

**Differences in Health Status, Health Behavior and Health Care Utilization between Immigrant
and Native Homeless People in Spain: an Exploratory Study**

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Abstract

Few studies have examined the differences between immigrant and native-born homeless populations. Our aim was to conduct an exploratory study to examine the differences in health status, health behavior and healthcare utilization in a sample of Spanish immigrant and native homeless people. Study was conducted in 8 different temporary accommodations in the Valencia region in August 2018. Overall, 86 participants were included in the analysis who answered questionnaires concerning socio-demographic characteristics, immigration status, health status and behavior, healthcare utilization, experienced discrimination in healthcare and health literacy. In total, 76.7% were male with a mean age of 41.91 (14.17) years, with 60.4% having immigration background with an average of 4.8 (4.2) years since arrival to Spain. No differences were found in the subjective health status, however, native homeless participants reported significantly higher prevalence of heart disease (87.5% vs 12.5%), hypertension (84.6% vs 15.4%), psychological illness (63.6% vs 36.4%), and were also more often smokers (73.5% vs 28.8%), reported smoking more cigarettes per day (12.0 vs 7.4) and were more often illegal drug users (17.6% vs 2.0%). Immigrant participants were significantly more often not insured, reported more problems in health care access, and had lower rates of visits to general practitioners and less hospital admissions. Differences were also observed in social status with the native homeless more often reporting receiving income, and living in less crowded accommodations. Our results show a variety of issues that the immigrant homeless population in Spain is confronted with, that also prevents adequate social inclusion and achieving good health. However, the immigrant population engaged less often in risky health behavior. More, and continuous, monitoring of social, mental and physical health of the homeless population is necessary. Public health interventions aiming at health promotion in the immigrant homeless populations need to focus on increasing overall social integration.

Key Words: native population; immigrant population; health behavior; health status; health care utilization

What is known?

- Homeless people report worse health outcomes and more unwanted health behavior compared to the general population

Presence of health differences between native and immigrant populations are reported, but their extent and nature is largely unknown

What this paper adds?

- No differences in self-reported health status have been observed, however native homeless reported more chronic illness and more cigarette smoking, alcohol consumption and illegal drug use compared to the immigrant homeless population
- Native homeless were more often health insurance holders and had reported more visits to the general practitioners and had more hospital stays
- Immigrant homeless participants reported receiving income less commonly, lived in more crowded temporary housing and had more problems in accessing healthcare services

Introduction

Based on the European Observatory of Homelessness, a homeless person is an individual who has a deficit in at least two specific domains (physical, legal and social) or is roofless or houseless (European Federation of National Organizations Working with the Homeless, 2017). Despite the efforts, there is still no true unified definition of homelessness or rooflessness nor a standardized way of monitoring in Europe (Busch-Geertsema et al., 2010). Given the dynamic nature of homelessness, true estimates of prevalence are difficult to capture; however it has been reported that over 700,000 homeless people are currently residing in Europe (Serme-Morin, 2019). Moreover, since 2015, Europe has received the largest proportion of economic immigrants and asylum seekers, a vulnerable population at high risk for homelessness given the difficulties in social orientation processes and the right to access housing (EuroStat, 2016; Aigner, 2019). Arrivals of undocumented migrants have been observed in Spain where the extent of influx in 2018 surpassed the prior 3 years combined (International Organization for Migration, 2018). Moreover, as a result of the 2008 financial crisis that caused reductions in health and social sector financing, which coupled with high unemployment rates led to more than 20% increase in the need for emergency or temporary housing between 2014 and 2016 (Baptista, 2016; Serme-Morin, 2019). With similar trends of housing expenditure inequalities in Europe and the surging immigration rates, the burden on social and health systems is expected to rise, creating a need for public health interventions and policy (Currie & Tekin, 2011; Libman et al., 2012; Clair et al., 2016).

