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Different rates of first admissions for psychosis in migrant groups in Paris

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Introduction

The association between migration and psychosis has been described in European countries: Denmark [1, 2], Sweden [3], the Netherlands [4], Norway [5], Italy [6] and most extensively in England [7-9] and it has become a major concern for public mental health policies in Europe [10]. However, not all migrants seem to be at higher risk for psychosis and vulnerability for the different migrant groups varies according to the host country. These studies led to several hypotheses about the factors involved in the increased risk for psychosis in migrant groups. Biological factors (such as genetic predisposition, infections, vitamin D deficit) as well as social factors (economic deprivation, social capital, stress and discrimination) have all been suggested as potential explanations for these findings [11]. To further extend our understanding of the factors related to the increased risk for psychosis in migrant groups it is important to test these hypotheses in different contexts from those in which they have been described.

In France the proportion of migrants has been steady in the last few decades, representing nearly 8% of the general population. Nowadays the largest migrant communities come from Africa (North Africa: 1.6 million people; Sub-Saharan Africa: 670.000 people – Census 2008). Despite detailed descriptions on migrant's mental health [12-14] epidemiological studies are still missing. To know if in France migrants are at higher risk of psychosis and which migrant groups are the most vulnerable will contribute to better understand the interactions between the migrant populations and the host countries and serve local public health policies.

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In this study we investigate for the first time to our knowledge the association between psychosis and (first generation) migrants in France. The objectives are firstly to determine whether the incidence of administrative admissions for psychosis is increased in this population and secondly to compare the socio-demographic profiles of natives and migrants with psychosis. For this purpose we focus on all first admissions for psychosis in the 20th district of Paris between 2005 and 2009.

Methods

Catchment area and access to mental health services

Paris has about 2 million inhabitants and is divided into twenty districts (arrondissements). There is one public psychiatric facility for adult inpatients in each district and patients with psychiatric problems tend to consult directly mental health care services because referral from the general practitioner is not mandatory. In France acute psychotic patients are largely managed by public institutions. In the 20th district of Paris the public psychiatric facility for adult inpatients is the Maison Blanche Hospital. Private psychiatric clinics are usually located in the suburbs of Paris, and generally take care of those with more common mental disorders and offer expensive services. Access to the health care system for migrants does not seem to diverge from the general population. Even undocumented migrants use the healthcare system and receive benefits from the French universal healthcare coverage (Couverture Maladie Universelle, CMU) and state medical aid (Aide Médicale d'Etat) [15].

Population at risk

The 20th district, located in the North-East side of the city, is one of the most densely populated areas of Paris. It is a low to middle class area with a large migrant population (10%). In this area (and in France as well), migrants from Africa are the most numerous. There is no ethnic classification in the French census, thus statistics for second generation migrants are not available. In this study only people born abroad have been defined as "migrant". Patients were grouped based on their country of birth: native (born in France) or migrant (born abroad). Four migrant groups were defined according to the most important migrant's communities in France (North and sub-Saharan Africans and Europeans) and to data available in the census: Europe, North Africa, Sub-Saharan Africa and "other countries" including people from the Americas and from Asia. We decided to use data from the 2008 census for the population estimates (population over 15 years) for the previous and subsequent years (2005-2009) because it was the first census which provided data on migrants' country of birth by district in Paris. This denominator was multiplied by 5 (five years of data collection) to obtain the final rates expressed per persons/year."

Initial screening criteria and subjects

The "Maison Blanche" Hospital admission computer index provided a list of all first admissions of patients aged 15+ with a discharge diagnosis of psychosis (ICD-10: F20-F29, F30.2, F31.2, F31.5, F32.3, F33.3) or without any diagnosis between 2005 and 2009. Each file is referred to the patient's social security number. The address in the catchment area and the absence of previous admissions were checked through the case file exam (clinical notes, interview with patient and family/friends) and by a data system used in Paris which

centralises all admissions in the city. Clinical descriptions in case files of those patients were checked for positive psychotic symptoms: delusions, hallucinations or thought disorder [16]. Patients with psychotic symptoms of toxic or organic origin were excluded.

