

Original Research

Cite this article: Monteiro Fernandes A, Gama Marques J, Bento A, and Telles-Correia D (2022). Mental illness among 500 people living homeless and referred for psychiatric evaluation in Lisbon, Portugal. *CNS Spectrums* 27(6), 699–708.
<https://doi.org/10.1017/S1092852921000547>

Received: 17 February 2021
 Accepted: 11 May 2021


Key words:

Homeless; mental illness; psychosis; schizophrenia; schizoaffective; organic psychosis

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Mental illness among 500 people living homeless and referred for psychiatric evaluation in Lisbon, Portugal

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Abstract

Background. Our goal was to identify the demographic profile of the people living homeless with mental illness in Lisboa, Portugal, and their relationship with the national healthcare system. We also tried to understand which factors contribute to the number and duration of psychiatric admissions among these homeless people.

Methods. We used a cross-sectional design, collecting data for 4 years among homeless people, in Lisboa, Portugal, that were referred as possible psychiatric patients to *Centro Hospitalar Psiquiátrico de Lisboa* (CHPL). In total, we collected data from 500 homeless people, then cross-checked these people in our CHPL hospital electronic database and obtained 467 patient matches.

Results. The most common psychiatric diagnosis in our sample was drug abuse (34%), followed by alcohol abuse (33%), personality disorder (24%), and acute stress reaction (23%). Sixty-two percent of our patients had multiple diagnoses, a subgroup with longer follow-ups, more psychiatric hospitalizations, and longer psychiatric hospitalizations. The prevalence of psychotic disorders was high: organic psychosis (17%), schizophrenia (15%), psychosis not otherwise specified (14%), and schizoaffective disorder (11%), that combined altogether were present in more than half (57%) of our homeless patients.

Conclusion. The people living homeless with multiple diagnoses have higher mental health needs and worse determinants of general health. An ongoing effort is needed to identify and address this subgroup of homeless people with mental illness to improve their treatment and outcomes.

Introduction

The definition of homelessness has been long discussed, and the different delimitation used by distinct authors is responsible for some of the heterogeneity between published articles studying this population.^{1,2}

According to the European Typology of Homelessness and Housing Exclusion (ETHOS), there are four main categories of people that are included in the homeless definition: the roofless, the houseless, the ones with insecure housing, and the ones with inadequate housing (see [Box 1](#)).³

Homeless people are inevitably more vulnerable due to their living conditions, with the mortality in this group up to five times higher than the rest of the population.⁴ This high mortality is associated with a higher incidence of infections, heart disease, accidents, homicide, suicide, substance misuse, with drug overdose being the leading cause of death among the people living homeless.^{4–6}

The substantial amount of psychiatric disorders in this population is well documented.^{1,7–10} According to a systematic review, the most prevalent mental disorder among the homeless people, in western countries, was alcohol dependence (8.1%–58.5%), seconded by drug dependence (4.5%–54.2%), and psychotic disorders (2.8%–42.3%).¹ There is also high suicidal ideation in this population: Desai et al indicated that half of their sample, of 7224 homeless people with mental illness, had attempted suicide.^{11,12}

Mental illness is an independent risk factor for homelessness; single adults with a major mental illness have a 25% to 50% risk of homelessness over their lifetime.^{12–15} The burden of the mental health is preponderant among other known risks factors for becoming homeless, namely foster care experience and history of incarceration, and also among the known risks factors that reduce the chances of exiting homelessness, including psychotic disorders, and drug use problems.¹⁶ The struggle of navigation in the mental health system, due to disorganization

Box 1. Homeless Definition Adapted from ETHOS (FEANTSA, 2005)**Roofless**

People living in the streets or public spaces.
 People with no usual place of residence who use night shelters as emergency accommodation.

Houseless

People in short-term accommodation for the homeless.
 People in women's shelter due to experience of domestic violence.
 People in short-term accommodation for immigrants.
 People due to be released from institutions with no housing available or identified.
 People receiving long-term accommodation due to homelessness.

Insecure Housing

People living temporarily with friends or family, with no legal tenancy or illegal occupation of land.
 People living under threat of eviction.
 People living under threat of violence.

Inadequate Housing

People living in temporary or nonconventional structures not intended as a place of usual residence.
 People living in dwellings unfit for habitation.
 People living in extreme overcrowding.

