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Research article

Compulsory admission: are there differences between migrants and natives? Data from a psychiatric emergency service of an Italian metropolitan area

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ABSTRACT

Background: As compared to natives, higher rates of involuntary admission were found among migrants in most European countries. A possible strategy to reduce this phenomenon is to develop preventive strategies targeting risk and protective factors of compulsory admission specific to the migrant population.
Aims: The first aim of the present study was to evaluate compulsory admission rates in the migrant population as compared to natives admitted for an acute mental disorder. The second aim was investigate whether sociodemographic, clinical, and care-related variables associated with compulsory admission differed between migrants and natives. Moreover, in the whole sample we assessed whether migrant status affected the risk of compulsory admission.
Methods: Retrospective single-center study on patients hospitalized in the period between January 1, 2018 and December 31, 2020 in a large metropolitan academic hospital. We compared sociodemographic, clinical, and care-related variables between migrants and natives, voluntary or compulsory admitted. We investigated the association between compulsory admission and the variables collected in the whole sample and in the migrants' and natives' groups with a correlation analysis followed by hierarchical logistic regression models.
Results: The sample included 185 migrant patients and 933 native patients. The prevalence of compulsory admission was significantly higher in the migrants' group. Male gender, lower education, non-comprehension of the local language, a diagnosis of a schizophrenia spectrum disorder, and aggressive behavior were associated with compulsory admission in the migrants' sample, partially differing from the natives.
Conclusion: Our study highlighted how migrant status is associated with a higher risk for compulsory admission. Inclusion policies or the presence of cultural mediators in emergency settings might be preventive strategies in this context.

1. Introduction

Italy has been the destination of increasing migratory flows from European and non-European countries with middle and low-income, leading to a substantial change in the demographic composition. The foreign population residing in Italy is the third-

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largest among European Union countries and has increased in the last decade, reaching 8.49% of the total population at the end of 2021. The origin of foreigners residing in Italy is mainly European (about 50% of the total), secondly North African and African (21,8%), Asian (21,2%), and Latin American (7,4%) [1].

In Italy, as in many European countries, the migrant population is exposed to a greater risk of developing psychiatric diseases including schizophrenia spectrum disorders, post-traumatic stress disorder, anxiety disorders, mood disorders, and substance and alcohol use disorders [2,3]. In particular, a much higher incidence of schizophrenia and other non-affective psychotic disorders is detected in migrants compared to the host population [4,5]. Specific risk factors that adversely affect the mental health of migrants were identified: difficulties due to the migration process and socio-cultural changes, individual factors such as the ability to integrate into the host country and cope with difficulties, economic factors, and availability of social support [6].

Despite the higher incidence of psychiatric disorders, the access and the use of mental health care services by migrants appear limited. In particular, the lack of knowledge, language barriers, and differences in the perceptions of mental illness or racial discrimination [2,7–9] are associated with dilation in psychiatric consultation and treatment, increasing the risk of emergency referrals and compulsory admission [10]. This is supported by many European studies on this subject. Compulsory admissions appear more frequent among migrants than among natives in Denmark [11], in Spain [12], in the Netherlands [13], in Switzerland [14,15], in Norway [16,17], in the UK [18], and in Italy [2,19]. Moreover, compulsory admission in the migrant population was associated with a higher risk of readmissions occurring on an involuntary basis, a worse course of illness, and a worse adherence to mental health care [10].

In recent years, an increasing number of studies have been conducted to analyze the reasons for such high rates of compulsory admission among migrants, but results have often appeared inconsistent.

The first aim of the present study was to evaluate compulsory admission rates in the migrant population as compared to natives admitted for an acute mental disorder in a large metropolitan academic hospital in Turin. The second aim was to investigate whether clinical and service related variables associated with compulsory admission differed between migrants and natives. Moreover, in the whole sample we assessed whether migrant status affected the risk of compulsory admission.

2. Materials and methods

This is a retrospective single-center study performed on patients who had at least one psychiatric hospitalization in the period between January 1, 2018 and December 31, 2020, at the “Struttura Complessa Servizio Psichiatrico di Diagnosi e Cura " or at " Struttura Complessa Psichiatria Universitaria “of the Department of Neuroscience and Mental Health of the University Hospital “Città della Salute e della Scienza di Torino”, Turin, Italy. This hospital is the first health center in Italy in terms of size and indices for the complexity of care and its catchment area covers the whole region.

Data on hospitalizations have been collected by consulting the hospital discharge forms and the computerized medical records. Only hospitalizations lasting more than 48 h were included because the information in the computerized medical records for shorter hospitalizations is limited. To avoid duplication, only data from the last hospitalization were included in this analysis for patients who had multiple hospitalizations.

