Risk of psychosis and internal migration: Results from the Bologna First Episode Psychosis study

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ABSTRACT

Background: Incidence of psychotic disorders is higher in many migrant groups; however little is known about internal migrants (IM). This study aims to describe the IR in natives (NA), IM and external migrants (EM).
Method: All patients aged 18–64 years, with First Episode Psychosis (FEP), who made contact with the Bologna West psychiatric services, between 2002 and 2010, were included.
Results: 187 cases were included. Age and sex adjusted IR of psychosis per 100,000 per year were: 12.6 for NA, 25.3 for IM and 21.4 for EM. The IRR was 1.93 (1.19–3.13, P = 0.007) for IM and 1.79 (1.06–3.02, P = 0.03) for EM compared to NA.
Conclusion: Rates of psychosis were significantly elevated in IM as well as in EM. This result adds evidence as to the role of migration itself (versus ethnicity) on the risk of psychosis.

1. Introduction

Recent theories consider the increased risk of psychosis found in migrants as the result of a complex interaction between biological vulnerability and environmental factors throughout the migration process (Morgan et al., 2010). From this prospective, it could be very interesting to know the incidence rates (IR) of psychosis in internal migrants (IM, people who migrated within the country where they are born). However, very little is known about the incidence of psychotic disorders among IM. So far as we know, few studies have been conducted to explore the relationship between psychosis and internal migration. Malzberg compared the IR of schizophrenia and other psychotic disorders among the natives (NA) population of New York and the migrants from other U.S. states, finding a higher incidence in IM (Malzberg, 1962). The work of Odegard however, conducted on IM in Norway, showed that the IR of psychotic disorders were significantly lower in the IM than NA: the striking exception was the city of Oslo, in which IM had higher IRs than NA (Åstrup and Ødegaard, 1960). More recently, a population based cohort study conducted in Denmark found that the relative risk of schizophrenia increased with number of changes of municipality during upbringing and with increasing age at change of the address or municipality (Pedersen and Mortensen, 2001).

The aim of this study is therefore to describe the relationship between psychosis IRs and migratory phenomenon, by dividing the population into three groups: Native (NA) in Emilia Romagna (Northern Italy), Internal migrants (IM, from other Italian regions, mainly Southern Italy) and External migrants (EM, from other countries). We also aim to investigate the distribution of the several known environmental risk factors for psychosis (male gender, single status, low education, living alone, *Cannabis* and other substances use) for each of the groups considered, in a preliminary attempt to explain what risk factors might underlie the differences of IR of psychotic disorders across the three groups. We also evaluated possible differences of pathways to care and DUP (Duration of Untreated Psychosis).

2. Setting and methodology

This study is part of the First Episode Psychosis Bologna (FEP-Bo) project, which studies the incidence of psychotic disorders in Bologna West and assesses all new cases at presentation at the 3 Bologna West Community Mental Health Centers (CMHCs Nani, Scalo and Tiarini) (Tarricone et al., 2012). These CMHCs have special first episode psychosis (FEP) program, including consultation and connection with general practitioners (GPs) and other agencies, developed in the late 1990s, to facilitate better identification of new cases of FEP (Menchetti et al., 2006). Care is free and available to all.

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Ethical approval was obtained from the local research ethics committee.

2.1. Population at risk

The Bologna west catchment area includes approximately half of the total population of Bologna and is an exclusively urban area with a high degree of social cohesion and low ethnic heterogeneity. Data concerning the population at risk were obtained from the ISTAT Census of 2001 and further supplemented by the Statistics Sector of the Municipality of Bologna and the registry office of the AUSL, for each year of the study. The population used as denominator includes all the residents between 18 and 64 years of age (mid period population, 2006 year: 114,993 inhabitants: 67,887 (59.1%) NA, 31,448 (27.4%) IM (of whom 25,247, 80%, from South Italy) and 15,568 (13.5%) EM.

2.2. Inclusion criteria of the cases

This study included all the cases, between 18 and 64 years, with a first episode of psychosis (encoding F10–F29 and F30–F33 in ICD-10) who made contact for the first time with one of three CMHCs living within the pre-defined catchment area in the west Bologna, for a period of 9 years (January 2002–December 2010). The symptom and sign inclusion criteria used are based on those used in the World Health Organization (WHO) study (Jablensky et al. 1992): that is the presence of hallucinations, delusions, thought disorder, bizarre or disturbed behavior, negative symptoms, mania or clinical suspicion of psychosis; absence of an organic cause or profound learning disability; and no previous contact with psychiatric services for psychotic symptoms. A team of researchers has been involved in the weekly monitoring of all patient contacts with the three CMHCs. There has been periodic training for the health professionals. Each patient who met the inclusion criteria for the study was contacted and gave their informed consent. After the investigation period, based on the methods used by Cooper et al. (1987), we conducted a leakage study to identify any missed case by checking the list of patients recorded at the Bologna Mental Health Department MHD) in the study areas. We reviewed all mental health service registration forms held in the Bologna MHD and checked the computerized information systems. Case-notes were used to complete the Item Group Checklist (IGC), part of the Schedule for Clinical Assessment of Neuropsychiatry, Version 2.1 (SCAN; WHO, 1998), to collect symptom-related data at the time of presentation and 1 month later to ensure that cases met ICD-10 criteria for psychotic disorders.

