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(Article begins on next page)

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Involuntary admissions in Italy: the impact of seasonality

Andrea Aguglia, Marta Moncalvo, Francesca Solia, Giuseppe Maina

Abstract

Objective: The aim of this study is to assess the prevalence of involuntary admissions with regard to seasonality and clinical associated features, in a sample of patients admitted to a psychiatric unit in a period of 24 months.

Methods: All subjects consecutively admitted to the Psychiatric Inpatient Unit of the San Luigi Gonzaga Hospital, Orbassano (University of Turin, Italy) from September 2013 to August 2015 were recruited. Socio-demographic and clinical characteristics were collected.

Results: Seven hundred and thirty admissions in psychiatric ward were recognized. The prevalence of involuntary admission was 15.4%. Patients with involuntary hospitalizations showed a higher education level, a higher prevalence of admission in spring/summer with a significant peak in June, a longer duration of hospitalization and a lower suicide ideation. Among involuntary admissions, physical restraint and suicide attempts were more prevalent during spring compared to the other seasons.

Conclusions: Seasonality has an important role in the psychopathology of psychiatric disorders, particularly in bipolar and related disorder, and may represent an influencing factor in hospital admissions and hospitalizations. Seasonal pattern must be considered while managing diagnosis and treatment of mental disorders, with regard to prevention and psychoeducation of patients.

Keywords: Bipolar disorder, involuntary admission, physical restraint, seasonality, suicide

Objective

From an ethical perspective, the involuntary admissions in patients with mental disorders are often debated due to restriction of personal liberty. However, the autonomy of patients with psychiatric disorders is impacted by an increasing emphasis on individual rights. In many cases, the clinical picture of some psychiatric disorders, such as manic episode, intoxication of substance, suicide attempt and psychosis, could limit the rational ability to consent or decline treatment that is the original purpose of adequate mental-health care. Nowadays, involuntary admission and treatment generally have been accepted as a necessary measure to treat and protect subjects with mental disorders. However, it remains a controversial and complex ethical and legal issue, and sometimes it is difficult to balance the rights of patients with the mandatory need to care (Zhang et al. 2015).

In Italy, similarly to other countries, psychiatric hospitalizations can be voluntary or involuntary. The obligatory treatment measures are regulated by a specific Italian legislation that marked the transition from a hospital-based system of care to a model of community psychiatry (Law 180/78). The criteria for involuntary admission in psychiatric ward are (a) the patient experiences mental changes that require an urgent therapeutic intervention; (b) the patient does not accept treatment; (c) there are no conditions enabling them to take other timely and adequate therapeutic measures outside those achieved in hospitals. The Law states that compulsory admissions need to be formally authorized by the Mayor of the Municipality where the patient lives and can be only undertaken in acute psychiatric wards

located in public general hospitals (Amaddeo et al. 2012; Bauer et al. 2007; Pantusa et al. 2007; Wang et al. 2015; Zhou et al. 2015; Donisi et al. 2016). On the other hand, some studies have considered bipolar disorder, especially mixed and manic episodes, as one of the main diagnosis related to the involuntary admission (Lee et al. 2007; Schuepbach et al. 2008; Amr & Volpe 2012).

Irregular chronobiology in terms of disrupted sleep and dysregulation of circadian rhythms with a greater seasonal fluctuations in mood and behaviour is a characteristic pattern of bipolar patients compared to unipolar depression patients or healthy controls (Geoffroy et al. 2014). Patients suffering from manic episode have higher rates of admission during spring and summer (Lee et al. 2007; Volpe et al. 2010; Amr & Volpe 2012; Wang & Chen 2013; Hochman et al. 2016). Furthermore, the prevalence of hospitalization in patients with bipolar depression has a main peak in early winter and a minor one in summer (Modai et al. 1994; Avasthi et al. 2001; Lee et al. 2007; Amr & Volpe 2012; Yang et al. 2013; Dominiak et al. 2015). Many studies examining bipolar patients, correlate the intensity of sunlight with a rise in the number of admissions for manic episode, and a decrease in hospitalization rates for depressive episode (Sayer et al. 199; Modai et al. 1994; Volpe & del Porto 2006; Dominiak et al. 2015).