Because data collection was an integrated part of the regular diagnostic assessment procedure and does not influence therapeutic decisions or outcomes, in accordance with our Ethics Committee (Comitato Etico Interaziendale Azienda Ospedaliero Universitaria Città della Salute e della Scienza di Torino – Azienda Ospedaliera Ordine Mauriziano – Azienda Sanitaria Locale Città di Torino), the appropriate consent to the use of personal data was used as Retrospective Informed Consent (Dichiarazione Relativa al trattamento dei dati personali nel caso di impossibilità di raccolta del Consenso Informato, CEI 2017). Sensitive personal data have been made anonymous in accordance with European legislation (EU 2016/679). The study is carried out in accordance with the “Good Clinical Practice” regulation (CPMP/ICH/135/95) and with the Declaration of Helsinki [20].

2.1. Participants

All patients who had at least one psychiatric hospitalization, during the study period were included in the sample. Patients under the age of 16 were excluded. The sample was divided into two groups: natives and migrants.

The following variables were collected for each patient.

- Socio-demographic variables: age; nationality; gender; comprehension of the Italian language; marital status; education; employment status; housing situation.
- Clinical variables: principal psychiatric diagnosis at discharge, according to DSM-5: 1-Major Depressive disorders, 2- Bipolar disorders, 3- Schizophrenia and other psychotic spectrum disorders, 4-Personality disorders, 5 - Other; secondary psychiatric diagnosis; alcohol and substance abuse; first ever psychiatric contact (FEP); compulsory admission; hospitalization due to aggressive behavior; hospitalization due to suicide attempt.
- Care-related variables: psychiatric assistance; general medical assistance (general practitioner).

2.2. Statistical analyses

Data are presented as means standard deviations (SD) or percentages (%), unless stated otherwise. Continuous data were compared by analysis of variance (ANOVA) methods (F; F test), and categorical data by contingency tables ($\chi 2$).

Pearson's bivariate correlation analysis was carried out within each group (whole sample and natives' and migrants' groups) to assess the association between compulsory admission and socio-demographic, clinical, and care-related characteristics.

All variables significantly associated with compulsory admission ($p < 0.05$) were finally included in a hierarchical logistic regression model with a backward stepwise selection. We performed three regression models: whole sample, migrants' and natives' groups. The logistic regression models were structured with compulsory admission as dependent variable. All socio-demographic and clinical variables were entered as independent variables using the following steps: first, assessing the association between socio-demographic factors and compulsory admission (step 1); second, adding psychiatric diagnosis into the model (step 2); third, entering clinical and care-related factors into the model (step 3). In the regression model of the whole sample, migrant status was added as an independent variable among sociodemographic factors (step 1). All odds ratios (ORs) were presented with 95% confidence intervals (CI). The goodness of fit of the model was calculated in terms of Nagelkerke's R^2, ranging from 0 (random predictions) to 1 (perfect predictions).

Statistical analysis was performed with Statistical Package for Social Sciences (SPSS) version 28.0.1 software for Windows (IBM Corporation, Armonk, NY, USA). Significance level was set at $p < 0.05$.

3. Results

During the study period, 1176 patients were admitted to our psychiatric wards. Fifty-eight (58) patients were excluded (discharged before 48 h, lack of information). The final sample included 1118 patients, 933 native patients (83.5%), and 185 migrant patients (16.5%).

Socio-demographic and clinical characteristics of migrants' and natives' are summarized in Table 1. The percentage of compulsory admissions was 23.24% in the migrants' group and 9.11% in the natives' group ($p < 0.001$*; $\chi^2 = 29.04$).

Table 2 and Table 3 show the characteristics of compulsory and voluntary admitted patients in the whole sample and within migrants' ad natives' groups.

Table 4 shows the relationships between compulsory admission and socio-demographic and clinical characteristics in the whole sample and in the migrants' and natives' groups.

Concerning the whole sample, in the first step of the binary logistic regression higher age (OR = 0.977) lower education (OR = 1.838), non-comprehension of the Italian language (OR = 5.682), and homelessness (OR = 1.709) were significantly associated with compulsory admission. After adjustment for the diagnosis (Step 2), higher age (OR = 0.976) lower education (OR = 1.789), and non-

Table 1
Socio-demographic and clinical characteristics: Italians and migrants.