Relationship between homelessness and health is complex and bidirectional, with older age, chronic illness, mental health problems and substance use associated with higher risk of homelessness (Caton et al., 2005; Fazel et al., 2014; Czaderny, 2020). Studies also noted up to 5 times higher overall mortality rates in the homeless population compared to age-standardized general population, with most excess mortality found in younger homeless people and women (Nordentoft, 2003; Roy et al., 2004; Beijer et al., 2011; Nusselder et al., 2013). Moreover, some

studies have identified homelessness as an independent risk factor for adverse health outcomes and mortality (Morrison, 2009), with one US study reporting that causes of mortality in older homeless people are similar to the general population, however 10-15 years earlier than the general population (Baggett et al., 2013). Overall, studies report that homeless people experience worse physical and mental health outcomes compared to the general population, including those from the most deprived areas (Schanzer et al., 2007; Sun et al., 2012; Henwood et al., 2013; Lebrun-Harris et al., 2013). This may be related to higher prevalence of undesirable health behavior that is associated with adverse health outcomes, as homeless people report more illicit drug use, tobacco smoking, alcohol consumption, poorer nutrition and low levels of physical activity, as well as limited access to health care services (Fazel et al., 2008; Torchalla et al., 2011; Garner & Ratschen, 2013; Smith et al., 2019).

Differences are also seen between homeless populations, whereby chronically homeless people have worse health outcomes compared to those in intermittent or transitional homelessness (Fazel et al., 2014). Furthermore, a Canadian study indicated that newly arrived immigrants who are experiencing homelessness are generally healthier compared to the local homeless population (Chiu et al., 2009). In this respect, migration itself is not a risk factor for ill health (International Organization for Migration, 2004). However, encountered problems and circumstances during migration may lead to developing risky health behaviors and ensuing physical, mental and social health problems (Pavli & Maltezou, 2017). However, studies show that the immigrant populations engage less often in risky health behavior such as tobacco smoking or excessive alcohol consumption and have overall lower rates of mental health and substance abuse problems compared to native-born homeless people (Chiu et al., 2009; Tsai & Gu, 2019). However, more often their healthcare needs are unmet and their right to healthcare denied, with evidence on health status and healthcare access still being scant to allow for clear conclusions (Lebano et al., 2020).

In general, homeless people more frequently present with illness symptoms and are often missed by primary health prevention strategies (Power et al., 1999). Across different countries and health care systems, homeless people have higher rates of health care utilization in acute settings, including emergency department visits and hospital admissions (Brown et al., 2013; Hwang et al., 2013; Lebrun-Harris et al., 2013). These are partly due to higher levels of chronic illness, mental health and substance abuse issues, injuries and communicable diseases; however, homelessness has also been found to be an independent factor for both emergency room visits and acute hospital admissions, due to structural barriers that often prevents safe disease management outside the hospital setting (Lebrun-Harris et al., 2013). Moreover, access to health care and insurance next to legal issues, stigmatization and experienced discrimination from the health care professionals are further barriers in accessing appropriate level of health care (M. B. Kushel et al., 2001). The issues in accessing healthcare services are probably even more prominent in the immigrant homeless communities, with discrimination and legal issues being prominent issues for immigrant populations in Europe (Bradby et al., 2020; Lebano et al., 2020).

Given the paucity of studies comparing the native homeless with recent immigrant homeless, we aimed to conduct an exploratory study to examine the differences in health status, health behavior and health care utilization in a sample of Spanish immigrant and native homeless people. To the best of our knowledge, this is the first study investigating these differences in Europe.

Participants and Methods

Participants

Study participants were men and women who were houseless (European Federation of National Organisations Working with the Homeless, 2017), recruited in one of 8 different temporary accommodations and reception centers in the Valencia region of Spain between

August and September 2018. Centers were chosen based on their responsiveness to the study team. Originally, a list of 12 facilities offering services to homeless people was received from the local government and all were contacted, however only 8 replied in positive. In order to minimize selection bias, all people who were found at the centers were asked to participate if they met the inclusion criteria (over 18 years of age, homeless at time of survey and adequate knowledge of Spanish, French or English language) and were included after informed consent was given.

Methods

The study was designed as a multicenter cross-sectional exploratory study. A standard paper-pencil questionnaire was filled out with the help of a trained interviewer. Once consent to participate was given, the interviewer administered the structured interview and conducted blood pressure measurement using a standardized protocol. Anonymized filled questionnaires were placed in sealed envelopes and opened by the research team and analyzed separately without being able to link individual participants to their respective questionnaires.