Data collection for eligible patients

We collected data for gender, age, country of birth, clinical diagnosis based on the ICD-10 and type of admission (voluntary or compulsory). Patients' socio-demographic data were compared to the 2008 French Census data from the 20th district for natives and migrants.

Analysis

We first compared gender, age, diagnosis and type of admission between natives and migrants. Then we compared diagnosis and type of admission among natives and migrant subgroups separately, using Chi square tests. Incidence rates of first admission for psychosis (administrative incidence rates) were calculated according to the age cut-off available in the 2008 census (15-24; 25-54 and >54 years) and gender for natives, migrants (overall) and migrant subgroups. Rates are displayed per 100,000 person-years. We used direct standardization to compare overall risk of admission among groups and to obtain age-gender-adjusted admission rates. Incidence rates (IR) and incidence rates ratios (IRR) with 95% confidence intervals (95% CI) were calculated, using natives as the reference group. The analysis was carried out using STATA (version 9).

Results

Two-hundred and sixty four patients meeting our eligibility criteria were admitted during the 2005-2009 period. Four patients were excluded because they did not live inside the study area and two other patients were excluded because it was not possible to identify their country of birth. Thus we analysed data on 258 patients admitted between 2005 and 2009 and compared to data from the standard population (>15 years) based on the 2008 French census (Table 1).

No significant difference was found between the native patients and any migrant group as a whole for age, gender, type of admission or diagnosis (Table 2). In both native and migrant groups, most patients were between 24 and 54 years old; there were more men than women; diagnoses of non-affective psychosis were the most frequent and compulsory admission was more common than voluntary admission.

As shown in Table 3, the age and gender adjusted administrative admission incidence rate for psychosis in the 20th district in Paris was 28 cases per 100.000 person-years. The incidence among migrants in general is three times higher than for natives (IRR= 2.9, 95% CI = 0.9-9.8). There were several differences among migrant groups compared to natives: the incidence was higher in patients from sub-Saharan Africa (IRR =7.1, 95% CI =2.3-21.8) and in patients in the "other countries" group - although in this later group it did not reach significance (IRR= 2.2, 95% CI = 0.6-7.8). In contrast the incidence was not different for those from Europe (IRR =1.2, 95% CI =0.3-5.1) and from North Africa (IRR =1.4, 95% CI =0.4-5.6). There was some evidence of variation by gender: migrant men from all groups

have higher risk than native men (IRR=3.2, 95%CI =1.1-9.3) and among patients from sub-Saharan Africa both men and women had higher rates compared to natives, but North African women had the lowest rate (IRR=0.4, 95%CI=0.1-3.8) of all groups. Details concerning age, gender and type of diagnosis for the different migrant groups are available from the corresponding author on request.

Discussion

The general design of our study was a cross-sectional comparison of incidence data in natives and first generation migrants, where data for the denominator (total migrant and native populations) was based on official census. Our general findings seem largely consistent with previous studies carried out in Europe showing that some migrant groups are at higher risk of psychosis [17-19]. We found increased risk of admission in the sub-Saharan Africa group and in the “other countries” group; migrants from North Africa and from Europe presented almost the same risk as natives. However, we were unable to differentiate the second generation migrants from the other natives, so it is possible that the rates reported are underestimated if we take into account studies conducted in other European countries showing an increased risk of psychosis not only in migrants (first generation) but also in their offspring (second generation) [18, 38].

Yet, our findings for first episode of psychosis in first generation migrants can only be compared to studies carried out in other European countries due to the lack of incidence studies on migrant’s mental health in France. Although our sample is relatively small with some results not statistically significant at p=0.05, a few considerations can be made. Our findings concerning the Sub-Saharan and the North African groups can be compared to results from other host countries, however, our “other countries” and “Europe” groups are too heterogeneous in terms of origin and culture, as well as in pattern of migration. The incidence rates for psychosis in sub-Saharan Africa migrants, for example, are similar to those from studies carried out in other European countries which also show a high incidence of psychosis in this group [10]. On the other hand, the low incidence we found for North African migrants differs from previous studies in the Netherlands which showed high rates for psychosis in this population [4, 20]. To understand our results we have to take into account the French context.