Abbreviations: ETHOS, European Typology of Homelessness and Housing Exclusion; FEANTSA, *Fédération Européenne d'Associations Nationales Travaillant avec les Sans-Abri.*

and severity of mental illness, also reduces the chances of homelessness escape.¹⁷ Some studies reported that most homeless first experienced symptoms of mental disorders before their initial period of homelessness and that the ones who reported no symptoms were likely to develop them over time.^{18,19} The identification of specific patterns of homelessness in homeless people with mental illness led to the creation of different classifications. In 1979, Leach subdivided them into intrinsic, people living homeless due to mental or physical disability; and extrinsic, people living homeless due to situational factors.^{20,21} In 1984, Arce and Vergare subdivided them into chronically homeless, predominantly older and with mental illness; episodically homeless, younger people who alternate between housing and institutional care, and life on the streets; and transiently homeless, people without identified major mental illness that got homeless due to an acute situational crisis.^{4,22,23}

Within the marginalized group of the homeless people with mental illness, there is an even more vulnerable group, the homeless people with dual diagnosis, that is, the homeless with a major psychiatric disorder plus a substance use disorder. Dual diagnosis people are overrepresented in the homeless population and are characterized by social isolation, including from support networks, having more difficulty accessing basic support like healthcare.^{24,25}

In general, the contact of this population with the healthcare system is via the emergency department, using it more often and at higher rates than nonhomeless people.²⁶ The search for medical care often comes in cases of acute somatic crises, with the ones with mental illness among the group of people living homeless who use more health services.^{27,28} Despite the great prevalence of mental disorders in this population, there is a paucity of motivation among the homeless people to seek psychiatric treatment, and the ones who seek it often use the emergency department as their main source for psychiatric help, a place where there is no time and conditions to deal with the homeless people's complex

problems.^{27,29,30} This disproportionate use of the emergency departments is an indicator of suboptimal utilization of primary care.^{12,31}

The people living homeless are more frequently hospitalized than the general population, for both medical and psychiatric reasons, and have a 45% increase in the length of psychiatric hospitalization stay, comparing with the nonhomeless psychiatric inpatients.^{12,32}

This pattern of healthcare use, notably delayed presentations for medical attention, high emergency department reliance, high rates of hospitalization and extended length of hospital stays, and the overall poor health of the homeless leads to increased healthcare costs.^{12,33}

Examining Portugal's situation, there have been informal reports of mental illness afflicting the wanderers of Lisboa, the capital and major city, for almost 100 years.³⁴ Unfortunately, these were the times when people living homeless could be nicknamed as vagabonds and other equivalent pejorative designations in our country.

More recently, in one night during 2009, in Portugal, 2133 people were identified as homeless.³⁵ In 2015, in Lisboa, there were 818 people sleeping rough (roofless) or in overnight shelters (houseless).³⁶ In 2013, the Portuguese homeless people, in Lisboa, were mostly men (88.6%), mostly aged between 35 and 64 years old (68%), and only a few less than half (44%) had no Portuguese nationality.³⁶ Concerning the mental illness, a study of 2002, again in Lisboa, pointed to a worrying prevalence of 96% of psychiatric diagnoses among a sample of 1000 homeless people.³⁷

The multiple problems that the people living homeless recurrently present and the categorization of them as off-limits or distracting makes their treatment perceived as demotivating among the health workers, the so-called "difficult patients" or even "super difficult patients."^{30,38,39} A good example of the complex problems psychiatrists have to deal with on a daily basis was published as a case report, by one of the authors, describing one particular super difficult patient, living as homeless, with 85 hospital admissions in a 25-year span.⁴⁰

Healthcare usage by homeless people remains a challenge worldwide, a truly composite problem that led to the proposition, by some authors, that homeless people with mental illness should become the object of Marontology, a new medical specialty, named after the Greek word *marontos*, which means unwanted.⁴¹

The study of the national homeless population is fundamental to the understanding of a phenomenon conditioned by the social picture of each country, providing the national social and health services a better source for policy implementation, allowing a more evidence-based approach targeting the well-being of the homeless.⁴² Considering the lack of updated research concerning the mental health problems of the homeless population in Portugal, our main goal with the present study was to explore the demographic and clinical profile of the homeless people with mental illness living in Lisboa, Portugal, in particular those living in primary homelessness (ie, roofless) and secondary homelessness (ie, houseless), according to the ETHOS.³

Methods**Study design, setting, and participants**

We used a cross-sectional design, collecting data for 4 years (from January 1, 2016, to December 31, 2019) among people living homeless, in Lisboa, Portugal, that were referred to our psychiatric

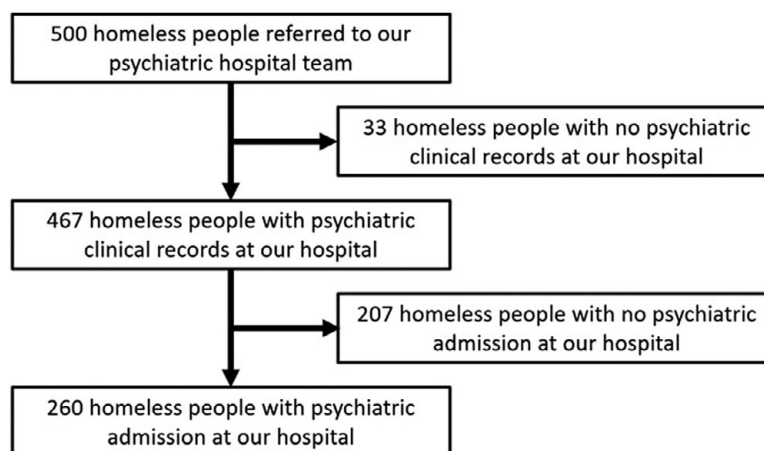


Figure 1. Flow diagram of the participants.