Studies concerning hospitalizations of schizophrenic patients are conflicting. A seasonal variation has been reported with a summer peak in all admissions (Clarke et al. 1999; Shiloh et al. 2005) or in the first admission (Takei et al. 1992); other studies show a correlation between hospitalizations and early spring (Tian et al. 2006) or winter (Davies et al. 2000). Lastly, no seasonal pattern has been found by several authors (Modai et al. 1994; Amr & Volpe 2012).

Seasonality was also observed for suicide with an increase in suicides rates in spring or early summer. This could be related to the seasonal mood disorders (Chew & McCleary 1995; Petridou et al. 2002; Lambert et al. 2003; Reutfors et al. 2009).

The aim of this study is to assess the prevalence of voluntary and involuntary admissions with particular reference to seasonality and clinical correlates, in a sample of patients consecutively admitted to our psychiatric unit during a period of 24 months.

Methods

Sample

This study was designed to understand the difference between voluntary and involuntary psychiatric admissions in Italy, particularly focusing attention on the impact of diagnosis and seasonality.

All subjects consecutively admitted to the Psychiatric Inpatient Unit of the San Luigi Gonzaga Hospital, Orbassano (University of Turin, Italy) over a period of 24 months (from 1st September 2013 to 31st August 2015) were recruited.

Patients coming from North-West area of Italy were included in the study. To avoid duplicating admissions of the same patient during the same illness episode, we excluded hospitalizations occurring less than eight weeks from the previous admission.

Type of psychiatric admission in Italy is based on the clinical and psychopathological conditions of subjects and regulated by a well-structured mental health law performed in 1980. In particular, involuntary treatment occurs when a patient refuses treatment and circumstances do not permit prompt and effective non-hospital treatment. Involuntary treatment requires that two physicians – at least one of whom works in a public health service – consider that the patient suffers from psychic alterations requiring immediate treatment. As in other European countries (i.e., Spain and Sweden), essential prerequisites

for involuntary treatment are the need for treatment and its refusal, while danger to oneself or to others is not a prerequisite. Specific diagnostic categories and lack of insight by the patient are not directly considered in the Italian law. Involuntary psychiatric treatment must be confirmed by the city mayor within two days. The status of the inpatient can change from involuntary to voluntary and after seven days a reassessment is requested to maintain the status of involuntary hospitalization (Zhang et al. 2015; Zhang S, Mellso G, Brink J, Wang X. 2015. Involuntary admission and treatment of patients with mental disorder. *Neurosci Bull.* 31:99–112).

Participants expressed willingness to take part in the study by signing a written consent after the aims of the study and study procedures were thoroughly explained. The study design was reviewed by the local ethics committee.

Assessment

Psychiatric diagnoses were made according to Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) (American Psychiatric Association 2013) at discharge and divided into four groups: schizophrenia-related disorders (referred to hereinafter as schizophrenia), bipolar and related disorders, depressive disorders and others. The last group included personality disorders and substance-related disorders. If patients had more than one diagnosis, the principal diagnosis given by the treating psychiatrist was recorded. Basic socio-demographic and clinical characteristics were collected during hospitalization by using a form including patient's age, gender, marital and occupational status, education level, age of onset and length of psychiatric illness, seasonality (Autumn from 21st September to 20th December, Winter from 21st December to 20th March, Spring from 21st March to 20th June, Summer from 21st June to 20th September) and month upon entry in the psychiatric ward, current suicide ideation and/or suicide attempts; overall length of hospitalization and involuntary hospitalization in days; need for physical restraint during the hospitalization.