Patterns of migration in France

The migrant population in France is composed of those who came in the successive waves of migration mainly after the World War Two due to the great need for labour. Migration from North Africa started in the 1950’s and it is still growing (about 30% of North Africans have been in France for less than 10 years). The context of North African migration in France is different from that in the Netherlands where most North African migrants come from Morocco. Moroccan migrants in France are French speaking, come generally from urban areas and have a high educational level whereas those going to the Netherlands come from rural areas and do not speak Dutch [21]. Furthermore, most North African migrants in France come from Algeria: they are established in France for three generations and many of

them belong to the middle class. Recent migration from North Africa is characterised by family reunification, composed mostly by women coming to join their husbands in France.

On the other hand, migration from the sub-Saharan Africa is more recent; one in two migrants from this area has lived in France for less than ten years. They come from French speaking countries such as Mali, Congo, Senegal, Ivory Coast and Guinea. Most are young men and many have migrated before the age of 20. They usually come for labour or as refugees, living alone or without their family in the host country. Clandestine migration is not uncommon; the number of undocumented sub-Saharan African migrants is estimated to 10% [15,22,23] and if we adjust for underenumeration, the incidence rates still remains higher than for natives IRR=6.5, 95% CI= 3.9-10.7). In this context we can expect that at time of migration, sub-Saharan Africans are more often still within the age range of greatest risk for psychosis since they migrate at younger age than North Africans.

Explanatory hypothesis

The socio developmental model [11,24,25] hypothesises that “exposure to adversity and trauma interact with underlying genetic risk and impact on brain development and stress sensitivity in such a way as to create an enduring liability to psychosis that becomes manifest in the event of further cumulative stressors”. Consequently interactions between psychological and biological factors specific to each migrant group and the host country should be considered; migration is a complex experience, and therefore risk and protective factors may differ across groups and contexts. Resettlement stress such as unemployment, low ethnic density, and achievement-expectation mismatch has been largely described as risk factors in migrant populations, [26-28]. Additionally, discrimination has been associated to psychological distress [29,30] and psychosis [31-33] among individuals with black skin colour which could increase the vulnerability of some migrant groups. Moreover, the role of biological risk factors associated with psychosis such as vitamin D deficiency [34], infectious agents [35] and autoimmune encephalitis [36] is not yet established in migrant populations: they could vary among migrant groups and native populations and contribute to differences in the incidence rates.

In the French context migrants from sub-Saharan Africa seem to be more exposed to social risk factors than other migrants. They are more likely to experience stressful situations before migration due to the political context in some countries where forced separation from family and complex migration trajectory is not uncommon. Once in the host country they also seem to be more exposed to resettlement stress such as uncertainty about asylum applications, denial of right to work, poor housing and, sometimes, detention. Discrimination by skin color in France is reported most frequently by sub-Saharan Africans than by other migrant groups. They are also more likely to have poor community support since they often migrate at younger age and alone [15, 22, 23].

Methodological considerations

This study has some limitations. The main one is the probability of missing cases. We were not able to identify retrospectively first contact patients with outpatient care services because our computing system does not give this information. However most cases of

schizophrenia tend to be admitted in hospital but it is possible that some patients with affective psychosis (depression with psychotic symptoms) are more often seen in outpatient services. Further our data is based on first admissions and we can not be sure about the absence of previous episodes (especially in older patients) although we have sought information.

The number of cases could also be affected by misclassification due to clinical diagnosis made by different clinicians although they were based on the ICD-10 classification, but a recent study in France showed good inter-rate reliability of schizophrenia diagnosis and bipolar disorders in a public psychiatric institution. [37]. We have also to consider case ascertainment bias because we did not check all first admissions (all psychiatric diagnosis).

Cultural aspects which could influence the clinical presentation of the disorder, the pathway to care and help seeking behaviour among the different migrant groups were not evaluated. It has been suggested that cultural and religious beliefs typical in some minorities that differ from those in the general population could lead, in some cases, to false positives (diagnostic artefact). Although this cannot be formally discounted, studies carried out in other countries showed that this could not completely explain the higher risks in migrant populations [38, 39]. Additionally, some of our medical and para-medical staff are originally from Africa and, most important, family and friends tended to agree that there was a unusual behaviour. Also, other confounding factors such as income level, educational level and cannabis use were not investigated.

