
# Risk factors, awareness of disease and use of medications in a deprived population: differences between natives and undocumented migrants in Italy


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## Abstract

**Objectives:** Undocumented migrants have only limited access to national health services. This is partially compensated by the medical assistance provided by Non-Governmental Organisations (NGOs). The same is true for very poor dropout Italians.

Undocumented migrants have many health problems. A comparison with a suitable control group of natives living in the same socioeconomic conditions is still lacking. This is an important issue, since poverty itself is known to have a significant impact on health conditions.

We designed this preliminary study to get this information.

**Design:** Demographic data and data on risk factors, chronic conditions and dietary habits were obtained and analysed in a sample of 6933 adults (2950 Italians and 3983 undocumented migrants) receiving medical assistance from 40 NGOs all over the country.

**Results:** Due to the fact that these were unselected groups, we noticed some differences in their demographic features, the main being in the marital status (singles: 50.5 % among Italians and 42.8% among migrants). Smokers were more frequent among Italians (45.3% vs 42.7% p = 0.03); the same happened with hypertension (40.5% vs 34.5% p <0.001). Migrants were more often overweight (44.1% vs 40.5% p < 0.001) and reporting a chronic condition (20.2% vs 14.4% p < 0.001).

Among the small group of patients reporting the use of medications (n = 1354) Italians were significantly fewer (n = 425), and the classes of medicines used by the two groups were also significantly different.

Differences emerged also in dietary habits.

**Conclusion:** Differences in health conditions exist between natives and undocumented migrants, not due to a bias related to socioeconomic conditions. On the contrary, the possible bias introduced in this type of study by demographic differences is discussed.

This is a preliminary contribution to further, more detailed investigations, helping to meet specific health needs in this population.



## Key words

Undocumented migrants; poverty; chronic diseases; dispensation of drugs.


## Introduction

Migrants are a growing component of the population in many western countries, and, among them, undocumented migrants are increasingly frequent. Though immigrants were initially considered to be healthier, at least upon arrival, than the host country's natives, this "healthy migrant effect" has subsequently been questioned (Hamilton et al. 2015; Vang et al. 2015).

An important aspect that is receiving increasing attention is the prevalence of chronic diseases in migrants. For example, diabetes is a significant problem in this population (Agyemang et al. 2016; Raza et al. 2017) and it appears to have different clinical features in different ethnical groups (Fedeli et al. 2015). Mental health problems are also frequent in migrants and appear to be related to many factors both in their homeland and in the host country (Arevalo et al. 2015). The same appears increasingly to be true for other chronic diseases. More in general it can be said that multi-morbidity, a well-known problem in the aging western populations, also affects subjects arriving from non-western countries and increases with the duration of their permanence in the host country (Diaz et al. 2015; Gimeno-Feliu et al., 2017).

Not differently from what happens for native-born patients, also for immigrants an important role is possibly played by exposure to risk factors, including unhealthy lifestyles acquired after the arrival, and to exposure to pollutants and noxious agents (Sewali et al. 2015; Aspinall et al., 2014; Zick et al. 2019).

All these considerations are true for documented migrants, whose health data are retrieved in health service databases together with those of native-born citizens. For undocumented migrants some caution should be exerted. This subgroup of patients is much more difficult to study since it escapes standard epidemiological techniques such as random sampling or cohort follow-up studies. This is due to many reasons: for example these persons, being undocumented, not always agree to share their personal data for fear of deportation; they are highly mobile and, frequently, homeless; cultural and linguistic problems are an obstacle, etc. For all these reasons they have additional health threats, as compared to documented migrants, the greatest possibly being a difficulty to get appropriate health care (Hacker et al. 2015), a problem shared by native-borns living in poverty (Elwell-Sutton et al. 2016). This observation calls into play the role of poverty itself, that can be an important confounding factor when studying the health problems of undocumented migrants. Indeed, data are becoming available that start to describe the prevalence of chronic diseases in this population (Fiorini et al. 2016; Jackson et al. 2018). However the fact that a suitable control group is lacking should be overcome to have a clearer picture, since the impact of poverty on health conditions is known from a long time (Marmot, 2002).

To try to do this, we have used the data of NGOs caring for these patients. In Italy, as in other European countries, there is a widespread net of non-governmental organizations (NGOs), providing some degree of health care to the very poor; they are run principally on a voluntary basis, with doctors visiting in outpatient clinics and keeping records of their patients. Both undocumented migrants and Italians living in poverty are helped by these NGOs in Italy.

