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Research paper

Prevalence and clinical severity of mood disorders among first-, second- and third-generation migrants

Baptiste Pignon[a,*], Pierre Alexis Geoffroy[c,d,e,f], Pierre Thomas[a,h,i], Jean-Luc Roelandt[g,i], Benjamin Rolland[a,j], Craig Morgan[b], Guillaume Vaiva[a,h], Ali Amad[a,b]

[a] Univ. Lille, CNRS, CHU LILLE, UMR9193-PsychiC-SCALab, UMR9193-PsychiC-SCALab, Psychiatry Department, F-59000 Lille, France
[b] King's College London, Institute of Psychiatry, Psychology and Neuroscience, London, UK
[c] Inserm, U1144, Paris F-75006, France
[d] Paris Descartes University, UMR-S 1144, Paris F-75006, France
[e] Paris Diderot University, Sorbonne Paris Cité, UMR-S 1144, Paris F-75013, France
[f] AP-HP, GH Saint-Louis – Lariboisière – F. Widal, Psychiatry and Addiction Medicine Department, 75475 Paris Cedex 10, France
[g] World Health Organization Collaborative Centre (WHO-CC), EPSM Lille-Metropole, Lille, France
[h] Federation of Mental Health Research, Lille, France
[i] INSERM 1123, Equipe ECEVE, Paris, France
[j] Univ. Lille, INSERM, CHU LILLE, U1171, Department of Addiction Medicine - Addiction Consultation Liaison Unit, Pôle de Psychiatrie, F-59000 Lille, France

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ABSTRACT

Background: The role of migration as a risk factor remains unknown for mood disorders because of poor data. We sought to examine the prevalence and severity of mood disorders (bipolar disorder (BD), unipolar depressive disorder (UDD) and dysthymia) in first, second, and third generation migrants in France.
Methods: The Mental Health in the General Population survey interviewed 38,694 individuals. The prevalence of lifetime mood disorders, comorbidities, and clinical features was compared between migrants and non-migrants and by generation. All analyses were adjusted for age, sex and level of education.
Results: The prevalence of any lifetime mood disorder was higher in migrants compared with non-migrants (OR=1.36, 95% CI [1.27–1.45]). This increased prevalence was significant for UDD (OR=1.44, 95% CI [1.34–1.54]), but not for BD (OR=1.15, 95% CI [0.96–1.36]) or dysthymia (OR=1.09, 95% CI [0.94–1.27]), although the prevalence of BD was increased in the third generation (OR=1.27, 95% CI [1.01–1.60]). Migrants with BD or UDD were more likely to display a comorbid psychotic disorder compared to non-migrants with BD or UDD. Cannabis-use disorders were more common in migrant groups for the 3 mood disorders, whereas alcohol-use disorders were higher in migrants with UDD. Posttraumatic stress disorder was more frequent among migrants with UDD.
Limitations: The study used cross-sectional prevalence data and could be biased by differences in the course of disease according to migrant status. Moreover, this design does not allow causality conclusion or generalization of the main findings.
Conclusion: Mood disorders are more common among migrants, especially UDD. Moreover, migrants with mood disorders presented with a more severe profile, with increased rates of psychotic and substance-use disorders.

1. Introduction

Mood disorders, including bipolar disorder (BD), unipolar depressive disorder (UDD) and dysthymia, are leading causes of morbidity around the world due to their high prevalence (approximately 1 to 2% for BD (Fagiolini et al., 2013), 16% for UDD (Kessler et al., 2003) and 1% for dysthymia (Blanco et al., 2010)), their impact on functioning and quality of life, and their long disease course (Bruffaerts et al., 2012; Miret et al., 2013; Phillips and Kupfer, 2013). Subjects with mood disorders have, moreover, elevated mortality rates (Angst et al., 2002), particularly because of suicidal behaviour (Pompili et al., 2012; Schaffer et al., 2014) and cardiovascular diseases (Fagiolini et al.,

* Correspondence to: Hôpital Fontan, Fontan, CHRU de Lille, F-59037 Lille Cedex, France.
E-mail address: baptistepignon@yahoo.fr (B. Pignon).

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2005; Mathur et al., 2016). Even if their pathophysiology remains mostly unknown, it is widely demonstrated that gene-environment interactions play an important role in the genesis of mood disorders (Craddock and Forty, 2006; Etain et al., 2008; Geoffroy et al., 2013).

Foreign migration is associated with increased prevalence (i.e., cases in a given population at a specific time) of psychotic disorders and schizophrenia among some minority ethnic and/or migrant populations (Selten et al., 2012; Termorshuizen et al., 2014). Previous studies demonstrated increased incidences (i.e., new cases per given population per year) of psychotic disorders and schizophrenia in migrants in first and second generation, and thus confirmed migration as a risk factor (Bourque et al., 2011; Cantor-Graae and Selten, 2005), which has also been shown to occur in France (Amad et al., 2013; Tortelli et al., 2013). Nevertheless, migration remains a topic of debate concerning a potential influence on incidence and prevalence of mood disorders. For instance, a study using data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) of 43,093 individuals representative of the general population found that foreign-born Mexican Americans and foreign-born non-Hispanic whites had a lower prevalence of mood, anxiety and substance use disorders (SUD) compared with their US-born counterparts, which suggests a "healthy migrant effect" (Grant et al., 2004). More specifically, results from different studies of migration on either mania or BD (Lloyd et al., 2005; Selten et al., 2003), UDD (Bhugra, 2003; Kerkenaar et al., 2013; Selten et al., 2003) or dysthymia (Breslau et al., 2011) were contradictory, driving Swinnen and Selten to conduct a meta-analysis of the 14 incidence-based studies of migration and mood-disorders (BD, UDD, and mood disorders of unspecified polarity). They found that, adjusting for age and gender, the RR of developing any mood disorder was 1.38 (95% CI [1.17–1.62], $p < 0.001$) (Swinnen and Selten, 2007), which is less than the risk of developing schizophrenia. More recently, Cantor-Graae et al. studied the influence of migration on the incidence of a full spectrum of psychiatric disorders in a large Danish registry-based cohort study (n=1,859,419). After adjustment for sex, age, calendar year, and the interaction between age and sex, risk for at least one psychiatric disorder was increased in all migrant populations (except Danish expatriates who were born abroad). The incidence of the different psychiatric disorders varied according to generational status of migrants, in particular between the first and second generation. Interestingly, incidence rate ratios (IRR) of BD and affective disorders were only increased among second-generation migrants with one foreign-born parent (Cantor-Graae and Pedersen, 2013).