	Italians n 933 (83.5%)	Migrants n 185 (16.5%)	p-value (F/χ[b])
Age, means (SD)	48.48 (16.46)	36.2 (13.23)	<0.001[a] (91.2)
Gender, N (%)			
Male	467 (50.05)	87 (47.03)	0.47 (0.45)
Female	466 (49.95)	98 (52,97)	
Occupation N (%)			
Unemployed	564 (60.45)	117 (63.24)	
Employed	369 (39.55)	68 (36.76)	0.51 (0.39)
Language N (%)			
Other	0 (0)	38 (20.54)	<0.001[a] (192.18)
Italian	933 (100)	147 (79.46)	
Education N (%)			
Elementary/primary	513 (54.98)	131 (70.18)	<0.001[a] (15.19)
High Scool/degree	420 (45.02)	54 (29.19)	
Marital Status N (%)			
Single	630 (67.53)	133 (71.89)	0.26 (1.17)
Partner	303 (32.47)	52 (28.11)	
Domicile N (%)	820 (87.88)	98 (52.97)	<0.001[a] (125.77)
Compulsory Admission N (%)	85 (9.11)	43 (23.24)	<0.001[a] (29.04)
FEP N (%)	114 (12.22)	40 (21.62)	0.001[a] (10.72)
Aggressivity N (%)	109 (11.68)	59 (31.89)	<0.001[a] (47.81)
Suicide attempt N (%)	110 (11.79)	28 (15.13)	0.221 (1.3)
Psichiatry assistance N (%)	720 (77.17)	97 (52.43)	<0.001[a] (46.77)
General practitioner N (%)	931 (99.78)	265 (89.19)	<0.001[a] (85.07)
Diagnosis N (%)			
Depressive Disorder	222 (23.79)[a]	24 (12.97)	0.001[a] (10.53)
Bipolar Disorder	162 (17.36)[a]	18 (9.73)	0.009[a] (6.66)
Schizophrenia spectrum	272 (29.15)[a]	86 (46.48)	<0.001[a] (21.31)
Personality Disorder	170 (18.22)[a]	15 (8.1)	<0.001[a] (11.43)
Other	107 (11.46)[a]	42 (22.7)	<0.001[a] (16.87)
Secondary diagnosis	207 (22.18)	23 (12.43)	0.003[a] (8.99)
Substance or alcohol abuse N (%)	193 (20.69)	51 (27.57)	0.041[a](3.89)

[a] Significant one-way ANOVA or χ
[b] Test.

Table 2
Socio-demographic and clinical variables: compulsory or voluntary admissions. Total sample.

	Voluntary admission n 990	Compulsory admission n 128	p-value (F/χ^{b})
Nationality N (%)			
Migrants	142 (14.3)	43 (33.6)	<0.001[a] (30.42)
Natives	848 (85.7)	85 (66.4)	
Age, means (SD)	47.31 (16.71)	39.68 (14.08)	0.006[a] (1.479)
Gender, N (%)			
Male	477 (48.1)	77 (60.2)	0.011[a] (6.5)
Female	513 (51.8)	51 (39.8)	
Occupation N (%)			
Unemployed	591 (59.7)	90 (70.3)	0.021[a] (5.36)
Employed	399 (40.3)	38 (29.7)	
Language N (%)			
Other	18 (1.8)	20 (15.6)	<0.001[a] (65.81)
Italian	972 (98.2)	108 (84.4)	
Education N (%)			
Elementary/primary	549 (55.5)	95 (74.2)	<0.001[a] (16.34)
High Scool/degree	441 (44.5)	33 (25.8)	
Marital Status N (%)			
Single	661 (66.8)	102 (79.7)	0.003[a] (8.73)
Partner	329 (33.2)	26 (20.3)	
Domicile N (%)	836 (84.4)	82 (64.1)	<0.001[a] (32.06)
FEP N (%)	126 (12.7)	28 (21.9)	0.009[a] (7.99)
Aggressivity N (%)	110 (11.1)	58 (45.3)	<0.001[a] (103.84)
Suicide attempt N (%)	132 (13.3)	6 (4.7)	0.004[a] (7.83)
Psichiatry assistance N (%)	743 (75.1)	74 (57.8)	<0.001[a] (17.12)
General practitioner N (%)	978 (98.8)	120 (93.8)	<0.001[a] (16.37)
Diagnosis N (%)			
Depressive Disorder	243 (24.5)[a]	3 (2.3)[b]	<0.001[a] (99.41)
Bipolar Disorder	158 (16)[a]	22 (17.2)[a]	
Schizophrenia spectrum	271 (27.4)[a]	87 (68)[b]	
Personality Disorder	179 (18.1)[a]	6 (4.7)[b]	
Other	139 (14)[a]	10 (7.8)[b]	
Secondary diagnosis	219 (22.1)	11 (8.6)	<0.001[a] (12.69)
Substance abuse N (%)	203 (20.5)	41 (32)	0.004[a] (8.83)

[a, b] different letters indicate a between-group significant difference.
[a] Significant one-way ANOVA or χ
[b] Test.

comprehension of the Italian language (OR = 5.076) maintained their significance. Bipolar disorders and Schizophrenia Spectrum Disorders were associated with compulsory admission with an odd ratio of 3.269 and 5.105 respectively. In the final model (Step 3), lower education (OR = 1.821), and non-comprehension of the Italian language (OR = 4.149), Bipolar disorders (OR = 5.164) and Schizophrenia Spectrum Disorders (OR = 6.554) maintained their significance. Aggressive behavior (OR = 4.661), lack of psychiatric care (OR = 1.859), and substance or alcohol abuse (OR = 1.662) showed an association with compulsory admission. For the Step 1, Nagelkerke R^2 was 0.13 (13% goodness of fit of the model), in Step 2 it was 0.26 (26% goodness of fit of the model); and in Step 3 Nagelkerke R^2 was 0.34 (34% goodness of fit of the model). The result of this regression model are shown in Table 5.