Questionnaire

A questionnaire for the purposes of this study was designed in collaboration with professionals and organizations working with direct contact with homeless people. The questionnaire combines single and multiple choice as well as open-end questions. The questionnaire consisted of 65 items divided into:

1. Socio-demographic questions: including questions on age, sex, education level, partnership status, country of origin, nationality, spoken languages, health insurance and income. Here the participants were also asked question on their current living conditions, if they were placed in temporary accommodations or reception centers and number of people in the shared accommodation and their legal status in Spain.

2. Questions regarding immigration status: those who reported being immigrants were asked about the duration of their stay in Spain, time passed since leaving home country, if Spain was their final destination, transportation used to come to Spain, their sense of belonging to Spain as well as their sense of belonging to their home country.
3. Questions on health status and health behavior: participants were asked to subjectively assess their general health status as well as dental status, the presence of chronic illness (diabetes mellitus, stroke, cancer, gastrointestinal, cardiovascular, respiratory and psychological illness), smoking status and frequency (including the number of consumed cigarettes), frequency of illegal drug and alcohol consumption as well as use of prescription medication.
4. Questions on health care utilization: participants were asked if they had health insurance and if so what type, as well as to report the number of visits to a general practitioner and emergency department in the past 12 months and in the past month, respectively, the number of hospital admissions and nights spent in a hospital in the past year.
5. Discrimination in health care settings: a validated questionnaire “Discrimination in Medical Settings Scale” was used to assess the experienced level of discrimination (Peek et al., 2011). The questionnaire comprises of 7 statements on frequency of experienced discrimination on a Likert type scale (ranging from 1 “Never” to 5 “Always”). Score is achieved by summation of all answers to the Likert scale, with higher scores denoting more experienced discrimination.
6. Health literacy: was assessed by the 3 item health literacy screener, a validated questionnaire designed for quick screening of health literacy in primary practice (Chew et al., 2008). The screener has 3 statements regarding the level of independency with filling out medical forms, level of understanding reading materials or explanations on their health status. Score is a sum of the individual scores on the Likert scales with lower

scores denoting more health literacy. Additionally, we assessed if the participants required translation services and if these were available upon request.

Overall, the questionnaire required 10 minutes to be completed.

Statistical Analysis

Given the exploratory nature of the study, descriptive statistical analyses were performed for each variable. Continuous variables are shown as means and standard deviation and categorical variables as frequencies and percentage.

Differences between the immigrant and native homeless participants for categorical variables were carried using the Chi-square test and Fisher exact test where necessary, while differences between continuous variables were examined using t-test for unpaired samples. All p-values below 0.05 were considered statistically significant. The analysis was performed using the SPSS 24.0 statistical software.

Ethical consideration

The study received ethical approval from the Ethical Committee of the University of Valencia. Informed consent was given by all participants prior to their recruitment in the study.

Results

A total of 100 people in 8 temporary accommodations and reception centers (4 homeless shelters and 3 day centered ran by non-governmental organizations, 1 immigration reception center) in Spain met the inclusion criteria and 94 consented to participate in the study. A further 8 questionnaires needed to be excluded from analysis due to insufficient answers and a final total of 86 were included in the statistical analysis.

Sociodemographic characteristics of the participants

Our sample consisted of predominantly male participants (76.7%) with a mean age of approximately 42 years. Overall, 60.4% or 52 participants were immigrants. Differences in

socio-demographic characteristics of native and immigrant participants are shown in table 1. Significant differences between groups were seen in age, where on average, immigrant homeless people were 17 years younger than the native homeless, have spent less time being homeless, however live in more crowded shared housing.

In terms of immigration characteristics, participants reported an average of almost 6 years since leaving their home country, with the last 5 on average being spent in Spain. However, more than 60% reported having no legal status in Spain, although more than 80% consider Spain to be their final destination. Three quarters of participants reported having strong or very strong sense of belonging to Spain and 46.2% stated they have a strong or very strong sense of belonging to their home country. Variables associated with immigration are shown in table 2.

