Acta Biomed for Health Professions 2018; Vol. 89, S. 6: 17-28 DOI: 10.23750/abm.v89i6-S.7392

Demographic and clinical characteristics of patients involuntarily hospitalized in an Italian psychiatric ward: a 1-year retrospective analysis

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Abstract. *Background:* In Italy, psychiatric compulsory treatments are regulated by Law 180 of 13-5-1978 that establishes three criteria: 1) acute psychiatric conditions requiring urgent treatment, 2) patient's refusal of treatment, 3) inpatient treatment is necessary and cannot be postponed. *Aim:* To highlight demographic and clinical risk factors for involuntary treatments. *Methods:* We retrospectively collected all hospitalizations in the Service of Psychiatric Diagnosis and Treatment of a northern Italian town from 1-1-2015 to 31-12-2015. We statistically compared demographic and clinical variables related to voluntarily and involuntarily admitted patients and their hospitalizations. *Results:* We divided our sample into patients voluntarily hospitalized (PVH=236) and involuntarily (PIH=160) according to their voluntary (VH= 304) and involuntary (IH=197) hospitalizations. PIH were older than PVH and, more frequently, lived alone and were unemployed (p<0.001). "Acute worsening of psychopathology" for IH and "Suicidality" for VH were the prevalent reasons (p<0.001). IH was longer than VH (p<0.001). Among PIH, the most frequent diagnoses were "Schizophrenia and Other Psychosis" (ICD-9-CM) and "Ineffective Impulse Control + Disturbed Personal Identity" (NANDA-I) (p<0.001). During hospitalizations, PIH more often than PVH presented aggressive behavior (p<0.001). At discharge, PIH were more frequently sent to another psychiatric ward or protected facility with long-acting injectable antipsychotics (p<0.001). *Conclusions:* Our involuntarily admitted patients were affected by severe psychiatric disorders with social maladjustment and required complex therapeutic and rehabilitative programs to counteract aggressive behaviour, poor therapeutic compliance and prolonged hospitalizations. The assessment of patients' characteristics can help clinicians recognize who are at risk for compulsory treatment and prevent it.

Key words: involuntary hospitalization, compulsory treatment, mental health legislation, aggressive behaviour, acute psychiatric ward

Background

Involuntary or compulsory hospitalization is a controversial topic in psychiatry due to ethical and legal issues of treatment against the patient's will (1-3). Human rights of patients affected by mental disorder are of increasing importance and many countries are now committed guarantee and respect of these rights, in accordance with the United Nation Convention on the Rights of Person with Disabilities (13 December 2006) (4) and the Declaration of Dresden against Coerced Psychiatric Treatment (7 June 2007) (5). On the other hand, the autonomy of people suffering from psychiatric disorders can be a complicated construct.

In situations where patients lack either insight about psychiatric illness or therapeutic adherence due to severe disorders as psychosis, major depression or manic state, finding the balance between patient autonomy and need for treatment may be challenging (6). Patients with psychosis often lack awareness of illness due to the psychiatric disorder itself. They do not show a capacity to deeply understand social consequences of the disorder and the need for treatment (7). And for these reasons psychiatric disorders represent the only group of illnesses where admissions, discharges and other clinical procedures are governed by legislation in most countries (8). Despite the efforts of the World Health Organization to internationally standardize strategies for mental health care delivery, the regulation for involuntary admissions and treatment of patients with psychiatric disorder markedly differ across countries up to now (9). The basic requirement for involuntary admissions in all countries is that the patient suffers from a mental disorder (2), but the type and severity of mental disorder that qualify a person for compulsory treatment vary across jurisdictions (10).

The statement of "preventing harm to oneself or to others" is the most common requirement of mental-health legislation (9). The "criterion of dangerousness" (threatened or actual danger to oneself or to others) is the most common additional one (2), which in some countries is the only criterion justifying or permitting someone to be treated involuntarily (11). In Italy, danger to oneself and/or to others is not considered a criterion for involuntary admission, but, according to Law 180 (12), 3 criteria have been established: 1) acute psychiatric conditions requiring urgent treatment, 2) patient's refusal of treatment, 3) inpatient treatment is necessary and cannot be postponed. This is very different from the dangerousness criteria used in most other countries (10).