According to the National Institute of Clinical Excellence's Clinical Guideline (National Collaborating Centre for Mental Health 2015), a number of definite strategies for treating violent behaviour were routinely performed by experienced nurses and psychiatrists to avoid physical restraint: for example empathic listening and communication, verbal and non-verbal de-escalation techniques such as quiet approach in a non-confrontational manner and multiple steps of talk-down interventions. Moreover, when prior procedures were not effective and patients became seriously violent, the use of so-called "show of force" was conducted (Rocca et al. 2006). Only when these non-coercive approaches were ineffective and in case of current severe violent behaviour, physical restraint was prescribed by the ward's staff psychiatrist and applied by five staff members. Restraint was regularly and fully documented: the patient was strictly monitored with frequent physical and/or psychiatric examination, and continuously informed of the clinical picture. Physical restraint was maintained for the shortest time needed to achieve a full remission of violent behaviour.

Statistical analysis

All statistical analyses were performed using SPSS version 20.0 (SPSS Inc., Chicago, IL) and the value of statistical significance was set at $p < .05$.

The socio-demographic and clinical characteristics of the subjects were represented as mean and standard deviation (*SD*) for continuous variables and in terms of frequency and percentage regarding categorical variables.

The sample was divided in two subgroups according to the type of admission in psychiatric ward: involuntary or voluntary admissions, respectively. In order to analyze the differences between these two subgroups, we used the Pearson χ^2 test with Yates correction for the comparison of categorical variables, and *t*-test for independent samples for continuous variables.

Subsequently, only involuntary admissions were considered and the clinical differences were recognized on the basis of seasonality. Pearson χ^2 test with Yates correction was used to compare categorical variables and ANOVA with Bonferroni correction for the comparison with continuous variables.

Results

A total of 730 admissions in psychiatric ward were recognized over a period of 24 months in this study. The mean (\pm S.D.) age of the sample was 43.4 (\pm 13.9) years; 419 of patients (57.4%) were males; 406 (55.6%) were single, and 245 (33.6%) were employed at the time of enrolment.

The mean age of onset was 28.5 (\pm 13.3) years; the mean duration of illness and hospitalization was 15.0 (\pm 12.2) years and 11.4 (\pm 8.9) days, respectively. The rate of involuntary admission was 15.4% ($N = 112$).

As concerns the main diagnosis, 250 (34.2%) patients had bipolar and related disorders, 192 (26.3%) had schizophrenia and related disorders, 135 (18.5%) had depressive disorders and 153 (21.0%) had other diagnosis, including personality disorders and substance-related disorders.

All other socio-demographic and clinical characteristics are displayed in Table 1.

When we compared the two subgroups, patients with involuntary admissions showed higher education level. Moreover, subjects with involuntary hospitalizations were admitted in psychiatric ward in particular in spring and in summer, compared to those on voluntary treatment (28.6% versus 21.7% and 29.5% versus 21.5%, $p = .038$, respectively), with a diagnosis of bipolar and related disorders (50.0% versus 31.4%) and schizophrenia and related disorders (36.6% versus 24.4%) ($p < .001$).

Figure 1 shows the prevalence of admission distribution per month. There is a statistically significant difference in terms of distribution between involuntary and voluntary psychiatric admissions with a peak in June (16.1% versus 6.6%).

Furthermore, patients with involuntary admission had a longer duration of hospitalization (16.3 ± 11.6 versus 10.5 ± 8.0 , $p < .001$) and a lower suicide ideation (9.8% versus 18.0%, $p = .034$).

The differences of socio-demographic and clinical characteristics of subjects included in the present study are summarized in Table 1.

Lastly, we have considered only involuntary admissions ($N = 112$, 15.4%) analyzing the impact of seasonality and identifying the clinical features consistently associated with its occurrence (Table 2).

Of these, the prevalence of bipolar and related disorders, schizophrenia and related disorders, depressive disorders and others diagnosis (including personality disorders and substance-related disorders) was: 56 (50.0%), 41 (36.6%), 7 (6.3%) and 8 (7.1%), respectively. Suicide attempts were nine (8.0%) while physical restraint was applied in 23 cases (20.5%).