Health status

Health and health behavior associated variables are presented in table 3. Almost 40% of participants described their health as “neither good nor bad”, with same percentages in both the native and immigrant homeless group. However, in relation to participant reporting of dental health the majority of participants described it as “bad”. A significantly higher proportion of Spanish participants reported having no teeth compared to immigrant participants (26.5% vs 3.8%). Differences were also observed in frequency of reported chronic illness with native participants more commonly reporting cardiovascular and psychological illness as well as stroke. Furthermore, significant differences were found in the comorbidity status, where comorbidity (presence of 2 chronic illnesses) and multimorbidity (presence of 3 or more chronic illnesses) were more common among the native population. No differences were found in alcohol consumption, however the native population reported more illegal drug use and also were more often smokers as well as reported higher number of smoked cigarettes. Half of native

participants describe their mental health as “bad” compared to almost 29% of immigrants, however, the differences were not found to be statistically significant.

Health care utilization

The results of the analysis of health utilization are presented in table 4. Participants with immigration background significantly more often reported not having health insurance or having temporary health insurance. Furthermore, participants with immigration background reported having more problems when accessing health care and also reported significantly fewer visits to the general practitioner both in the last year and month. Spanish participants also had more hospital admissions and spent on average 18 times more nights in hospital in the previous year compared to the immigrant participants. No differences were observed in health literacy scores between groups, however, native participants reported higher scores on the discrimination in the health care system scale compared to the immigrant participants.

Discussion

Results from the present analyses show differences in the health status, health behavior and utilization of health care between native and immigrant homeless in Spain. This exploratory study found that the native homeless population reports more multimorbidity, more risky health behavior as well as higher levels of health care utilization compared to the immigrant homeless population, which was also found to be significantly younger than the native homeless population. Based on the current reports on the registered homeless in the Valencia region of Spain, our exploratory study reached around 10% of the total homeless population, and demographic data from our sample corresponds well to the data of the registered homeless in November of 2020 with the average age reported being 44.5 years and 21% being female (Calvo & Botija, 2020).

Our study shows that homeless participants in Spain mostly report their overall health status as mediocre (“Not bad nor good”), with no differences between Spanish and immigrant

participants. Similar results were reported from a cross-sectional study of native Spanish homeless people, where 43.8% of homeless people reported their health as “regular” (Fajardo-Bullón et al., 2019). However, we also observed that more than 40% of the entire study population reported having at least one chronic health problem. Higher prevalence of chronic illness in the homeless population has been unequivocally shown in previous studies concerning the health status of the homeless people (Schanzer et al., 2007; Sun et al., 2012; Scott et al., 2013; Lebrun-Harris et al., 2013). Mental health problems were the most commonly reported chronic health issues, which was also shown in other studies possibly due to the associations of homelessness with childhood poverty, substance abuse disorders, harsh living environments and high rates of sexual abuse and victimization (Margot B. Kushel et al., 2003; Montgomery et al., 2013; Lebrun-Harris et al., 2013; Mackelprang et al., 2014). Some studies have reported that psychosis seems to be more prevalent than depression in the homeless population; however, there seems to be a high degree of heterogeneity between various studies indicating a need for more local surveys (Fazel et al., 2008). Furthermore, studies have also reported higher estimates of substance abuse problems (alcohol and illegal drugs) in the homeless population compared with the general population (Fazel et al., 2008). The present results showed relatively small proportions of substance use issues. For the Spanish homeless population this may be due to the recruitment in temporary accommodations and reception centers where anti-drug and anti-alcohol policies are implemented, or due to fear of reporting and unwanted legal consequences.

Despite no differences being observed in self-reported health status, in the present study the proportion of reporting one chronic illness was higher in the immigrant population, however the reporting of multimorbidity (i.e. having 3 or more chronic conditions) was higher in the native population, which also reported significantly higher proportions of hypertension, heart disease, stroke and psychological illness compared to the immigrant population. These differences may be in part explained by the significant difference in age of participants as in our study the immigrant participants were on average 17 years younger compared to the native

population. However, this phenomenon has been observed in Europe, as the population of homeless people is changing from middle-aged men to younger people, families and immigrants. These are in part explained by higher costs of living, migration patterns and changes in family structures (European Commission, 2013). Moreover, differences were observed in health behavior whereby higher proportions of smoking were seen in the native homeless participants compared to the immigrant population. Spanish participants were also heavier smokers smoking a reported 12 cigarettes a day compared to 7.4 cigarettes reported by the immigrant population who smokes. No differences in alcohol consumption were observed, however more occasional and regular drug use was also reported by the Spanish homeless population. These undesirable health behaviors may be due to pressures from the immediate social network, as results from one qualitative study showed that homeless people feel pressured in smoking in and around temporary accommodations and reception centers (Pratt et al., 2019). Smoking is one of the largest promoters of health inequality and further promotes the observed results differences in health status (Kubisová et al., 2007; Baggett et al., 2013).