hospital team at *Centro Hospitalar Psiquiátrico de Lisboa* (CHPL) as possible homeless people with mental illness by the town hall social bureau workers at *Câmara Municipal de Lisboa* (CML). The contact with the homeless people occurred mostly on the streets, with our psychiatric hospital team reaching them at their usual place for sleeping. However, some homeless people were reached during appointments or during an open psychotherapeutic group, at CHPL, many times sent by other nongovernmental organizations. To be eligible, the homeless had to provide their full names and their date of birth, which we assembled into a preliminary Microsoft Excel document, either to the town hall social bureau workers, or to the psychiatric hospital team, so that these data could be cross-checked with our CHPL hospital electronic database, looking for patient matches and the respective records. The electronic hospital archive had a 20-year range (from January 1, 2000, to December 31, 2019), thus yielding a two-decade retrospective search. After the cross-check was performed, we proceed to data anonymization in the definite Microsoft Excel file. The confidentiality of the participants was completely assured by excluding all identification information into our final database file. Therefore, we felt no need in contacting the research ethics board of our hospital (see Figure 1).

Variables and data sources

This analysis explored clinical records from the CHPL database, a psychiatric hospital founded in 1942, previously known as *Hospital Júlio de Matos*, integrated in Portugal's publicly funded healthcare. These records included sociodemographic (sex, age, nationality, city of origin if Portuguese, and usual place for sleeping), diagnostic, primary care registration (*Centro de Saúde*) and CHPL's hospital admission information. We transcribed the clinical records from the CHPL database to Microsoft Excel 16.0, excluding all the patients' identification information.

The mental disorders' diagnoses were made according to the World Health Organization's tenth edition of the *International Classification of Diseases* (ICD-10),⁴³ and we separated these diagnoses into primary and secondary for a better assessment of the dual diagnosis burden in this population, using the respective diagnostic codes.

What we called primary diagnosis included the main psychiatric diagnoses, with obvious hierarchy importance, as classically included in the Axis I of the fourth edition of the American

Psychiatry Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR).⁴⁴ This includes diagnoses such as other mental disorders due to known physiological condition (organic psychosis; ICD-10 F06), schizophrenia (ICD-10 F20), schizoaffective disorders (ICD-10 F25), unspecified psychosis not due to a substance or known physiological condition (ICD-10 F29), bipolar affective disorder (ICD-10 F31), recurrent depressive disorder (ICD-10 F33), and acute stress reaction (ICD-10 F43).

The secondary diagnosis regarded comorbid psychiatric disorders, with less hierarchy importance, such as alcohol and drug abuse, usually essential for the dual diagnosis category, and/or the ones classically included in the DSM-IV-TR⁴⁴ second axis (mental retardation and personality disorders). Here, we included mental and behavioral disorders due to use of alcohol (ICD-10 F10), mental and behavioral disorders due to multiple drug use and use of other psychoactive substances (ICD-10 F19), unspecified disorder of adult personality and behavior (ICD-10 F69), and unspecified mental retardation (ICD-10 F79).

Whenever a patient had only a diagnosis included in the secondary diagnosis group, it was considered as his/her primary diagnosis, for example, if a patient had a single diagnosis of ICD-10 Diagnosis Code F10, then alcoholism was considered his/her primary (and unique) diagnosis.

Our dependent variables were the number and duration of total psychiatric hospitalizations at CHPL, and the total years of follow-up at CHPL, based on the length of time between the first and last contact with CHPL.

Statistical methods

The sample of this study was characterized by descriptive statistics including mean with standard deviation and median with interquartile range for continuous variables, and frequency with percentage for categorical variables.

To test the hypothesis that there would be one or more mean differences (MDs) in the length of follow-up between the different primary psychiatric diagnoses, we used a Welch's *t*-test, followed by a Games–Howell's post hoc test. To test the hypothesis that the higher the number of psychiatric diagnoses, the higher the years of follow-up, we used another Welch's *t*-test, followed by a Games–Howell's post hoc test. To test the hypothesis that multiple psychiatric diagnoses were associated with statistically significant longer lengths of follow-up, we performed a nonparametric Mann–Whitney *U* test.

To test the hypothesis that the homeless with primary care registration had a higher number of psychiatric diagnoses, we conducted a nonparametric Mann–Whitney *U* test. To test the hypothesis that the Portuguese homeless had a higher number of psychiatric diagnoses, we executed another Mann–Whitney *U* test.

To test the hypotheses that there would be one or more MDs in the number, as well as in the duration, of psychiatric

hospitalizations between the different primary psychiatric diagnoses, we used two Welch's *t*-tests, followed by two Games–Howell's post hoc tests. Finally, to test the hypothesis that multiple psychiatric diagnoses were associated with statistically significantly higher and longer psychiatric hospitalizations, a nonparametric Mann–Whitney *U* test was performed.