Therefore we have designed this study on a large sample of such patients, both Italians and migrants, sharing the same situation of poverty, in order to be able to make a comparison between two groups living in the same conditions.

## Methods

### *Population*

6933 adults (2950 Italians and 3983 undocumented migrants from 92 countries) seeking free medical advice and medicines from 40 NGOs scattered all over Italy were enrolled in this study during 2017. The distribution of these NGOs over the Italian territory was almost the same: 12 in

Northern Italy, 12 in the Centre and 16 in the South; the larger number of Centres in Southern Italy was balanced by the fact that each of them contributed a slightly smaller number of patients.

*Data collection*

Patients attending the NGO outpatient clinics were interviewed by a staff member with the help of an interpreter if necessary. Personal data were recorded, including date and place of birth, gender, time since arrival in Italy (migrants only), marital status and number of offspring. The degree of education was calculated using a progressive score from none to University degree. Body weight and height were measured and used to calculate Body Mass Index (BMI); persons with BMI>25 were labelled as overweight; no further distinction was made between overweight and obesity of any degree. Smoking was recorded as a binary variable (yes or no) without further attempting to measure its quantity and duration. Blood pressure was measured and a value of 130/80 mm Hg was considered potentially diagnostic of hypertension, according to recent guidelines (Whelton et al. 2018).

Chronic conditions and ongoing treatments were recorded.

The last part of the interview was focused on evaluating correct dietary habits. This was done by asking all patients how many times in a week they ate healthier foods, i.e. vegetables, fruit and fish.

Statistical analysis was performed using Winks SDA 7 (Texasoft, 2011) and a statistical Excel add-in.

*Ethics*

The design of the study was submitted to the local ethics committee; since the study is only observational, it was not given an authorization protocol number.

All data were completely and permanently anonymized.

All procedures were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Results**

The two groups of patients showed some demographic differences. While sex distribution was comparable (Italians: 49.8% males, 50.2% females; migrants 50.0% males, 50.0% females), mean age was slightly lower in migrants (35.7±12.0 vs. 38.3±15.7 years). The education level was higher among Italians (score 2.4) than migrants (score 1.7). While average offspring was 1 for both groups, a significant difference was seen for marital status: among Italians 1490 were single and 1461 married (or living with the partner), among migrants 1705 were single and 2277 married ($X^2 = 40.2$ $p < 0.001$).

Risk factors in the two groups of patients are shown in table 1; as can be seen a different pattern emerged, with smoking and especially hypertension being more frequent in Italians, while migrants were more likely to be overweight and to report at least one chronic condition. They also

seemed to be more aware of their health status: for example, among hypertensive patients, the conscience to be affected by a chronic condition was significantly higher in migrants (Fig. 1).

Only 1354 subjects reported to be on chronic medications, with a significant difference between Italians (425/2950 = 14.4%) and migrants (929/3983 = 23.3%) ($X^2 = 85.85$, $P < 0.001$).

When we analyzed the main groups of drugs, we found that Italians used a significantly greater amount of cardiovascular drugs, antidiabetic, and neurologic/psychotropic drugs, while the group of other medications was much more represented in migrants (Table 2). This miscellaneous group resulted predominantly made of medications used in renal disease: bicarbonate supplements, phosphate lowering drugs and erythropoietin. Though the numbers were quite small, the distribution was significantly different between Italians and undocumented migrants with only 9/425 of the first on any renal medication as compared to 72/929 in the group of migrants (Fisher's exact test $P < 0.0001$). A difference remained when analyzing separately erythropoietin, though it was not statistically significant (Italians 8/425, migrants 35/929, $p = 0.07$), while it was highly significant for bicarbonate supplements and phosphate lowering drugs (Italians 1/425, migrants 37/929, $P < 0.0001$).

We finally examined possible differences in alimentary habits between the two groups. Italians ate more fruit (1.8±0.8 vs 1.7±0.9) and fish (0.9±0.6 vs 0.8±0.7), while an identical amount of vegetables (1.5±0.8 times per week) was consumed by both groups.

## Discussion

In this study we evaluated the health conditions of a group of undocumented migrants and a group of native-borns living in the same deprived conditions. We decided to carry out this study in consideration of both the high number of undocumented migrants now living in Europe and of the impact of poverty on health (Bennett et al. 2018).

Our two groups of indigent patients showed some differences between them.