In fact, the Italian Constitution (13) guarantees, through Article 32, the citizen right to physical and mental health care, which must be implemented respecting the dignity and freedom of the person. The psychophysical wellbeing of the subject is set as a goal, giving particular attention to the safeguarding of individual freedom. However, in specific situations it is challenging to achieve this goal while maintaining the principle of "inviolable individual freedom" (Article 13 of the Italian Constitution) (13). In this case, the law regulating psychiatric admissions in involuntary regime is Law 180 of 13 May 1978 entitled "*Assessments and voluntary and mandatory health treatments*" (12). This law is a part of a broad reform of health care that led to the establishment of today's National Health Service (14). As specified in Article 33, voluntary health care must be considered the norm, guaranteeing the patient's right to freedom and health, making the involuntary treatment an exception, justifying its implementation only if there are certain conditions, that are clearly stated in Law 180 as above reported (14). The same 180 Law of 13 May 1978 (12), which regulates involuntary hospitalization, established the definitive closure of psychiatric hospitals and the opening of new acute psychiatric 15-bed wards, so-called Service of Psychiatric Diagnosis and Treatment (SPDT), located in a General Hospital, which cater for patients with acute mental disorders requiring voluntary and involuntary hospitalizations.

Involuntary admissions to psychiatric hospital can be problematic on several levels. The clinical benefit of admitting patients involuntarily has been disputed and there are legal and ethical issue related to coercive treatments. It is a basic principle that health services should be based on consent and that coercion should be reduced to the minimum possible (15).

The establishment of regular and effective monitoring processes focusing on involuntary psychiatric hospitalizations would be an important step forward (2). An European Commission funded the EUNOMIA study aimed at evaluating the application of coercive measures in Psychiatry setting in 12 European countries (16). In particular, this research, which was focused on patients involuntarily admitted due to acute mental illness, highlighted that high levels of psychotic symptoms were associated with the use of coercive measures. Moreover, EUNOMIA showed a mutual relation between the severity of perceived coercion at admission and the use of coercive procedures, confirming that high levels of perceived coercion can be detrimental on therapeutic relationship and long-term treatment outcome (17).

Assessing the patient's demographic and clinical characteristics can help clinicians recognize patients

who are at risk for involuntary treatment (3,16,18). These factors should be taken into consideration by state programs aimed at reducing the use of involuntary treatment in the psychiatric ward.

This work aims to analyze the variables associated with patients who require compulsory treatment in order to highlight the risk factors related to this treatment.

Methods

Design of study and observation period

This descriptive retrospective survey was performed in an Italian acute psychiatric ward (SPDT), located in a General Hospital of a northern Italian town, where patients from a catchment area of about 500,000 inhabitants, suffering from psychiatric disorders, are voluntarily and involuntarily hospitalized, according to Italian Law 180 of 13-5-1978 (later included in Law 833 of 23-12-1978) (12,14).

Population and selected variables

The sample, represented by all patients hospitalized in the SPDT from 1-1-2015 to 31-12-2015, was divided into two groups: patients voluntarily (PVH) and involuntarily hospitalized (PIH). In order to compare these two groups, we extrapolated demographic and clinical variables from ward electronic record system and from patient medical records.

a) *Demographic variables*
   - Age.
   - Gender.
   - Nationality.
   - Living environment.
   - Work.
   - Legal guardianship.

b) C*linical variables*
   - Reasons for hospitalization: Acute worsening of psychopathology, Familial relational conflicts, Suicidality, Substance and/or alcohol intoxication/withdrawal, Social maladjustment, Non-adherence to therapy.
   - Nursing Diagnoses, according to the international NANDA-I classification (19) formulated at admission to the ward.
   - Pharmacological therapy: Route of therapy administration during hospitalization, Mono-therapy/Poly-therapy and Drugs prescribed at discharge.
   - Organic comorbidity and extra psychiatric medical activities carried out during hospitalization: Supplementary laboratory and clinical tests, Non-psychiatric drug therapies and Consultations.
   - Aggressive and escape behaviour: Mild (verbal), Moderate (verbal + physical), Serious (physical violence requiring intervention by hospital security guard and/or pharmacological and physical restraint, with possible injury to patient and/or professional), Escape from the ward.
   - Nursing Care activities: Fall prevention, Personal daily care, Rehabilitative activities aimed at patient autonomy, Behaviour control.
   - Duration of hospitalizations in days.
   - Diagnoses at discharge: main psychiatric diagnosis according to the International Classification of Diseases (ICD-9-CM) (20).
   - Destination at discharge: Outpatient community service, Transfer to other hospital wards, Transfer to protected facility/community, Private specialist or General Physician.