We chose an alpha level of $P \leq .05$ to report significance for the estimated parameters.

We used IBM SPSS Statistics 26 (IBM Corp. Released 2019. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.) to conduct these analyses with professional supervision.

Table 1. Sociodemographic Characteristics of Our Sample of 467 Homeless Psychiatric Patients

Age Group	
18 to 35, <i>n</i>	106
36 to 50, <i>n</i>	193
51 to 65, <i>n</i>	141
65 to 75, <i>n</i>	21
>75, <i>n</i>	6
Sex	
Male, <i>n</i> (%)	358 (77)
Female, <i>n</i> (%)	109 (23)
Nationality	
Portuguese, <i>n</i> (%)	274 (59)
Refugees	
<i>n</i> (%)	66 (14)
Place for Sleeping	
Lisboa, <i>n</i> (%)	269 (58)

Abbreviation: *n*, number.

Results

Of the 500 individuals living houseless or roofless, in Lisboa, Portugal, referred to our team as possible homeless people with mental illness, 467 (93%) had already a clinical record at our hospital (see Table 1). Thus, we excluded from further analysis the remaining 33 (7%) homeless people without clinical records in our archive. Our sample of 467 homeless psychiatric patients was predominantly male (77%), with a mean age of 46.16 years (standard deviation [*SD*] = 12.82). Mostly were Portuguese (59%), born from Lisboa (68%). The foreigners (41%) were from 52 different countries. The most represented foreign countries were Angola (17%), Iran (8%), and Guinea-Bissau (8%).

The most significant places for sleeping rough, in Lisboa, were the parishes of Arroios (21%), Misericórdia (16%), and Santa Maria Maior (11%; see Figure 2).

Somatic disorders were present in 159 homeless (34%). The most prevalent somatic diagnosis category was neurologic (18%), and among this, the most prevalent diagnosis was dementia (64%).



Figure 2. Map of homeless' usual place (parish) for sleeping rough in Lisboa.

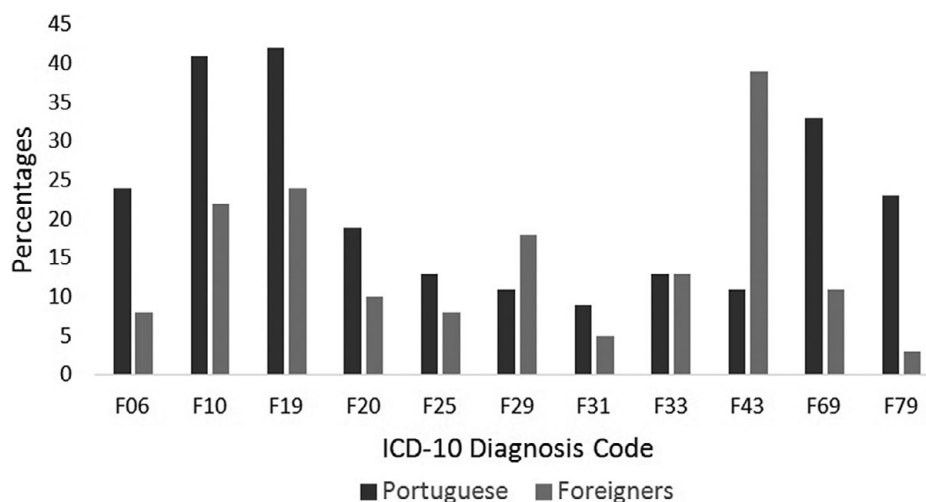


Figure 3. Prevalence of primary and secondary psychiatric disorders between the Portuguese and foreigner homeless.

The percentage of the people living homeless registered in primary care (ie, *Centro de Saúde*) was 63%, being 73% of them Portuguese.

The most prevalent primary psychiatric disorder was acute stress reaction (ICD-10 F43; 23%), followed by mental disorders due to known physiological condition (ICD-10 F06; 17%), schizophrenia (ICD-10 F20; 15%), and unspecified psychosis (ICD-10 F29; 14%).

There were some differences in the psychiatric diagnoses' prevalence between Portuguese and foreigner homeless people (see Figure 3). Of the 65 homeless refugees (14%), 80% had a primary diagnosis of acute stress reaction (ICD-10 F43).

Sixty two percent (291) of our patients had multiple diagnoses. The most prevalent secondary psychiatric disorder was drug abuse (ICD-10 F19; 34%), followed by alcohol abuse (ICD-10 F10; 33%) and personality disorder (ICD-10 F69; 24%; see Table 2). The most prevalent multiple diagnoses were the combinations of ICD-10 Diagnosis Code F06 + F10 (6%), ICD-10 Diagnosis Code F29 + F19 (4%), ICD-10 Diagnosis Code F25 + F10 + F19 + F69 (4%), and ICD-10 Diagnosis Code F33 + F10 (4%).