Italians were slightly older, had a higher level of education and more than a half of them were single. On the contrary, sex distribution and number of offspring were comparable in the two groups. The impact of these factors on the health status of the population of this study is difficult to measure. The role of age is known, and also in undocumented migrants the number of diseases appears to be associated with advancing age (Jackson et al. 2018); in our study the group of migrants was slightly younger, therefore it seems difficult to explain differences only in terms of age. Sex has also a role in shaping risk factors and morbidity in many ethnic groups (Jackson et al. 2018; Ramsay et al. 2018), but in our two groups the sex distribution was comparable. On the contrary we cannot exclude that marital status and education had an effect, since it is known, for example, that in certain ethnic groups being married and having a lower education level are both associated with a greater risk of multi-morbidity and obesity and its complications (Palo et al. 2019).

Though these considerations have their relevance, we think that the different patterns of the two groups show some interesting features.

First, the number of overweight (and obese) subjects is higher in migrants. Overweight and obesity are a well known problem for many persons coming to Europe from countries with a high migratory flux; however this is also true for those who remain in their homeland but migrate from a rural setting to towns or experience a social upliftement (Ramsay et al. 2018; Agyemang et al. 2016). Though the role of genetic factors in determining obesity has been known for many years (Engelman et al. 2003), these observations suggest that environmental factors, as unhealthy lifestyles, are also important. These considerations are more difficult to make in the case of smoking. The fact that in our group of undocumented migrants a slightly smaller number of smokers is present, as compared to the Italian-born, could be due to its composition in terms of ethnic groups. Indeed, it is known that smoking prevalence varies considerably across different ethnic groups and that the socio-economic gradient in smoking is very strong in certain groups and totally absent in others (Aspinall et al. 2014).

Arterial hypertension seems to be more a problem of the Italian group, but again, this difference could in part be due to the ethnic composition of our group of undocumented migrants. It is known that some populations have a higher incidence of hypertension (Pavli et al. 2017) and differences exist among different groups of migrants coming from different parts of the same continent (Sewali et al. 2015). Therefore when addressing the problem of hypertension in undocumented migrants, analyzing separately the different ethnic groups seems to be advisable. This problem is known to occur also for other chronic diseases as diabetes (Fedeli et al. 2015; Pavli et al 2017).

It is interesting to note that migrants reported more frequently to be affected by a chronic condition. This is in keeping with our previous observations that undocumented migrants frequently need medications for chronic diseases (Fiorini et al, 2016, 2018) and with the observation of other researchers on the high incidence of chronic diseases in documented migrants (Yun et al., 2012). Our population of migrants seemed also to be more aware than Italians of their chronic conditions. This, however, should be interpreted with caution: on one hand recent studies have found that a great proportion of undocumented migrants have at least one chronic condition (Jackson et al. 2018). On the other, their high morbidity could be in part due to social and stress related factors, for example, living without legal status and having problems to access health services, which can also decrease their self-reported health status perception (Kuehne et al. 2015).

This difficulty can be overcome, at least in part, by analysing the use of medications instead of the reported chronic diseases, as we have already shown before (Fiorini et al. 2016). We have tried to do the same in the present study, comparing the drugs dispensed to Italians and undocumented migrants. In the present study, however, we did not use the electronic records available at some NGOs, but information on drugs was obtained by asking the patient. In this way the possibility exists that the information given by the patient is, intentionally or not, incomplete. Though considering this possible bias, an interesting picture emerged, in which Italian patients were more often on cardiovascular, antidiabetic and neurologic/psychotropic drugs. Being the two groups in the same conditions and cared for by the same NGOs, we do not think that this reflects a potential under-treatment of some patients due to barriers to health care (Hacker et al. 2015).

It more likely reflects a real difference but, again, this can be at least in part due to a different prevalence of the same disease in different ethnicities as outlined above.

Another difference is that migrants used more “other medications”; when we looked at this group we found that it was predominantly made of drugs used in kidney disease, mainly chronic renal failure. Though the numbers are too small to draw robust conclusions, this appears to be a topic deserving further investigation.

Finally we considered potential nutritional differences between the two groups, since it has been demonstrated that migrants frequently have problems to comply with a healthy diet and this may have consequences on their health conditions (Raza et al. 2017; Magri et al. 2018). Our data show that, concerning healthy foods, Italians and migrants eat comparable amounts of vegetables, but migrants use less fruit and fish. This can have an impact on the health status of our two groups of patients; however, this is only a cross-sectional picture and more precise and complete information on dietary habits of these patients is needed to attempt an analysis of possible influences and correlations.