Significant differences were observed in health care utilization. Overall, 65.1% of participants reported accessing health care services without any problems in the past year with similar rates reported in a US study of nationally representative sample (M. B. Kushel et al., 2001). However significant differences were found between native and immigrant participants, where immigrant participants reported higher prevalence of problems when accessing health care services. Native participants made 2-3 times more visits to the general practitioner in the past month and year, respectively, and had significantly more hospital admissions and nights spent in the hospital. Higher number of hospitalizations and health care utilization in the homeless population are not surprising and have also been reported universally, regardless of the health care system, with homelessness being an independent factor for increased health care utilization (Hwang et al., 2013; Lebrun-Harris et al., 2013). This is partly due to the inability to effectively meet the specific needs of treatment of care for the homeless given the dynamic

nature of their condition as well as due to comorbidity with mental health and substance abuse issues, which also have a detrimental effect on the compliance, with more than 30% of homeless reporting being unable to comply with prescribed medication (M. B. Kushel et al., 2001). In countries that offer universal health care, this may be less prominent given more community treatment options were available, however, the number of hospital admissions still remains high (Hwang et al., 2013; M. B. Kushel et al., 2001; Lebrun-Harris et al., 2013). The differences in our sample may be in part explained with health insurance status as immigrant participants more often have no health insurance or just temporary one, as well as more than 60% having no legal status in Spain. Overall, evidence on health status and healthcare access in Europe is scant and does not allow clear conclusions, however, studies have indicated unmet needs as well as denied rights to healthcare of the immigrant population in Europe (Lebano et al., 2020).

This, with higher levels of reported problems when accessing healthcare may act as deterrents in seeking medical help. Having these results in mind we would also expect to have observed higher levels of experienced discrimination shown highly prevalent among the homeless population (Skosireva et al., 2014); however, higher levels of discrimination were reported by the native participants in the present study. This may be due to overall fewer contacts with the healthcare sector, but also due to more prevalence of mental health and substance use issues in the Spanish homeless population that was also older, which may be a reason for double stigmatization making the native participants more prone for discriminatory experience (Skosireva et al., 2014; van Dongen et al., 2019). We would be remiss not to also report that, although anecdotal, the interviewers did report that the immigrant participants were overly noncritical and made efforts to explain all experiences of discrimination, possibly out of fear given the precarious nature of their legal status.

Immigrant population may be more vulnerable to homelessness due to economic reasons rather than health problems (Chiu et al., 2009). In our analysis, significantly more native

participants reported receiving income, with higher incomes among the native participants even as these were not found to be statistically significant. Native participants were also found to have placement in less crowded housing compared to the immigrant population. This could be also explained by lack of homeless experience, as native participants were on average 5 years longer homeless compared to the immigrant participants.

Results of our study need to be observed in light of the limitations. Given the overall lack of literature on the health status, behavior and access to healthcare in Europe of the homeless and the differences to the immigrant homeless populations we aimed to conduct an exploratory study and provide descriptive data that may be used for generating future hypotheses. Even as we did try to cover a number of different temporary accommodations (shelters offering overnight stay and day centers) and immigration reception centers, we managed to acquire a convenience sample of 86 participants accounting for 10% of the registered homeless population in Valencia, however is not representative and therefore may not be generalized to other homeless populations in Spain or the EU. Given our sampling strategy focused on sampling in various facilities, we have an overrepresentation of people who have accommodation in shelters. However, shelters in Valencia are not able to provide accommodation to all people in need of it, therefore there are more people who are roofless and sleep rough. The further sampling bias might have occurred as only those who spoke Spanish, French or English could be interviewed. These methodological issues should be taken into account in the following studies. Given the vulnerability of the homeless population as well as the precarious legal situation of some of our participants there may be some reporting bias leading to further data distortion. Relationships between homelessness and health outcomes may be bidirectional and our exploratory cross-sectional design does not allow making causal conclusions.