Statistical analysis

The data collected in this way were analyzed by:

- descriptive statistics: percentages for dichotomous variables, averages and standard deviations for continuous variables;
- chi2 test for the comparison of percentages and *t*-test for comparison of continuous variables;
- multiple logistic regression regarding the correlation between the variables described above, as independent variables, and voluntary (“0”) and involuntary (“1”) hospitalizations, which represent our dependent variable;
- single linear regression to correlate the length of hospitalization (dependent variable) and the in-

voluntary and voluntary state of hospitalizations as an independent variables.

A probability (*p-value*) <0.05 was considered statistically significant.

Statistical analysis was conducted using the STATA-12 programs (2011).

Results

Demographic variables of our sample

In the period of observation, we collected 501 hospitalizations in the SPDT and 396 patients hospitalized: 236 patients were voluntarily hospitalized with 1.28 hospitalizations per patient and 160 patients involuntarily admitted with 1.23 hospitalizations per patient. The demographic characteristics of the two groups are reported in Table 1.

The age of our sample ranged between 14 and 90 years, with an average age of 42 years; patients involuntarily hospitalized presented a higher age (43.73 years on average) in comparison with others, with a statistically significant difference (t=-3.32; p<0.001; t-test).

Regarding gender, we found 244 males and 148 females, without a statistically significant difference between the two genders, in the both group of patients voluntarily and involuntarily admitted.

Italians were prevalent in both groups (79.44%), followed by the presence of non-European citizens (15.12%) and, to a lesser extent, European citizens (5.44%), without a statistically significant difference between the two groups of patients.

Concerning the living environment, the largest percentage of both voluntarily and involuntarily admitted patients lived in a family, but PIH more frequently lived alone with a statistically significant difference (Pearson chi2=43.24; p<0.001).

In both the two groups, the highest percentage of patients were unemployed (36.86% in PVH and 37.50% in PIH), with a statistically significant difference between the two groups of patients (Pearson chi2=37.07; p<0.001).

Only a small percentage of patients in both groups was supported by a legal guardian (4.55% of the total), without a statistically significant difference between PVH and PIH.

Clinical variables related to voluntary and involuntary hospitalizations

We collected 304 voluntary hospitalizations (VH) and 197 involuntary hospitalizations (IH) from 01-01-2015 to 31-12-2015. The clinical variables are shown in Table 2.

We found a statistically significant difference among the clinical motivations for hospitalizations: the most frequent reason in all admissions of our patients, with a percentage of 60.48% in VH and 77.11% in IH, was "Acute worsening of psychopathology", followed by Suicidality only for VH (Pearson chi2=32.93; p<0.001).

The duration of VH and IH statistically significantly differed: 13.33 days on average for IH and 8.82 days on average for VH (t=-2.99; p=0.002; t-test; Table 2). We also highlighted that the duration of hospitalizations was positively related to the compulsory status of hospitalizations in a statistically significant way (Beta Coeff.=4.50; Standard Error=1.50; p=0.003; 95% Confidence Inter.: 1.55-7.46, single linear regression).

Although most patients in our sample did not present any type of aggressiveness (84.03%), the aggressive behaviour resulted more frequent in compulsory hospitalizations (Pearson chi2=26.64; p<0.001). The percentage of patients with mild and moderate aggressiveness was higher among involuntarily admitted patients (15.74%) compared to those voluntarily admitted (6.25%), whereas all patients who presented severe aggressive behaviour (1.20%) were involuntary hospitalized.

Regarding extra-psychiatric medical activities, we have shown that most of our patients (78.84%) did not need further investigation and medical treatment, whereas only 13.77% of patients had undergone more than one extra psychiatric activity (Table 2).

The percentage of organic co-morbidity was statistically different between voluntarily (50%) and involuntarily (65.45%) admitted patients, showing that PVH suffered from more pathologies than PIH (Pearson chi2=14.49; p<0.001).