For migrant patients, in the first step of the binary logistic regression, male gender (OR = 4.348), non-comprehension of the Italian language (OR = 3.745) and lower education (OR = 5.263) showed an association with compulsory admission. After adjustment for the diagnosis (Step 2) male gender (OR = 4.672), lower education (OR = 4.629), and non-comprehension of the Italian language (OR = 3.533) maintained their significance. Schizophrenia Spectrum Disorder was associated with an odd ratio of 6.357 to compulsory admission. In the final model (Step 3), male gender (OR = 6.135), lower education (OR = 6.097), and Italian language (OR = 4.444) maintained their significance, while the relative risk associated with Schizophrenia Spectrum Disorder increased up to 11.019 and aggressive behavior showed a strong association with compulsory admission (OR = 5.805). For the Step 1, Nagelkerke R^2 was 0.33 (33% goodness of fit of the model), in Step 2, it increased to 0.42 (42% goodness of fit of the model); and in Step 3 Nagelkerke R^2 rose up to 0.55 (55% goodness of fit of the model), indicating a good model fit. (Table 6).

As regards native patients, in the first step of the binary logistic regression, age (OR = 0.972) and lower education (OR = 1.742) were found to be associated with compulsory admission. After adjustment for diagnosis (Step 2) socio-demographic variables were no longer significant. Schizophrenia Spectrum Disorder and Bipolar Disorder were associated with compulsory admission with odds ratios of 4.142 and 3.059 respectively, compared to patients with "other" psychiatric diagnoses. In the final model, adjusting for clinical and care-related variables (Step 3), the odd ratio for compulsory admission increased for patients with Schizophrenia Spectrum Disorder (OR = 4.87) and Bipolar Disorder (OR = 4.082). Moreover, aggressive behavior (OR = 4.691), alcohol and substance abuse (OR = 2.012), and lack of psychiatric assistance (OR = 2.079) were also associated with compulsory admission. The goodness of fit of the model ranged from 4% (R^2 = 0.043) in Step 1, to 19% in Step 2 (R^2 = 0.19), up to 29% (R^2 = 0.29) in Step 3. (Table 7).

Table 3
Socio-demographic and clinical variables: compulsory or voluntary admissions. Migrants and natives.

	Voluntary admission migrants n 142	Compulsory admission migrants n 43	p-value (F/ χ^b)	Voluntary admission natives n 848	Compulsory admission natives n 85	p-value (F/ χ^b)
Age, means (SD)	36.78 (10.61)	34.28 (12.73)	0.746 (0.849)	49 (7.78)	42.41 (7.07)	0.01[a] (1.459)
Gender, N (%)						
Male	54 (38.03)	33 (76.74)	<0.001[a] (19.86)	423 (49.88)	44 (51.76)	0.82 (0.11)
Female	88 (61.97)	10 (23.25)		425 (50.12)	41 (48.23)	
Occupation N (%)						
Unemployed	83 (58.45)	34 (79.07)	0.018[a] (6.036)	508 (59.91)	56 (65.88)	0.297 (1.15)
Employed	59 (41.55)	9 (20.93)		340 (40.09)	29 (34.12)	
Language N (%)						
Other	18 (12.67)	20 (46.51)	<0.001[a] (23.15)	0 (0)	0 (0)	–
Italian	124 (87.32)	23 (53.49)		848 (100)	85 (100)	
Education N (%)						
Elementary/primary	92 (64.79)	39 (90.70)	<0.001[a] (10.72)	457 (53.89)	56 (65.88)	0.039[a] (4.49)
High Scool/degree	50 (35.21)	4 (9.30)		391 (46.11)	29 (34.12)	
Marital Status N (%)						
Single	97 (68.31)	36 (83.72)	0.054 (3.88)	564 (66.51)	66 (77.65)	0.039[a] (4.37)
Partner	45 (31.69)	7 (16.28)		284 (33.49)	19 (22.35)	
Domicile N (%)	85 (59.86)	13 (30.23)	<0.001[a] (11.63)	751 (88.56)	69 (81.18)	0.055 (3.96)
FEP N (%)	26 (18.31)	14 (32.56)	0.058 (3.95)	100 (11.79)	14 (16.47)	0.223 (1.58)
Aggressivity N (%)	34 (23.94)	25 (58.14)	<0.001[a] (17.77)	76 (8.96)	33 (38.82)	<0.001[a] (66.77)
Suicide attempt N (%)	27 (19.01)	1 (2.32)	0.006[a] (7.16)	105 (12.38)	5 (5.88)	0.079 (3.14)
Psichiatry assistance N (%)	80 (56.34)	17 (39.53)	0.058 (3.74)	663 (77.17)	57 (67.06)	0.029[a] (5.43)
General practitioner N (%)	131 (92.25)	35 (81.39)	0.049[a] (4.22)	847 (99.78)	85 (100)	1.000 (0.10)
Diagnosis N (%)						
Depressive Disorder	23 (16.19)[a]	1 (2.32)[b]		220 (25.94)[a]	2 (2.35)[b]	
Bipolar Disorder	16 (11.27)[a]	2 (4.65)[a]		142 (16.74)[a]	20 (23.53)[a]	
Schizophrenia spectrum	52 (36.62)[a]	34 (79.07)[b]	<0.001[a] (24.73)	219 (25.82)[a]	53 (62.35)[b]	<0.001[a] (66.43)
Personality Disorder	13 (9.15)[a]	2 (4.65)[a]		166 (19.57)[a]	4 (4.70)[b]	
Other	38 (26.76)[a]	4 (9.30)[b]		101 (11.91)[a]	6 (7.06)[a]	
Secondary diagnosis	20 (14.08)	3 (6.98)	0.295 (1.53)	199 (23.47)	8 (9.41)	0.002[a] (8.84)
Substance/alcohol abuse (%)	39 (27.46)	12 (27.91)	1.000 (0.03)	164 (19.34)	29 (34.12)	0.003[a] (10.28)