Conclusions

Results of our exploratory study show a variety of issues confronted by immigrant homeless people in Spain that prevent social inclusion processes and access to healthcare services. However, in spite of these issues, immigrant homeless study participants still reported better health status and engaged less often in risky health behaviors compared to the Spanish homeless population. In order to better evaluate these differences as well as to better monitor the health status of the homeless population, there is a clear need for more country specific cross-sectional and longitudinal studies. Given the exploratory nature of our study, we did not include all risky behaviors and therefore questions on sexual and reproductive health were not included. These are important and should be included in further investigations as some studies also noted the specific issues faced by women experiencing homelessness (Vuillermoz et al., 2017; Mings & Soto Mas, 2019). Therefore, more studies are needed with additional focus on gender differences in health behavior and health care utilization that may lead to better care pathways. Especially worthy are qualitative and mixed-methods studies looking into personal experiences of the homeless providing further validity to questionnaire based studies. Public health interventions aiming at the promotion of health in the homeless need to consider cross-cultural aspects in order to improve health and social integration of the newly arrived immigrant homeless population.

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Table 1

Sociodemographic characteristics of the study population

Variable	Total participants (N=86)	Native (n=34)	Immigrant (n=52)	p*
Age (Mean; SD)	41.91 (14.17)	52.42 (9.01)	35.23 (12.76)	<0.001
Sex % (n)				0.305
Male	76.7 (66)	70.6 (24)	80.8 (42)	
Female	23.3 (20)	29.4 (10)	19.2 (10)	
Partnership status % (n)				0.303
In a partnership	11.6 (10)	5.9 (2)	15.4 (8)	
Not in a partnership	88.6 (76)	94.1 (32)	84.6 (44)	
Education status % (n)				0.273
No formal education	10.5 (9)	11.8 (4)	9.6 (5)	
Primary level	36.0 (31)	47.1 (16)	28.8 (15)	
Secondary level	38.4 (33)	32.4 (11)	42.3 (22)	
Tertiary level	15.1 (13)	8.8 (3)	19.2 (10)	
Spanish as a mother tongue % (n)				<0.001
Yes	57.0 (49)	100.0 (34)	28.8 (15)	
No	43.0 (37)	0 (0)	71.2 (37)	
Do you receive income % (n)				<0.001
Yes	32.6 (28)	64.7 (22)	11.5 (6)	
No	67.4 (58)	35.3 (12)	88.5 (46)	
If yes, how much net income in Euros (Mean; SD)	556.19 (700.42)	607.90 (770.59)	399.00 (155.34)	0.452
Years without a house (Mean; SD)	3.18 (5.9)	6.3 (8.4)	1.5 (3.3)	0.013
Living condition % (n)				0.060
Temporary accommodations and reception centers	82.6 (71)	73.5 (25)	88.5 (46)	
Street	14.0 (12)	20.6 (7)	9.6 (5)	
Car or other	3.5 (3)	5.9 (2)	1.9 (1)	
Number of people in the same housing (Mean; SD)	84.8 (56.7)	70.9 (46.6)	92.8 (60.7)	0.110
Number of people in the same room (Mean; SD)	3.5 (3.8)	1.6 (0.9)	4.7 (4.3)	<0.001
Previously lived in temporary accommodations and reception centers % (n)				0.868
Yes	57.0 (49)	55.9 (19)	57.7 (30)	
No	43.0 (37)	44.1 (15)	42.3 (22)	
Feeling safe at a temporary accommodations and reception centers % (n)				0.597
Not safe	23.3 (20)	20.6 (7)	25.0 (13)	
Somewhat safe	17.4 (15)	11.8 (4)	21.2 (11)	
Fairly safe	19.8 (17)	23.5 (8)	17.3 (9)	
Totally safe	39.5 (34)	44.1 (15)	36.5 (19)	

*Differences between variables calculated using the Chi-square test for categorical variables and the t-test for unpaired samples for metric variables; SD= standard deviation