Of the 467 people living homeless with records at our hospital, more than half (56%), 260, had been admitted at our psychiatric wards. The participants had a median of 2.0 (interquartile range [IQR] 1.0, 6.8) psychiatric admissions and a median length of total psychiatric hospitalizations of 55.0 (IQR 23.0, 142.8) days.

The women (median [*Mdn*] = 5.50) and the Portuguese (*Mdn* = 8.00) had higher median years of follow-up. A Welch's *t*-test demonstrated a statistically significant effect of the different psychiatric diagnoses in the length of follow-up, $F(6, 37.41) = 12.91$, $P < .001$. The Games–Howell's post hoc analyses revealed that all the Diagnosis Code F25 post hoc mean comparisons were statistically significant ($P < .001$) and that two of the Diagnosis Code F20 post hoc mean comparisons were, as well, statistically significant ($P < .05$), namely the one with the Diagnosis Code F29 mean and the one with the Diagnosis Code F33 mean. That is, on average, the homeless people with schizoaffective disorders (ICD-10 F25) have longer follow-ups than the other homeless with mental illness, and the homeless people with schizophrenia have longer follow-ups than the homeless people with unspecified psychosis and also longer follow-ups than the ones with recurrent depression. Another Welch's *t*-test showed a statistically significant effect of the number of psychiatric diagnoses in the length of follow-up, $F(4, 28.75) = 11.07$, $P < .001$. The post hoc analyses failed to prove the

hypothesis that the higher the number of psychiatric diagnoses, the higher the number of years of follow-up, despite the fact that the mean of years of follow-up of our sample follows the increase in the number of psychiatric diagnoses. A Mann–Whitney *U* test revealed that the follow-up was longer for the homeless people with multiple diagnoses (*Mdn* = 7.00) than for the homeless with a single psychiatric diagnosis (*Mdn* = 1.00), $U = 3795$, $z = -4.52$, $P < .0001$ (see Figure 4).

The number of diagnoses was higher for homeless people with primary care registration (*Mdn* = 2.00) than for the homeless people without a primary care registration (*Mdn* = 1.00), $U = 14\,471$, $z = -8.21$, $P < .0001$ (see Table 3). The number of diagnoses was higher for the Portuguese homeless people (*Mdn* = 2.00) than for the foreigner homeless people (*Mdn* = 1.00), $U = 14\,784$, $z = -8.65$, $P < .0001$.

There was a statistically significant effect of the different primary psychiatric diagnoses in the number of hospitalizations, $F(6, 45.21) = 6.83$, $P < .001$, and in the duration of total psychiatric hospitalizations, $F(6, 59.09) = 10.35$, $P < .001$. A series of Games–Howell post hoc analyses were performed to examine individual MD comparisons across the number and duration of psychiatric hospitalizations and all seven primary psychiatric diagnoses codes (see Tables 4 and 5).

The number of psychiatric hospitalizations was higher for the homeless people with multiple diagnoses (*Mdn* = 3.00) than the homeless people with a single diagnosis (*Mdn* = 1.00), $U = 3106$, $z = -5.90$, $P < .0001$, and that the duration of the psychiatric hospitalizations was longer for the homeless people with multiple diagnoses (*Mdn* = 71.00) than for the homeless people with a single diagnosis (*Mdn* = 34.00), $U = 3990$, $z = -4.05$, $P < .0001$.

Discussion

The sociodemographic features of our sample of mentally ill homeless were similar to the ones found in a study of 2013 that characterized Lisboa's homeless population. Nevertheless, our sample had a lower prevalence of males (77% vs 89%) and foreigners (41% vs 44%).³⁶ The foreigners were mainly from the Portuguese-speaking African countries, representing 35% of our foreigner homeless. This high prevalence is related to the big migration movement from the Portuguese-speaking African countries toward Portugal,

Table 2. Prevalence of Primary and Secondary Psychiatric Disorders in the Homeless

ICD-10 Diagnosis Code	% (95% CI)									
	F06	F10	F19	F20	F25	F29	F31	F33	F43	F69
17 (13.7-20.8)	33 (28.7-37.5)	34 (30-38.3)	15 (11.6-18.4)	11 (8.4-13.9)	14 (10.9-17.6)	7 (4.9-9.2)	13 (10.1-16.1)	23 (18.8-26.8)	24 (19.7-27.6)	14 (11.3-17.8)

Abbreviations: CI, confidence interval; F06, other mental disorders due to known physiological condition (organic psychosis); F10, mental and behavioral disorders due to multiple drug use and use of other psychoactive substances; F20, schizophrenia; F25, schizoaffective disorder; F29, unspecified psychosis not due to a substance or known physiological condition; F31, bipolar affective disorder; F33, recurrent depressive disorder; F43, acute stress reaction; F69, unspecified disorder of adult personality and behavior; F79, unspecified mental retardation.

mainly due to historical and cultural connections. Nonetheless, our sample only included 1% of Brazilian foreign homeless, despite the great prevalence of Brazilian immigrants (22% of the immigrants in Portugal).^{36,45} These data suggest that the lower socioeconomic status and race of the immigrants of the Portuguese-speaking African countries can have some influence on their outcomes, as suggested before, stigmatized groups are more likely to become homeless, in particular those with minority racial or ethnic status, being overrepresented among homeless people.⁴⁶ As for the second most prevalent foreigner nationality in our sample, the Iranian, were mainly houseless refugees or political asylum candidates, living in temporary shelters, usually provided by other governmental institutions (eg, *Conselho Português para os Refugiados*).