[a, b] different letters indicate a between-group significant difference.
[a] Significant one-way ANOVA or χ
[b] Test.

4. Discussion

Our study highlights a higher rate of compulsory admission in the migrants. Communication problems, a diagnosis of a schizophrenia spectrum disorder, and aggressive behaviors were the variables most strictly associated with migrants' compulsory admission. Furthermore, factors related to compulsory admission were partially different between migrants and natives.

Focusing on the percentage of compulsory admissions in the migrants, we found that it is more than double that of natives (23.24% in migrants and 9.11% in natives). This rate is in line with another Italian study conducted in the principal hospital of a single Italian metropolitan area [21] while a multicenter study on multiple hospitals of our own region found a lower rate of compulsory admissions in migrants (1.5 times greater in migrants than in natives) [19]. This divergence might be explained by the characteristics of our sample, recorded from a single hospital within Turin metropolitan area. We suppose that the context of a large urban area, such as Turin, may be different from that of other smaller peripheral cities of the region. Living in a big city is more expensive and cultural and language integration is more difficult. Furthermore, larger cities are often the first arrival point for migrating people and people with disadvantaged social and health conditions often do not have the opportunity to move further. Therefore, a lower integration context could explain the higher compulsory admission rate.

Regarding the whole sample, in the first step of the regression model, which included sociodemographic variables, we found that the migrant status was not related to compulsory admission even though migrants showed a much higher rate of compulsory admission

Table 4
Socio-demographic and clinical variables associated with compulsory or voluntary admissions.

	Total sample r (*p-value*)	Migrants *r (p-value)*	*Natives r (p-value)*
Nationality, migrants	0.165 (<0.001*)	–	–
Age	−0.147 (0.006*)	−0.08 (0.279)	−0.117 (<0.001*)
Gender, male	0.076 (0.011*)	0.328 (<0.001*)	0.011 (0.98)
Unemployed	0.069 (0.021*)	0.181 (0.014*)	0.035 (0.283)
Language, no italian	0.243 (<0.001*)	0.354 (<0.001*)	–
Education, (Elementary/middle)	0.121 (<0.001*)	0.241 (<0.001*)	0.069 (0.034*)
Marital Status, Single	0.088 (0.003*)	0.145 (0.05)	0.068 (0.037*)
Domicile, no domicile	0.169 (<0.001*)	0.251 (<0.001*)	0.065 (0.05)
FEP	0.085 (0.005*)	0.146 (0.05)	0.041 (0.21)
Aggressivity	0.305 (<0.001*)	0.31 (<0.001*)	0.268 (<0.001*)
Suicide attempt	−0.084 (0.005*)	−0.197 (0.007*)	−0.058 (0.077)
Psichiatry assistance	- 0.124 (<0.001*)	−0.142 (0.054)	−0.076 (0.02*)
General practitioner	- 0.121 (<0.001*)	−0.151 (0.04*)	0.01 (0.752)
Diagnosis			
Depressive Disorder	−0.171 (<0.001*)	−0.159 (<0.001*)	−0.174 (0.018*)
Bipolar Disorder	0.011 (0.722)	0.052 (0.116)	−0.094 (0.202)
Schizophrenia spectrum	0.277 (<0.001*)	0.231 (<0.001*)	0.359 (<0.001*)
Personality Disorder	−0.155 (<0.001*)	−0.111 (<0.001*)	−0.07 (0.346)
Other	−0.058 (0.051)	−0.044 (0.181)	−0.176 (0.017*)
Secondary diagnosis	−0.107 (<0.001*)	−0.091 (0.218)	−0.097 (0.003*)
Substance/alcohol abuse	0.089 (0.003)	0.004 (0.955)	0.105 (0.001*)