Table 2

Immigration experiences and history of the immigrant homeless participants

Variable	Immigrant participants (n=52)
Years since leaving home country (Mean; SD)	5.8 (7.4)
Years since arriving to Europe (Mean; SD)	5.2 (7.3)
Years since arriving to Spain (Mean; SD)	4.8 (7.2)
Sense of belonging in Spain % (n)	
No opinion	7.7 (4)
Very weak	1.9 (1)
Weak	11.5 (6)
Strong	38.5 (20)
Very strong	36.5 (19)
Missing	3.8 (2)
Sense of belonging to home country % (n)	
No opinion	7.7 (4)
Very weak	25.0 (13)
Weak	17.3 (9)
Strong	23.1 (12)
Very strong	23.1 (12)
Missing	3.8 (2)
Spain as final destination % (n)	
Yes	87.5 (42)
No	8.3 (4)
I don't know	4.2 (2)
Seeking asylum in Europe % (n)	
Yes	28.8 (15)
No	63.5 (33)
Missing	7.7 (4)
Seeking asylum in Spain % (n)	
Yes	28.8 (15)
No	63.5 (33)
Missing	7.7 (4)
Legal status in Spain % (n)	
Yes	30.8 (16)
No	61.5 (32)
Missing	7.7 (4)

Table 3

Health related variables of the native and immigrant homeless population

Variable	Total participants (N=86)	Native (n=34)	Immigrant (n=52)	p [*]
Height in cm (Mean; SD)	172.99 (9.85)	171.0 (10.43)	174.3 (9.33)	0.136
Weight in kg (Mean; SD)	72.2 (16.18)	73.19 (15.04)	76.63 (16.92)	0.364
BMI in kg/m2 (Mean; SD)	25.11 (5.01)	25.09 (4.94)	25.12 (5.11)	0.982
Subjective perception of health % (n)				0.073
Bad	14.0 (12)	26.5 (9)	5.8 (3)	
Not good nor bad	38.4 (33)	38.2 (13)	38.5 (20)	
Good	27.9 (24)	23.5 (8)	30.8 (16)	
Very good	11.6 (10)	8.8 (3)	13.5 (7)	
Excellent	8.1 (7)	2.9 (1)	11.5 (6)	
Subjective perception of dental health % (n)				0.330
Bad	37.1 (32)	50.0 (17)	28.8 (15)	
Not good nor bad	27.9 (24)	20.6 (7)	32.7 (17)	
Good	24.2 (21)	20.6 (7)	26.9 (14)	
Very good	2.3 (2)	2.9 (1)	1.9 (1)	
Excellent	8.1 (7)	5.9 (2)	9.6 (5)	
Teeth status % (n)				0.004
All teeth	41.9 (36)	26.5 (9)	51.9 (27)	
Partial dentures	45.3 (39)	47.1 (16)	44.2 (23)	
No teeth	12.8 (11)	26.5 (9)	3.8 (2)	
Diagnosed chronic illness % (n)				
Gastrointestinal	26.7 (23)	30.4 (7)	69.6 (16)	0.330
Diabetes	4.7 (4)	75.0 (3)	25.0 (1)	0.296
Heart disease	9.3 (8)	87.5 (7)	12.5 (1)	0.006
Hypertension	15.1 (13)	84.6 (11)	15.4 (2)	0.001
Psychological	38.4 (33)	63.6 (21)	36.4 (12)	0.001
Respiratory	17.4 (15)	53.3 (8)	46.7 (7)	0.256
Cancer	3.5 (3)	100.0 (3)	0	0.058
Stroke	8.1 (7)	100.0 (7)	0	0.001
Other	40.7 (35)	37.1 (13)	62.9 (22)	0.823
Comorbidity status % (n)				0.001
No morbidity	18.6 (16)	14.7 (5)	21.2 (11)	
Morbidity (1 chronic illness)	41.9 (36)	23.5 (8)	53.8 (28)	
Comorbidity (2 chronic illnesses)	16.3 (14)	17.6 (6)	15.4 (8)	
Multimorbidity (3 or more chronic illnesses)	23.3 (20)	44.1 (15)	9.6 (5)	
Smoking status % (n)				<0.001
Non-smoker	39.5 (34)	14.7 (5)	55.8 (29)	
Occasional smoker	14.0 (12)	11.8 (4)	15.4 (8)	
Smoker	46.5 (40)	73.5 (25)	28.8 (15)	
Number of cigarettes a day (Mean; SD)	10.0 (7.4)	12.0 (7.2)	7.4 (7.0)	0.030