The most common psychiatric diagnosis in our sample of homeless people with mental illness was drug abuse (34%), followed by alcohol abuse (33%), personality disorder (24%), and acute stress reaction (23%). The acute stress reaction diagnosis was more prevalent in foreigner homeless due to 80% diagnosis of acute stress reaction in the refugees, mostly post-traumatic stress disorder. This was consistent with the literature, as several studies indicated alcohol and drug dependence as the most prevalent psychiatric disorders among the homeless.^{1,10,47,48} Despite these similarities, there is a lack of diagnosis classification uniformity between studies and little or no reference to organic psychiatric disorder, schizoaffective disorder, or post-traumatic stress disorder.

The diagnosis of organic psychosis (ICD-10 Diagnosis Code F06) was higher in our sample (17%) than in previous studies, probably because we believe extreme caution is recommended when diagnosing patients with severe psychotic symptoms, independently of their acute or chronic condition, as many different medical conditions are able to mimic functional psychosis such as schizophrenia, already nicknamed as the great imitator.^{49,50} On the other hand, the higher prevalence of schizoaffective disorder (ICD-10 Diagnosis Code F25; 11%) might be explained by our theoretical background that perceives schizophrenia, and related disorders, as a broad spectrum.⁵¹

There was a high prevalence of psychotic disorders in our sample: F06 organic psychosis (17%), F20 schizophrenia (15%), F29 psychosis not otherwise specified (14%), and F25 schizoaffective disorder (11%), that combined altogether were present in more than half (57%) of our homeless patients. These results are higher than a meta-analysis, conducted in 2019, that points to a prevalence of 29% of psychosis and 22% of schizophrenia in developing countries, and 19% of psychosis and 9% of schizophrenia in developed countries, among the homeless.⁵² Our psychiatric diagnosis prevalence may be higher due to our sample of mentally ill homeless, comparing with the broader sample of homeless people in most studies.

Sixty-two percent of our patients had multiple diagnoses, a close number to the described 55% prevalence of dual diagnoses, although previous studies usually conceptualize dual diagnosis as the combination of a primary psychiatric disorder plus alcohol or drug abuse.²⁴ The number of diagnoses was higher for the Portuguese homeless people and for the homeless people with primary care registration, suggesting that closer contact and facilitated national healthcare engagement can promote medical diagnosis. Patients with multiple diagnoses had longer follow-ups, more psychiatric hospitalizations, and longer psychiatric hospitalizations than the homeless people with a single diagnosis. These findings are accordingly to the evidence that homeless people with dual diagnoses attend more primary healthcare services and

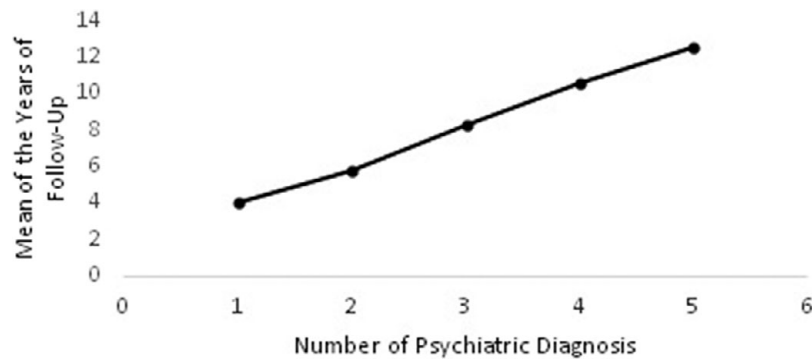


Figure 4. Relation between the number of psychiatric diagnoses and the years of follow-up.