Though this is a very preliminary report, to our knowledge it is the first to compare risk factors, health conditions and use of medications in a large group of undocumented migrants vs. a group of Italians excluding the bias of different socioeconomic conditions between the two groups. The differences we have found can be the basis for further studies in different ethnic groups in order to better define their health conditions. This could help to understand the differences in mortality between migrants and non-migrants (Reus-Pons et al. 2016) and to design strategies to treat migrants growing old in Western countries, also because reverse migration seems to become a decreasing phenomenon (Norredam M et al. 2014). Moreover a better knowledge of the health needs of undocumented migrants could lead to the implementation of preventive measures to reduce avoidable hospital admissions (Mipatrini et al. 2017). The presence of migrants in Europe, especially undocumented migrants, is an issue that public health stake-holders should now deal with more incisively (Wild et al. 2018). Community engagement and decision-making capacity (Allotey et al. 2019) are needed to design strategies for the early diagnosis and treatment of chronic diseases in this population. This is necessary first to give these persons the assistance they need, second to avoid the high costs of preventable complications.



**Disclosure statement**

The authors declare no conflicts of interest.

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**Legend**

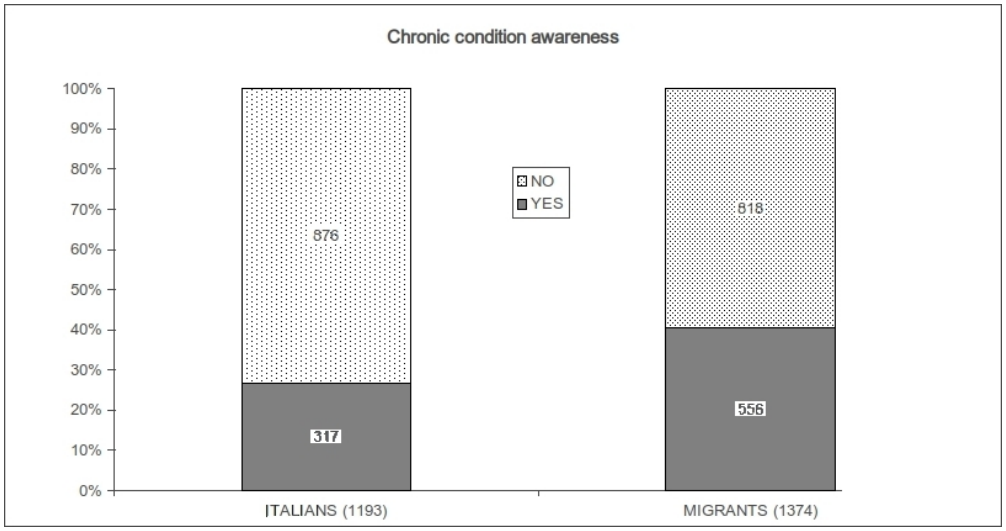
**Fig.1**. Number of subjects aware to be affected by a chronic condition among Italians and migrants with arterial hypertension (Chi-Square 54.93, $p < 0.001$).

| | ITALIANS | MIGRANTS | P |
|---|---|---|---|
| **OVERWEIGHT** | 1193 (*40.5*) | 1757 (*44.1*) | < 0.001 |
| **CIGARETTE SMOKING** | 1335 (*45.3*) | 1699 (*42.7*) | 0.03 |
| **HYPERTENSION** | 1193 (*40.5*) | 1374 (*34.5*) | < 0.001 |
| **REPORTED CHRONIC CONDITIONS** | 425 (*14.4*) | 804 (*20.2*) | < 0.001 |

**Table 1.** Risk factors for Italians and migrants. Data indicate the number of patients. The relative percentages are shown in brackets.

| | ITALIANS | | MIGRANTS | |
|---|---|---|---|---|
| | **YES** | **NO** | **YES** | **NO** |
| **CARDIOVASCULAR MEDICATIONS** | 219 (*51.5*) | 206 (*48.5*) | 392 (*42.2*) | 537 (*67.8*) |
| **ANTIDIABETICS** | 107 (*25.2*) | 318 (*74.8*) | 172 (*18.5*) | 757 (*81.5*) |
| **NEUROLOGIC/PSYCHOTROPIC** | 65 (*15.3*) | 360 (*84.7*) | 46 (*5.0*) | 883 (*95.0*) |
| **OTHER MEDICATIONS** | 114 (*26.8*) | 311 (*73.2*) | 404 (*43.5*) | 525 (*66.5*) |

**Table 2.** Use of different classes of chronic medications in Italians and migrants. Data indicate the number of patients. The relative percentages are shown in brackets. Fisher's test p always <0.005

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