Our findings suggest a significant association among seasonality and major clinical features such as physical restraint and suicide attempts. Indeed, these two characteristics were more prevalent during spring, compared to the other seasons.

Discussion

The primary aim of our study was to assess the prevalence of involuntary admissions over a 24 month period in a psychiatric ward. The prevalence was 15.4% in our sample and these results are in agreement to the national Italian data (Guaiana & Barbui 2004; Barbato & D'Avanzo 2005; Pantusa et al. 2007).

In the European and worldwide clinical trials, the prevalence of involuntary hospitalization ranges from 3.2% and 42% (Zinkler & Priebe 2002; Salize & Dressing 2004; Wang et al. 2015; Zhou et al. 2015; Lastly, Rittmannsberger et al. 2004) conducted a multicentre study involving twenty-four European countries and reported a prevalence of involuntary hospitalizations corresponding to 11.4%, evaluated in a single day.

Prevalence and criteria of involuntary admissions change widely across different countries; some possible explanations refer to differences among legislature (Riecher-Rossler & Rossler 1993; Zinkler & Priebe 2002; Salize & Dressing 2004), organization of the mental health services (Lelliott & Audini 2003), culture and ethnicity (Riecher-Rossler & Rossler, 1993; Wang et al. 2015), professional ethic (Zinkler & Priebe 2002; Zhou et al. 2015) and social pressures on psychiatrists (Hotopf et al. 2000).

We found statistically significant differences in terms of socio-demographic and clinical features, comparing involuntary versus voluntary hospitalizations.

First, we investigated that the involuntarily admitted patients showed a higher education level. This result might be partially due to the increased difficulty in obtaining consent for hospitalization among acute and severe psychiatric patients. In our sample, only 26.3% of participants had a diagnosis of schizophrenia and related disorders in which delusional disorder or other psychoses were included; of these, 36.6% were involuntarily admitted to psychiatric ward. Manic episode or psychotic episode due to a delusional disorder represented the most common cause of involuntary admission. The onset of bipolar disorder can occur early or late, and is characterized by both free interval without any symptoms and lower worsening of cognitive functions compared to schizophrenic patients. The onset of delusional disorder is late (the mean age of onset is 40 years old). So, bipolar disorder and delusional disorder can ensure the achievement of a good educational level. This could be another suggestion to explain our previous result concerning the elevated prevalence of highly educated individuals among those involuntarily admitted compared to voluntary patients. On the contrary, Zhou and co-workers (2015) proposed high educational level as a protective factor for involuntary admission.

Second, the most frequent diagnoses among involuntary admissions were bipolar disorder and related disorders and schizophrenia and other psychoses. Several authors confirmed our findings regarding both schizophrenia and other psychoses (Craw & Compton 2006; Bauer et al. 2007; Pantusa et al. 2007; Zhou et al. 2015) and bipolar and related disorders (Lee et al. 2007; Schuepbach et al. 2008; Amr & Volpe 2012).

Third, analyzing the monthly distribution of admissions, we observed a significant increase of involuntary hospitalizations during changes of season in particular in spring/summer with a peak in June. In spring/summer, high hospitalization rates for manic episode (as principal reason for involuntary admission) are well stated, due to an increase in total sunshine hours and length of the average monthly days (Wang & Chen 2013; Abreu & Braganca 2015;