2.3. Statistical analysis

Both the population at risk and the cases of FEP were stratified by gender, age groups of ten years and migration status (NA, IM and EM). We calculated the crude incidence rates for all groups of patients examined. Directly standardized incidence rates, standardized for age and gender were calculated using the distdze command in Stata 10, with the standard considered as the entire study population. The incidence rates are presented per 100 000 person years. There was overdispersal in the distribution of the cases with the variance considerably greater than the mean. Negative binomial regression was therefore carried out to estimate the effect of migrant group after adjusting for age and gender.

The variables examined include gender, age at first contact, marital status, education, occupational status, pathway to care, housing, DUP, diagnosis and substance use. Population levels of risk factors stratified by age, gender and migrant group were not available. Therefore, the distribution of variables examined were analyzed among the 3 groups using one way-Anova test and chi square test to compare categorical and continuous variables. These analyses were done using SPSS for windows.

3. Results

A total of 187 cases met the inclusion criteria during the study period, of which: NA 82 (43.9%); IM 61 (32.6 5%); EM 44 (23.5%). Among internal migrants, 42 (68.9%) came from South Italy.

3.1. Description of the sample

The socio-demographic and clinical characteristics of the sample are described in Table 1.

The majority of patients were men (n = 108, 57.8%) and the mean age at first contact was 31.3 years, with no significant difference between the three groups of patients. Most of patients were single (146, 78.1%). The highest proportion of single people were in the IM group (54, 88.5% vs 92, 73%; OR 2.851, 95% CI 1.182–6.874). More than half of the patients lived with their parents (99, 53.2%). The IM had the highest number of cases who lived on their own (11, 17.9% vs 9, 7.2%; OR 2.836, 95% CI 1.106–7.268). More than half of the three groups of patients had a high school certificate or more. The majority of the cases were occupied at the onset (workers or students) (110, 59.1%).

The 3 more important pathway to care to CMHC were hospital referral (34.6%), informal access (family/friend or self-referral) (26.7%) and primary care (25.7%). This was also true for the migrant populations. Most of the cases in all three groups of patients had a DUP <1 year (over 80%).

Cannabis use at onset was present in 25.5% (47) of cases. The IM showed a trend to be more frequently *Cannabis* users (21, 34.4% vs 26, 21.1; OR 1.959, 95% CI 0.989–3.877). No differences were found for psychiatric diagnoses distribution among the 3 groups.

3.2. Annual incidence rates and incidence rate ratios

Table 2 shows the crude incidence and standardized incidence for age and sex for all the three groups (NA, IM, EM).

In Table 3 we report IRR, adjusted for age and sex, for both groups of migrants compared to the native population from the negative binomial regression model.

4. Discussion

Rates of psychosis were considerably and statistically significantly elevated in IM as well as in migrants from outside Italy. This is the first time this phenomenon has been demonstrated in modern times: Our results are consistent with those of Pedersen & Mortensen who found higher risk of schizophrenia in young people who changed municipality (Pedersen and Mortensen, 2001). These authors interestingly noted that change of address within the same municipality had no effect on schizophrenia risk, while change of municipality significantly increased the risk. Therefore, they hypothesized that change of municipality is a proxy of stress related to changing of school, making new friends and facing new social environment, that actually are the condition faced by internal migrants.

Given the lack of recent literature about "internal migration", we have taken the Irish migration to England as a comparison. British and Irish populations have much in common: the same language, the same skin color, a short geographical distance but some cultural differences between the two countries. Coid found a RR of 1.6 (95% CI 1.1–2.4) for the first-generation Irish migrants (Coid et al., 2008). Fearon, in the AESOP study conducted in 2006, found a RR of 1.6 (95% CI 1.1–2.2) for the Irish population (Fearon et al., 2006) and this gradient of incidence rates was still found when area-level factors were taken into account (Kirkbride et al., 2007).

These increased psychosis IR found in migrants could be the result of an excess of environmental risk factors in the migrant populations that occur to differing extents in the different groups. Alternatively, or in