Table 3. Sociodemographic Characteristics of the Homeless Who Use Healthcare

Primary Care Registration	
Total Registrations, <i>n</i> (%)	293 (63)
Male, <i>n</i> (%)	226 (77)
Female, <i>n</i> (%)	67 (23)
Portuguese, <i>n</i> (%)	215 (73)
Refugees, <i>n</i> (%)	3 (1)
Years of Follow-Up	
Male, <i>Mdn</i> (<i>IQR</i>)	4.50 (1.0, 11.0)
Female, <i>Mdn</i> (<i>IQR</i>)	5.50 (1.0, 13.5)
Portuguese, <i>Mdn</i> (<i>IQR</i>)	8.00 (1.0, 12.0)
Foreigners, <i>Mdn</i> (<i>IQR</i>)	2.00 (1.0, 8.0)
Refugees, <i>Mdn</i> (<i>IQR</i>)	2.00 (1.3, 15.5)
Number of Psychiatric Hospitalizations	
Male, <i>Mdn</i> (<i>IQR</i>)	2.00 (1.0, 6.0)
Female, <i>Mdn</i> (<i>IQR</i>)	3.50 (1.0, 8.0)
Portuguese, <i>Mdn</i> (<i>IQR</i>)	3.00 (1.0, 7.0)
Foreigners, <i>Mdn</i> (<i>IQR</i>)	2.00 (1.0, 4.5)
Refugees, <i>Mdn</i> (<i>IQR</i>)	1.00 (1.0, 79.8)
Total Length of Psychiatric Hospitalizations (Days)	
Male, <i>Mdn</i> (<i>IQR</i>)	55.00 (22.0, 138.0)
Female, <i>Mdn</i> (<i>IQR</i>)	53.50 (26.0, 160.0)
<65 Years Old, <i>Mdn</i> (<i>IQR</i>)	57.00 (23.0, 143.0)
≥65 Years Old, <i>Mdn</i> (<i>IQR</i>)	44.50 (20.3, 125.8)
Portuguese, <i>Mdn</i> (<i>IQR</i>)	60.00 (23.0, 131.0)
Foreigners, <i>Mdn</i> (<i>IQR</i>)	48.00 (22.0, 188.5)
Refugees, <i>Mdn</i> (<i>IQR</i>)	24.00 (3.3, 315.5)

Abbreviations: *IQR*, interquartile range; *Mdn*, median.

emergency departments, have longer hospital stays, and have poorer psychological health.^{53–55}

Of the seven primary psychiatric diagnoses included in our sample, the homeless people with schizoaffective disorder had statistically significant longer follow-ups, a higher median of psychiatric hospitalizations, and a higher median duration of total

Table 4. Post Hoc (Games–Howell) Mean Comparisons of the Number and of the Total Duration of Hospitalization Between Different Primary Diagnosis

		Number of Psychiatric Hospitalizations		Duration of Total Psychiatric Hospitalizations (Days)	
		<i>MD</i> (<i>I-J</i>)	<i>P</i>	<i>MD</i> (<i>I-J</i>)	<i>P</i>
F06 (I)	F20 (J)	-.31	1.00	-27.79	1.00
	F25 (J)	-7.99	.10	-256.48	.08
	F29 (J)	2.31	.09	103.19 ^a	<.01
	F31 (J)	0.44	1.00	50.14	.84
	F33 (J)	2.44 ^a	.03	119.19 ^a	<.001
F20 (I)	F25 (J)	-7.67	.12	-228.69	.23
	F29 (J)	2.62 ^a	.01	130.98	.07
	F31 (J)	0.75	.99	77.93	.76
	F33 (J)	2.75 ^a	<.01	146.99 ^a	.03
	F43 (J)	3.21 ^a	.01	160.54 ^a	.01
F25 (I)	F29 (J)	10.30 ^a	.01	359.67 ^a	<.01
	F31 (J)	8.42	.08	306.62 ^a	.02
	F33 (J)	10.42 ^a	<.01	375.67 ^a	<.01
	F43 (J)	10.88 ^a	<.01	389.23 ^a	<.01
	F29 (I)	F31 (J)	-1.87	.41	-53.05
F31 (I)	F33 (J)	0.12	1.00	16.01	.84
	F43 (J)	0.59	.97	29.56	.26
	F33 (J)	2.00	.28	69.05	.28
F33 (I)	F43 (J)	2.46	.18	82.61	.13
	F43 (J)	.46	.98	13.56	.74

Abbreviations: F06, other mental disorders due to known physiological condition (organic psychosis); F10, mental and behavioral disorders due to use of alcohol; F19, mental and behavioral disorders due to multiple drug use and use of other psychoactive substances; F20, schizophrenia; F25, schizoaffective disorders; F29, unspecified psychosis not due to a substance or known physiological condition; F31, bipolar affective disorder; F33, recurrent depressive disorder; F43, acute stress reaction; F69, unspecified disorder of adult personality and behavior; F79, unspecified mental retardation; *MD*, mean difference.
^aStatistically significant MD.

psychiatric hospitalizations. Despite these findings, the homeless people with schizoaffective disorder did not have a coherent statistically significant difference in the number and duration of hospitalizations compared with the other primary psychiatric diagnosis. These findings differ from older ones by Russolillo et al, who

Table 5. Medians of Length of Follow-Up, of Number of Hospitalizations and of Duration of Total Hospitalizations, per Primary Psychiatric Diagnosis