Hochman et al. 2016). Other studies showed, in addition to the main peak in spring/summer, a lower frequency of manic involuntary admissions in autumn (Cassidy & Carroll 2002; Lee et al. 2002; Morken et al. 2002; Volpe and Del Porto 2006; Lee et al. 2007; Volpe et al. 2010; Yang et al. 2013; Geoffroy et al. 2014). Furthermore, patients with bipolar disorder and seasonal-affective disorder have a higher light sensitivity compared to healthy controls and patients affected by major depressive disorder, as a result of melatonergic, serotonergic and dopaminergic neurotransmissions (Nathan et al. 1999; Quera Salva et al. 2011). Moreover, another factor influencing environmental regulation of biorhythm is represented by changes in photoperiod through different seasons (Abreu & Braganca 2015). The overall duration of the photoperiod has two extremes, namely longer in summer and shorter in winter, while the degree of change in the relationship between light/darkness has two peaks, one in late winter/early spring, the other at the end of summer/early autumn (Bauer et al. 2012). The circadian rhythm is an endogenous property, not learned after exposure to light-dark rhythm environmental, and resulting in a decisive own evolution of the person (Etain et al. 2011; Gonzalez 2014). Fourth, the average length of total hospitalization and recovery for involuntary admission were 11.5 ± 9.2 days and 8.8 ± 6.7 days, respectively. (Bassi et al. 2003) found a value of 8.6 ± 6.4 days for involuntary hospitalization; this is in line with Italian averages, ranging from 9 to 14 days. Involuntary hospitalizations had a significantly higher average duration of recovery compared to overall voluntary admissions: this finding underlines the difficulty in management of acute and severe psychiatric patients involuntarily admitted to a psychiatric ward.

Another aim of our study was to detect the clinical features of involuntary admissions with regard to seasonality. To the best of our knowledge, data evaluating these parameters are very limited. We found a significant association between seasonality and clinical severity: as a matter of fact, the spring appears to be more burdened by hospitalizations motivated by suicide attempt and need for physical restraint (Reutfors et al. 2009b) reported, in a study conducted in Sweden between 1992 and 2003 on schizophrenic patients, increased suicide rates in late spring and summer (May to August) with a peak in June.

Lastly, few data are available in the literature concerning the prevalence of need for physical restraint and its relation to seasonality and photoperiod (Reitman et al. 1990; Kaplan et al. 1996; Wynn 1996); for instance, Wynn showed that there is a daily peak with most use of restraint in the afternoon and early evening and a seasonal peak- with the most use of restraint in autumn (Wynn 1996). Reitman and co-workers highlighted the importance of seasonality and photoperiod on 551 patients (186 with a diagnosis of affective disorders and 365 with non affective psychiatric illness); depicting a circannual rhythm with nadirs in May and November and peaks in June and December for restrained affective patients, while the number of restrained non affective patients was constant throughout the year (Reitman et al. 1990). This is in agreement with our results and those stated by Kaplan and coworkers (1996).

Our study has some limitations: firstly, seasonal environmental and/or psychological (e.g., holidays, stressful life events, general medical conditions, poor adherence to treatment) factors contributing to the onset of an acute clinical picture have not been taken into consideration and could not be ruled out. Secondly, our indication about seasonality is based on hospital admission date, instead of considering the onset of acute episode. Thirdly, our data are limited to one hospital. The investigated region covers only a part of North-West of Italy, so the results cannot be generalized. Moreover, even if the involuntary admission law is implemented at a national level, many differences emerged across Italian regions, as

showed by the nationwide PROGRES-Acute project (de Girolamo et al. 2007). Notwithstanding these limitations, in conclusion, seasonality has an important role in the psychopathology of psychiatric disorders, particularly in bipolar and related disorder. Moreover, this concept probably constitutes the basis of clinical picture at onset, appearing closely linked to the biological rhythms as sleep and circadian and seasonal environmental changes (Young & Dulcis 2015). So, we provided further evidence that seasonality has an influence on the severity of psychiatric disturbances, specifically among those characterized by a greater biological vulnerability. Seasonality will necessarily represent a new clinical perspective, an important parameter that needs be investigated in the psychiatric history of the patient in order to assess the risk of recurrences. This could drive clinicians through diagnosis, drug treatment and management of mental disorders with regard to prevention and psychoeducation.

Key points

The prevalence of involuntary admission was 15.4%. An increased involuntary hospitalization during changes of season in particular in spring/summer with a peak in June was observed. Seasonality has an important role as integral part of psychopathology in psychiatric disorders

Disclosure statement

None to declare.

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