Bivariate correlation analysis. * *Statistically signifcant ($p < 0.05$)*.

Table 5
Relative contribution of significantly correlated sociodemographic, clinical and care-related variables on compulsory admission.

Step	Variables	OR (CI 95%)	p	χ^2	R^2	p
Step1	Age	0.977 (0.965–0.989)	<0.001[a]	75.63	0.13	<0.001
	Education (elementary/middle)	1.838 (1.186–2.849)	0.006[a]			
	Language (no Italian)	5.682 (2.762–11.628)	<0.001[a]			
	Domicile (no domicile)	1.709 (2.688–1.086)	0.021[a]			
Step 2	Age	0.976 (0.962–0.989)	<0.001[a]	157.82	0.26	<0.001
	Education (elementary/middle)	1.789 (1.132–2.825)	0.013[a]			
	Language (no Italian)	5.076 (2.309–11.123)	<0.001[a]			
	Domicile (no domicile)	1.456 (0.9–2.358)	0.126			
	Depressive Disorder	0.342 (0.089–1.316)	0.119			
	Bipolar Disorder	3.629 (1.570–8.387)	0.003[a]			
	Schizophrenia spectrum	5.105 (2.495–10.448)	<0.001[a]			
	Personality Disorder	0.549 (0.190–1.582)	0.267			
Step 3	Age	0.985 (2.232–16.949)	0.05	210.95	0.34	<0.001
	Education (elementary/middle)	1.821 (1.126–2.941)	0.015[a]			
	Language (no Italian)	4.149 (1.789–9.615)	<0.001[a]			
	Domicile (no domicile)	1.348 (0.809–2.247)	0.252			
	Depressive Disorder	0.57 (0.144–2.265)	0.425			
	Bipolar Disorder	5.164 (2.103–12.680)	<0.001[a]			
	Schizophrenia spectrum	6.554 (3.085–13.921)	<0.001[a]			
	Personality Disorder	0.869 (0.288–2.619)	0.803			
	Aggressive behavior	4.661 (2.966–7.323)	<0.001[a]			
	Lack of psychiatric care	1.859 (1.152–2.994)	0.011[a]			
	Substance or alcohol abuse	1.662 (1.032–2.676)	0.036[a]			

[a] $p < 0.05$.

than natives did. Conversely, lower age and education, the lack of knowledge of the Italian language, and homelessness were associated with a higher risk of involuntary admission. This finding might be explained by the higher prevalence of these specific sociodemographic risk factors found in the migrants' group as compared to native patients (Table 1). In addition to lower education and the lack of knowledge of the Italian language, Schizophrenia spectrum disorders, Bipolar disorders, aggressive behaviors, and the lack of psychiatric care were significantly associated with involuntary admission. Again, the majority of these conditions, namely Schizophrenia spectrum disorders, aggressive behaviors, and the lack of psychiatric care, were more common in the migrants' group as compared to natives (Table 1).

Regarding migrants, we found that socio-demographic factors, namely male sex, a lower educational level, and the lack of knowledge of the Italian language, play an important role in the compulsory admission of migrants. Conversely, in the native group, these variables seem to play a more marginal role since male gender is not associated with compulsory admission, and age and education lose their statistical significance after the introduction of the diagnoses in step 2 of the regression model. Focusing on the migrants' subsample, the association between male gender and compulsory admission is in line with Walker's study [22]. This finding

Table 6
Relative contribution of significantly correlated sociodemographic, clinical and care-related variables on compulsory admission, migrants.