	ICD-10 Diagnosis Code													
	F06		F20		F25		F29		F31		F33		F43	
	Mdn	IQR	Mdn	IQR	Mdn	IQR	Mdn	IQR	Mdn	IQR	Mdn	IQR	Mdn	IQR
Length of follow-up (years)	3.00	1.0, 11.0	7.00	1.0, 14.0	13.00	8.0, 18.0	1.00	1.0, 6.0	5.00	1.0, 8.5	1.50	1.0, 5.3	2.50	1.0, 7.0
Number of psychiatric hospitalizations	2.00	1.0, 5.0	3.00	1.0, 6.0	8.00	4.0, 11.0	1.00	1.0, 2.0	3.00	2.0, 5.0	1.00	1.0, 2.3	1.00	1.0, 2.5
Duration of total psychiatric hospitalizations (days)	66.00	24.5, 198.0	70.00	34.0, 143.0	131.00	74.0, 496.0	26.00	8.0, 48.0	51.00	28.5, 92.0	14.50	4.5, 49.8	13.00	2.8, 25.5

Abbreviations: F06, other mental disorders due to known physiological condition (organic psychosis); F10, mental and behavioral disorders due to use of alcohol; F19, mental and behavioral disorders due to multiple drug use and use of other psychoactive substances; F20, schizophrenia; F25, schizoaffective disorders; F29, unspecified psychosis not due to a substance or known physiological condition; F31, bipolar affective disorder; F33, recurrent depressive disorder; F43, acute stress reaction; F69, unspecified disorder of adult personality and behavior; F79, unspecified mental retardation; Mdn, median; IQR, interquartile range.

concluded that schizophrenia and bipolar disorder were the main predictors of hospital admission and length of stay.⁵⁶

Caution should be taken in the interpretation of these findings, since they do not apply to the general population of homeless people. Our initial sample of 500 people included only homeless people with suspected mental illness.

This study's sample excluded the mentally ill homeless who had no contact with the workers of Lisboa's city hall bureau or with the CHPL psychiatric team, potentially excluding the John Does, such as homeless people with severe mental illness but without registered identity. These are indeed the super difficult patients, in theory, the end-of-the-line of psychiatry care, and we acknowledge having failed to include them in our study.³⁸ Just as an example, we would like to remember one patient of ours, living as homeless for more than two decades, that has been admitted in our ward, and has stayed with us, for more than 2 years, and still is a John Doe, after all identification efforts from competent authorities.⁵⁷

Despite the homeless 93% match in our hospital's database, we cannot assume that the excluded ones do not have mental illness, since the data obtained were limited to our psychiatric hospital records and these homeless can have medical files in other hospitals.

Primary care registration was not a reliable indicator of primary care attendance. We are all aware that, in the last decades, the "worried well" had easier access to mental health care than the "suffering sick."⁵⁸

The somatic diagnoses are probably underestimated due to the deficient registration of these conditions by psychiatrists in the patient's clinical electronic records.

When analyzing the psychiatric hospitalizations' determinants, we did not consider that the homeless with worse social support usually have longer hospitalizations due to difficulties in hospital discharge.

Conclusion

The greater challenges in the homeless people with mental illness treatment are legislative, with lack of legislation regarding the homeless disabled by their mental disease who refuse treatment, and lack of coordination between health and social workers.⁵⁹ Nonetheless, deciding to intervene while balancing patient autonomy and the principle of beneficence involves much skill and experience.⁴⁸

Future research is needed regarding the homeless people with mental illness and their treatment, particularly the ones with multiple diagnoses, a subgroup with a high burden of mental illness, and worse determinants of health. It would be interesting to study the homeless with a primary psychiatric diagnosis plus an addiction disorder plus a personality disorder. Therefore, we recommend the use of the most recent classification by World Health Organization, the ICD-11 classification, by researchers in further studies to improve research heterogeneity.⁶⁰

A follow-up of the patients that did not have a match at our hospital's database would be interesting for checking development of psychiatric diagnosis and treatment. In the future, we hope to perform a longitudinal study of follow-up with our full sample for better understanding of this phenomenon. For better retrospective and prospective research, and better health care delivery, we recommend electronic medical record implementation at centers caring for homeless people. Research has demonstrated its suitability and effectiveness in the homeless population, allowing better

care coordination, outreach, follow-up, and assessment of outcomes.^{61–64}

Finally, after realizing the high prevalence of personality disorders among homeless people with mental illness, we are now interested in continuing previous studies regarding attachment disorder in the homeless population.^{20,65–67} In the future, we hope to be able to study potential biomarkers candidates and/or risk factors for homelessness, such as oxytocin, an hormone that has been already proposed as having an interesting correlation with attachment styles.⁶⁸

Last but not least, we also propose ourselves to keep working with the open psychotherapeutic group, as it seems to be an open door for easy referral and free of charge psychiatric care for the homeless population in our city.⁶⁹

Acknowledgments. The authors would like to thank Professor Paulo Nogueira, from *Faculdade de Medicina, Universidade de Lisboa*, for assistance with the statistics. They would also like to thank Mrs. Laurinda Carona and Mrs. Carmo Duarte, from *Biblioteca, Santa Casa da Misericórdia de Lisboa*, for help with the bibliography.

Funding Statement. This work received no specific grant from any funding agency, commercial, or not-for-profit sector.

Disclosure. The authors do not have anything to disclose.

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