Most of these migration studies are incidence-based and require long follow-up periods to be accurate. Prevalence studies, on the other hand, are appropriate to assess the severity of a disease and/or the comorbidities according to clinical or biological factors and can provide important insights on factors associated with different courses of the disease, i.e., modifiers of a disease (Stolk et al., 2007).

Therefore, the present study aimed to examine the prevalence of mood disorders (including BD, UDD and dysthymia) in migrant groups, both overall and according to first (1GM), second (2GM) and third (3GM) generation, in a large cross-sectional survey. Finally, we compared psychiatric comorbidities and clinical features, including psychotic disorders, previous suicide attempts, anxiety disorders and SUD, according to migrant status.

2. Materials and methods

2.1. Mental Health in General Population (MHGP) survey

The French cross-sectional MHGP survey, conducted by the World Health Organization Collaborating Centre (WHO-CC), interviewed 38,694 subjects between 1999 and 2003. These subjects were selected in 47 study sites (900 subjects per site) by a quota sampling method (Lunsford and Lunsford, 1995). This method develops a sample of subjects with the same characteristics as the general population on predefined characteristics, such as age, sex, educational level, occupational category, and professional status (according to census figures from 1999 provided by the French National Institute for Statistics and Economic Studies). Subjects were included in the study if they met the following criteria: 1) provided informed consent to participate in the survey, 2) spoke French, 3) were aged 18 years and over, and 4) were neither institutionalized nor homeless. Legal authorisation was obtained by the "Commission Nationale Informatique et Liberté" (CNIL) and the "Comité consultatif sur le traitement de l'information en matière de recherche" (CCTIRS), with number 98.126. Additional methodological details can be found elsewhere (Amad et al., 2013; Caria et al., 2010; Leray et al., 2011).

2.2. Assessment of psychiatric disorders and clinical features

At each site, the Mini International Neuropsychiatric Interview (MINI, French version 5.0.0), a standardized psychiatric interview, was used to screen for psychiatric disorders. The MINI is a brief structured diagnostic interview developed by psychiatrists in the United States and Europe for screening of ICD-10 psychiatric disorders in the general population. The MINI has been previously validated in the general population and has good to very good validity, reliability (inter-rater and test-retest), sensitivity and specificity (Sheehan et al., 1997). All of the MHGP interviewers (nurses and psychologists) were trained to administer the MINI by using video recordings of interviews over a 3-d session by WHO-CC experts.

Lifetime mood disorders, according to ICD-10 criteria, included the following: BD (*F30* and *F31*), UDD (*F32* and *F33*) and dysthymia during the last two years (*F34.1*). When compared with the Composite International Diagnostic Interview (CIDI), the MINI has "good" to "very good" kappa values. For BD, the kappa coefficients were 0.65–0.74, the sensitivities were 0.74–0.89, and the specificities were 0.93–0.97. For UDD, they were, 0.74, 0.93 and 0.80, respectively (Amorim et al., 1998). For dysthymia, when compared with the Structured Clinical Interview for DSM-III (SCID), they were 0.52, 0.67 and 0.99, respectively (Sheehan et al., 1998).

Lifetime comorbidities and clinical features associated with mood disorders were also extracted from the MINI and analysed: previous suicide attempts, anxiety disorders (panic disorder with or without agoraphobia (*F41.0* and *F40.01*)), social phobia (*F40.1*), generalized anxiety disorder (GAD) (*F41.1*), post-traumatic stress disorder (PTSD) (*F43.1*), and SUD (alcohol use disorders (AUD) and cannabis use disorders (CUD) (*F10.1*, *F10.2*, *F12.1* and *F12.2*)). Lifetime psychotic disorders were also extracted. Indeed, the MINI includes a lifetime psychotic disorders section with nine items. The questions target the occurrence of paranoid delusions, delusions of persecution, thought broadcasting, delusions of control, delusions of reference, and visual and auditory hallucinations. The diagnoses of lifetime psychotic disorders were always confirmed by a senior psychiatrist familiar with transcultural psychiatry. For psychotic symptoms, when compared with the CIDI, kappa has been shown to have a good value, i.e., above 0.70. Sensitivity, specificity and positive predictive values have also been found to be above 0.85, 0.90 and 0.70, respectively (Amorim et al., 1998).

2.3. Assessment of migrant status

The designation of migrant status was based on the country of birth of the subject, the subject's parents, and the subject's grandparents. In light of the literature on migrant populations (Cantor-Graae and Pedersen, 2013; Selten et al., 2012, 2003; Sieberer et al., 2011; Swinnen and Selten, 2007; Tortelli et al., 2013), we defined a migrant as 1GM (a subject born outside of metropolitan France), 2GM (at least one parent born outside of metropolitan France), or 3GM (at least one grandparent born outside of metropolitan France). This information