Step	Variables	OR (CI 95%)	p	χ^2	R^2	p
Step1	Gender (male)	4.348 (2.118–11.494)	<0.001[a]	45.14	0.33	<0.001
	Education (elementary/middle)	5.263 (2.217–12.5)	<0.001[a]			
	Language (Italian)	3.745 (1.199–11.628)	0.023[a]			
Step 2	Gender (male)	4.673 (1.894–11.494)	0.001[a]	60.28	0.42	<0.001
	Education (elementary/middle)	4.629 (1.828–11.764)	0.001[a]			
	Language (Italian)	3.533 (1.074–11.628)	0.038[a]			
	Depressive Disorder	1.227 (0.112–13.390)	0.867			
	Bipolar Disorder	2.130 (0.314–14.455)	0.439			
	Schizophrenia spectrum	6.357 (1.887–21.416)	0.003[a]			
	Personality Disorder	1.218 (0.170–8741)	0.845			
Step 3	Gender (male)	6.135 (2.232–16.949)	<0.001[a]	21.77	0.55	<0.001
	Education (elementary/middle)	6.097 (2.342–17.544)	0.001[a]			
	Language (Italian)	4.444 (1.192–16.666)	0.026[a]			
	Depressive Disorder	3.441 (0.216–54.873)	0.382			
	Bipolar Disorder	2.804 (0.352–22.323)	0.330			
	Schizophrenia spectrum	11.019 (2.796–43.418)	0.001[a]			
	Personality Disorder	3.767 (0.378–37.548)	0.258			
	Aggressivity	5.805 (2.124–15.865)	0.001[a]			
	Suicide Attempt	0.116 (0.011–1.261)	0.077			

[a] $p < 0.05$.

Table 7
Relative contribution of significantly correlated sociodemographic, clinical and care-related variables on compulsory admission, natives.

Step	Variables	OR (CI 95%)	p	χ^2	R^2	p
Step1	Education (elementary/middle)	1.742 (1.090–2.809)	0.027[a]	18.46	0.04	<0.001
	Age	0.972 (0.961–0.988)	0.001[a]			
Step 2	Education (elementary/middle)	1.621 (0.989–2.659)	0.055	84.88	0.19	<0.001
	Age	0.976 (0.961–0.992)	0.003			
	Depressive disorder	0.214 (0.042–1.095)	0.064			
	Bipolar disorder	3.059 (1.164–8.037)	0.023[a]			
	Schizophrenia spectrum	4.142 (1.714–10.008)	0.002[a]			
	Personality disorder	0.383 (0.105–1.396)	0.146			
Step 3	Education (elementary/middle)	1.618 (2.732–0.958)	0.072	131.72	0.29	<0.001
	Age	0.998 (0.980–1.017)	0.873			
	Depressive disorder	0.315 (0.060–1.648)	0.171			
	Bipolar disorder	4.082 (1.478–11.272)	0.007[a]			
	Schizophrenia spectrum	4.870 (1.944–12.202)	<0.001[a]			
	Personality disorder	0.577 (0.153–2.179)	0.417			
	Aggressivity	4.691 (2.725–8.075)	<0.001[a]			
	Lack of psychiatric care	2.079 (1.172–3.676)	0.012[a]			
	Substance or alcohol abuse	2.012 (1.146–3.534)	0.015[a]			

[a] P < <0.05

could be partly explained by socio-cultural aspects linked to gender, specific for some subgroups of migrants. For example, Arab men show major difficulties in seeking psychological care, as perceiving it as a threat to their concept of masculinity [8]. This result might also depend on the interrelationships between male gender, schizophrenia spectrum disorders, and aggressive behavior. In the migrant population, male gender is more common in patients diagnosed with schizophrenia spectrum disorders and in those who have a high risk of disruptive conditions and lack of psychosocial network and all these conditions are associated with compulsory admission [19]. In our sample, a higher rate of compulsory admission in the migrants' group was also associated with a lack of knowledge of the local language and a lower educational level. This finding is consistent with many international studies that demonstrated how communication problems due to language and cultural differences are linked to an increased risk for misinterpretations and misdiagnosis [6–8,23–25]. Difficulties in communication between mental health professionals and patients makes a shared decision on the patient's own treatment harder, resulting in a greater need for compulsory admissions. In addition, lower educational background and language barriers can lead to a lack of awareness of psychiatric problems [26] extending the history of the untreated disease and resulting in delayed contact with psychiatry, when the severity of the symptoms is greater [27,28]. By contrast, acculturation and the possibility of communicating properly are crucial characteristics for integration and are associated with higher rates of mental health care utilization [6]. Educational background and language barriers seem to be associated with compulsory admission specifically in the migrant population where these two conditions are more frequent, as compared to the native populations. Therefore, inclusive policies aimed at teaching local language and facilitating access to higher levels of education might have a positive impact on reducing compulsory admission for the migrant population.