Alcohol consumption % (n)				0.429
Never	59.3 (51)	58.8 (20)	59.6 (31)	
Once a month or less	18.6 (16)	11.8 (4)	23.1 (12)	
2-4 times a month	10.5 (9)	11.8 (4)	9.6 (5)	
2-3 times a week	4.7 (4)	8.8 (3)	1.9 (1)	
4 or more times a week	7.0 (6)	8.8 (3)	5.8 (3)	
Illegal drugs consumption % (n)				0.008
No	83.7 (72)	70.6 (24)	94.1 (48)	
Occasional	7.0 (6)	11.8 (4)	3.9 (2)	
Regular	8.1 (7)	17.6 (6)	2.0 (1)	
Missing	1.2 (1)			
Systolic blood pressure (mmHg, Mean; SD)	125.5 (17.0)	132.8 (18.2)	122.9 (16.0)	0.038
Diastolic blood pressure (mmHg, Mean; SD)	95.8 (97.2)	88.1 (15.2)	98.4 (112.4)	0.710

*Differences between variables calculated using the Chi-square test for categorical variables and the t-test for unpaired samples for metric variables; SD= standard deviation

Table 4

Healthcare utilization characteristics of the native and immigrant homeless populations

Variable	Total participants (N=86)	Native (n=34)	Immigrant (n=52)	p [*]
Health insurance % (n)				0.001
Yes	77.4 (64)	94.1 (32)	61.5 (32)	
No	25.6 (22)	5.9 (2)	38.5 (20)	
Type of health insurance % (n)				<0.001
Permanent	60.5 (52)	100.0 (34)	56.2 (18)	
Temporary	16.3 (14)	0	43.8 (14)	
Missing	23.3 (20)			
Access to health service in the last year % (n)				<0.001
No	16.3 (14)	5.9 (2)	23.1 (12)	
Yes, without problems	65.1 (56)	91.2 (31)	48.1 (25)	
Yes, with problems	18.6 (16)	2.9 (1)	28.8 (15)	
Visits to the GP in the last year (Mean; SD)	6.3 (11.0)	11.0 (13.55)	3.33 (7.69)	0.004
Visits to the GP in the last month (Mean; SD)	1.1 (2.0)	1.82 (2.39)	0.65 (1.65)	0.016
Visits to the Emergency last year (Mean; SD)	1.3 (2.1)	1.50 (2.49)	1.13 (1.80)	0.432
Visits to the Emergency last year (Mean; SD)	0.2 (0.5)	0.24 (0.43)	0.25 (0.65)	0.908
Last visit to the dentist % (n)				0.101
Don't remember	4.7 (4)	2.9 (1)	5.8 (3)	
This year	18.6 (16)	26.5 (9)	13.5 (7)	
Less than 2 years ago	23.3 (20)	14.7 (5)	28.8 (15)	
Less than 5 years ago	26.7 (23)	26.5 (9)	26.9 (14)	
More than 5 years ago	11.6 (10)	20.6 (7)	5.8 (3)	
Never	15.1 (13)	8.8 (3)	19.2 (10)	
Hospital admissions in the last year (Mean; SD)	0.2 (0.4)	0.44 (0.50)	0.15 (0.36)	0.006
Total nights spent in a hospital (Mean; SD)	2.5 (4.8)	7.30 (11.74)	0.39 (1.18)	0.017
Access to medication % (n)				0.010
No need for meds	33.7 (29)	15.2 (5)	46.2 (24)	
Access to meds	48.8 (42)	60.6 (20)	42.3 (22)	
No access to meds	16.3 (14)	24.2 (8)	11.5 (6)	
Missing	1.2 (1)			
Use of medication without prescription % (n)				0.260
Yes	18.6 (16)	11.8 (4)	23.1 (12)	
No	81.4 (70)	88.2 (30)	76.9 (40)	
Health literacy score (Mean; SD)	5.69 (2.92)	5.08 (2.97)	6.09 (2.85)	0.119
Discrimination in healthcare score (Mean; SD)	10.38 (5.26)	11.76 (7.01)	9.48 (3.48)	0.048

*Differences between variables calculated using the Chi-square test for categorical variables and the t-test for unpaired samples for metric variables; SD= standard deviation