Finally, generalizability is limited since it is a preliminary study on this population and it was carried out in only one district of Paris.

Conclusion

To our knowledge, this is the first study of the administrative incidence of psychosis among first generation migrants carried out in France and, notwithstanding methodological limitations, consequently constitutes a significant addition to the literature. Our results showed that sub-Saharan migrants were identified as the most vulnerable migrant group, which is in accordance with previous research showing that not all migrants are at higher risk for psychosis. Additional work is warranted to confirm these trends and studies on second generation migrants will allow us to differentiate the risk factors associated to migration from those associated to ethnicity. Understanding the pathways that influence the incidence of psychosis in the different migrant groups will help us to design effective mental health policies and target the populations at most risk.

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Table 1

Population at risk* (>15years) and first admissions for psychosis between 2005 and 2009 in the 20th district, Paris.

Country of birth	20th district population*	First admissions between 2005 and 2009
	n (%)	n (%)
Natives	121,713 (74.7)	136 (52.7)
Migrants (Overall)	41,130 (25,3)	122(47.3)
Europe	9,538 (5.9)	15 (5.8)
North Africa	13,608 (8.4)	15 (5.8)
Sub Saharan Africa	8,748 (5.4)	71 (27.5)
Other	9,236 (5.7)	21 (8.1)
Total	**162,843 (100.0)**	**258 (100.0)**

* Census 2008

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Table 2

Social demographic characteristics of patients admitted with first episode of psychosis among natives and first-generation migrants living in the 20th district, Paris, between 2005 and 2009

	Natives		Migrants		p*
	n	%	n	%	
Age (years)					
15-24	34	25.0	23	18.5	0.15
25-54	79	58.1	85	69.7	
> 54	23	16.9	14	11.5	
Sex					
Men	81	59.6	80	65.6	0.32
Women	55	40.4	42	34.4	
Diagnosis					
Non affective psychosis	130	95.6	117	95.9	0.90
Affective psychosis	6	4.4	5	4.1	
Hospitalization					
Voluntary	44	32.4	32	26.4	0.30
Compulsory	92	67.6	89	73.6	

*Chi-square test

Table 3

Crude and age-gender adjusted admission rates for psychosis in natives and in first generation migrants.

	Crude admission rate (cases/100 000 person-year)	Adjusted admission rate (cases/100 000 person-year)	95% CI		IRR	95% CI		
Overall	31.5	28.0	12.5	62.5				
Natives	22.5	17.5	6.5	48.0	1			
Europe	29.0	22.0	9.0	54.0	1.2	0.3	-	5.1
North Africa	22.0	25.0	11.0	59.0	1.4	0.4	-	5.6
Sub Saharan Africa	162.5	125.0	84.5	184.5	7.1	2.3	-	21.8
Others	49.5	39.0	19.5	77.5	2.2	0.6	-	7.8
All migrants	59.5	51.0	28.0	93.5	2.9	0.9	-	9.8
Men								
Overall	42.5	40.5	20.5	79.5				
Natives	29.5	22.5	9.0	54.5	1			
Europe	40.0	30.5	14.0	66.0	1.4	0.4	-	4.6
North Africa	34.0	45.0	23.5	85.5	2.0	0.6	-	6.3
Sub Saharan Africa	203.0	164.5	117.0	231.0	7.4	2.7	-	19.8
Others	48.5	41.5	21.5	81.0	1.9	0.6	-	5.9
All migrants	78.0	72.0	43.0	120.0	3.2	1.1	-	9.3
Women								
Overall	22.0	20.0	7.5	51.0				
Natives	16.5	13.5	4.5	42.0	1			
Europe	21.0	15.5	5.5	44.5	1.1	0.2	-	5.8
North Africa	9.0	6.0	1.0	29.5	0.4	0.1	-	3.8
Sub Saharan Africa	112.5	83.0	51.5	133.5	6.1	1.7	-	22.1
Others	50.5	36.5	18.0	74.5	2.7	0.7	-	10.9
All migrants	41.0	31.5	14.5	67.0	2.3	0.6	-	9.6