The second step of the regression models, the introduction of the diagnosis at the admission to the psychiatric wards, we found that

schizophrenia spectrum disorders were associated with compulsory admission in both migrants and natives while a significant relationship with bipolar disorders was found in the natives' group only. These results reflect the differences in the prevalence of these diagnostic categories in the two subsamples. In particular, our study showed that migrants diagnosed with a schizophrenia spectrum disorder had an increased risk of 11 times for compulsory admissions as compared to migrant patients with other diagnoses. The same risk in the natives' group was about 4 times. This finding is in agreement with previous studies that demonstrated an increased risk for compulsory admission in migrant patients diagnosed with Schizophrenia Spectrum Disorder compared to the native population [22,29]. This difference might be explained by the increased prevalence of schizophrenia spectrum disorder diagnosed in the migrant population instead of other diagnoses and the way these patients present psychotic symptoms. Concerning the first putative explanation, in our sample, the prevalence of this diagnostic category in the migrants' group was almost double that in the natives' one. This result is consistent with some studies from Italy [30–32] and from other countries [22,29,33]. We suppose that the over-representation of schizophrenia spectrum disorders at the expense of bipolar disorders, whose prevalence in our migrants' subsample is almost half that of the natives' one, might be related to clinicians' difficulties in making a correct diagnosis in patients who do not share the same language and cultural referrals. Focusing on the way migrant patients present and handle psychotic symptoms, a higher prevalence of acute worsening, severe impairment of functioning, and agitation and larger use of emergency referrals were observed in migrants as compared to natives, thus contributing to the increased risk for compulsory admissions associated with a diagnosis of schizophrenia spectrum disorder in this subpopulation [22].

Finally, with regard to the third step of the logistic regressions, we found that aggressive behavior was associated with compulsory admission in both migrants' and natives' groups while the lack of psychiatric care and alcohol or substance abuse was related to involuntary admission exclusively in the natives' group.

Regardless of the migrant status, patients presenting an aggressive or hostile attitude may be less collaborative to the psychiatric interview and to the proposal of a voluntary hospitalization, more predisposed to act impulsively and exaggeratedly to the situation and unable to establish a therapeutic alliance [34]. The presence of aggressive behavior could affect clinicians' ability to collect information during the evaluation, leading to misinterpretation of the symptoms [35]. Communication problems might exacerbate the onset of aggressive behavior as psychiatric interviews and de-escalation techniques, used to lowering tension, may be difficult to use in case of poor understanding of the language [36,37]. So these communication problems can partly account for the higher prevalence of aggressive behavior found in our migrants' subsample.

Even if substance and/or alcohol abuse and the lack of general and mental health assistance are more frequent among migrants, the third step of the regression model showed a significant relation with compulsory admissions in the natives' sample only, while a previous study by Maina et al. [19] found these associations in the whole sample (Italians, European and Non-European citizens). This discrepancy might be due to other variables, such as difficulties in communication and aggressive behavior, whose impact is so great that it "hides" the role played by substance and/or alcohol abuse and care-related factors.

4.1. Limitations and strengths of the study

Findings from this study are limited by some issues mainly related to its methodology: first, the retrospective design does not allow drawing inferences about causality; second, data collection based on the review of the clinical documentation prevents the inclusion of variables that could be associated with compulsory admission such as symptoms severity and data on previous medication. Furthermore, we collected data on hospitalizations lasting more than 48 h, so hospitalizations that last less were not considered in our analyses. Another important limitation is related to the lack of information about patients' migration history as the length of stay in Italy or the belonging to a first or a second generation of migrants. In fact, this kind of variables might be associated to different mental health profiles and influence compulsory admission to psychiatric wards [38,39].

Despite these limitations, there are some strengths that should be considered: there was a large sample size; almost all of the patients hospitalized in our psychiatric wards were enrolled, avoiding selection bias; and a large number of variables were considered. In particular, we analyzed the access to health services (general practitioner and psychiatrist) as a potential factor of inequality and disadvantage. In addition, our sample is highly representative of patients hospitalized in a wide metropolitan catchment area, consisting of users from all social and economic classes, preventing the influence of local differences in the organization and provision of mental health services.

4.2. Conclusions

In conclusion, our results demonstrate that the risk for compulsory admission is strictly associated with social distress factors. Indeed, among migrants, difficulties in communication and integration in a different cultural environment are related to both social disadvantage and higher risk for compulsory admission. Conversely, in the natives' group, where problems linked to language and basic education are not common, substance abuse and care-related factors, which also lead to marginalization and social disadvantage, have a greater impact in determining emergency situations requiring compulsory psychiatric admissions. Since social disadvantage in migrants is specifically related to situations of poor integration and no understanding of the language, interventions that minimize communication difficulties such as the use of cultural mediators in emergency settings, psychiatrist approaches that take into account cultural information relevant to diagnostic assessment and treatment planning, and inclusion policies like intensive Italian courses, might be useful strategies to prevent misdiagnosis and acute emergency situations linked to the risk for compulsory admissions in this population.

Author contribution statement

Elisa Del Favero: Conceived and designed the experiments; Performed the experiments; Wrote the paper.
Claudio Brasso: Performed the experiments; Analyzed and interpreted the data; Wrote the paper.
Vincenzo Villari: Performed the experiments; Contributed reagents, materials, analysis tools or data.
Paola Rocca: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interest's statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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