normally.

Procedure:

1. Tell the subject to lay out in a supine position with arm and feet spread apart and without shoes and socks.
2. Upper arm have to be far at least 30° from the body and leg wide apart 30° one to each other.
3. The subject must not touch his/her body with the hands or any metallic stuff.
4. Put the black electrodes (Fig. 9):
   - on the dorsal aspect of the right wrist between the radial and ulnar distal epiphyses;
   - on the anterior aspect of the right foot between the medial and the later malleolus.
5. Put the red electrodes (Fig. 9):
   - on the distal epiphysis of the third metacarpal;
   -on the distal epiphysis of the third metatarsal. Electrodes have to be wide apart between 4 cm one to each other.
6. Connect the red and black pliers with the electrodes and push the button of the bioelectrical impedance analyzer.
7. Read the results of Resistance (Rz), Reactance (Xc) and Phase angle (φ) in the monitor.
8. Insert subject's stature, weight, resistance and reactance in the dedicated software.
9. In the figure 10, an example of the results that you will obtain inserting the data resulting from the BIA in the software was reported.

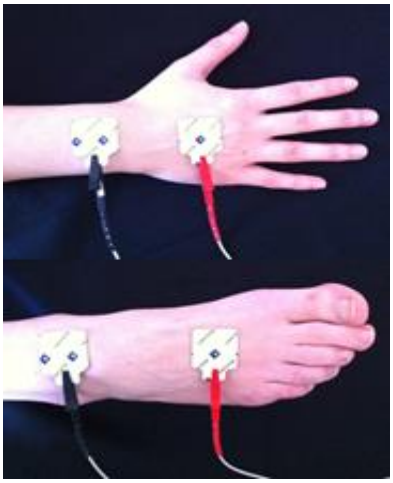

Figure 9 – Correct position of the electrodes in the right hand and right foot.

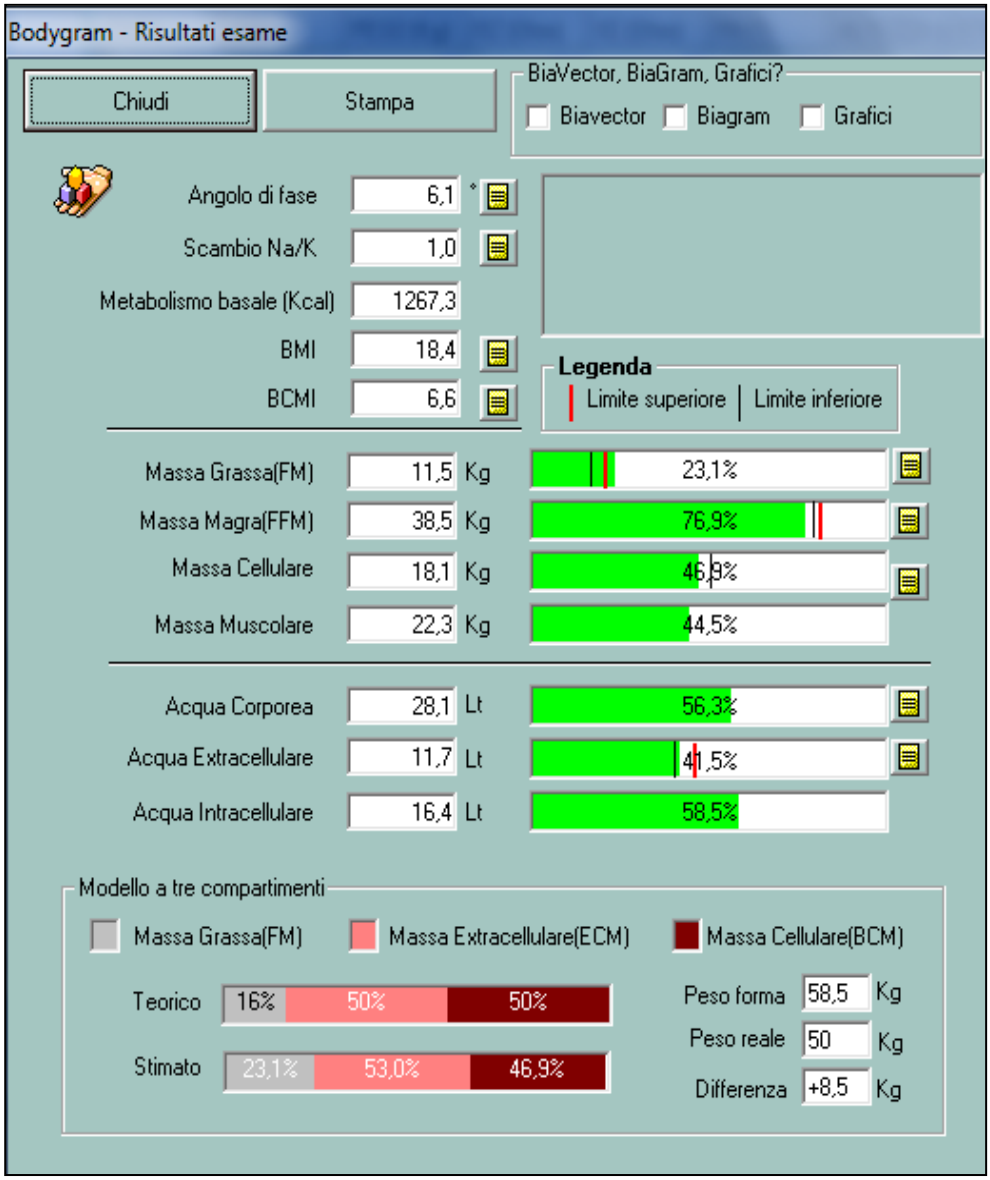

Figure 10 - BIA analyzer: the screen obtained using a specific software.

5. Conclusions

This appendix should have given you practical anthropometric guidance for the assessment of health and nutritional status in adults. The measurement procedures can seem simple, but adequate preparation and technical skills are needed to obtain reliable results. Especially in the case of skinfold thicknesses evaluation, at least two measurements should be carried out, so as to use the average value in any further calculation (wait several minutes between repetitions to reduce the effects of compressibility).

Anthropometric traits detectable on the human body are many. Those listed could be particularly useful in the case of the nutritional status assessment. They were recently collected during the survey of an international project on nutritional status of North-African immigrant women. The research in collaboration with EUNAM partners is still in progress, but the first interesting results confirm the validity of the anthropometric approach.

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