Table 1. Demographic variables of patients hospitalized in SPDT from 1-1-2015 to 31-1-2015

Variables	Patients voluntarily hospitalized N=236 (60%)	Patients involuntarily hospitalized N=160 (40%)	Total N=396 (100%)	Statistical Test Probability
Age, m±SD				
Years	38.89±15.64	43.73±16.03	41.92±16.17	t=-3.32 p<0.001, t-test
Gender, n (%)				
Males	141 (59.75%)	103 (63.38%)	244 (61.62%)	Not significant
Females	94 (40.25%)	54 (36.62%)	148 (38.38%)	
Nationality, n (%)				
Italian	193 (81.78%)	119 (77.60%)	312 (79.44%)	
European	10 (4.24%)	8 (4.69%)	18 (5.44%)	Not significant
Extra-European	33 (13.98%)	33 (17.71%)	66 (15.12%)	
Living environment, n (%)				
Alone	21 (8.90%)	43 (26.88%)	64 (16.16%)	
Parental Family	58 (24.58%)	37 (23.13%)	95 (23.98%)	Pearson chi_2=43.24
Marital Family	57 (24.15%)	52 (32.50%)	109 (27.53%)	p<0.001
Protected facilities, community, etc.	36 (14.26%)	16 (10%)	52 (10.14%)	
Unknown	64 (27.12%)	12 (7.50%)	76 (19.19%)	
Employment, n (%)				
Employed	42 (17.80%)	51 (31.88%)	93 (23.48%)	
Unemployed	87 (36.86%)	60 (37.50%)	147 (37.13%)	
Student	15 (6.36%)	5 (3.13%)	20 (5.05%)	Pearson chi_2=37.07
Retired	12 (5.08%)	20 (12.50%)	32 (8.08%)	p<0.001
Invalidy pension	4 (1.70%)	7 (4.37%)	11 (2.78%)	
Unknown	76 (32.20%)	17 (10.63%)	93 (23.48%)	
Legal guardian, n (%)				
Present	10 (4.23%)	8 (5.00%)	18 (4.55%)	
Not present	208 (88.14%)	146 (91.25%)	354 (89.40%)	Not significant
Unknown	18 (7.63%)	6 (3.75%)	24 (6.05%)	

The care and rehabilitation activities carried out by the ward staff during hospitalizations are presented in Table 2: 32.53% of patients did not require any particular activity, with a statistically significant difference between PVH (55.59%) and PIH (47.72%); Personal daily care was the most requested activity during voluntary hospitalizations (36.51%); on the contrary, the need for behaviour control (15.57% of all hospitalizations), was almost exclusively related to involuntary state of hospitalization (39.09%); 4.59% of all patients required fall prevention (6.25% of VI and only with 1.32% of PIH) and 1.80% of patients required rehabilitation activities aimed at autonomy (Pearson chi2=178.22; p<0.001).

At discharge, we found that 56.29% of patients were sent to the outpatient psychiatric service, 175 PVH (57.57%) and 107 PIH (54.31%), 29.34% of patients were sent to protected facilities/communities, with an important difference between PVH (32.24%) and PIH (24.87%). 10.58% of patients were transferred to other hospital wards, including psychiatric hospitals in other hospitals, public or private, and only 1.40% of

Table 2. Clinical variables related to all hospitalizations in SPDT from 1-1-15 to 31-12-15

Variables	Voluntary hospitalizations N=304	Involuntary hospitalizations N=197	Total N=501	Statistical Test Probability
Reasons for hospitalizations, n (%)				
Acute worsening of psychopathology	164 (57.24%)	154 (81.17%)	328 (65.48%)	
Relational conflicts	4 (1.32%)	1 (0.51%)	5 (1.00%)	
Suicidality	79 (25.99%)	16 (8.12%)	95 (18.96%)	Pearson chi2=32.93
Alcohol and/or substance intoxication or withdrawal	38 (12.50%)	24 (12.18%)	62 (12.38%)	p<0.001
Social maladjustment	6 (1.97%)	1 (0.51%)	7 (1.40%)	
Non-adherence to therapy	3 (0.99%)	1 (0.51%)	4 (0.80%)	
Duration of hospitalizations, m±SD				
Days	8.82±9.38	13.33±23.39	10.55±16.42	t=-2.99, p=0.002, t-test
Aggressive and escape behaviour, n (%)				
Absent aggressive behaviour	274 (90.13%)	147 (74.62%)	421 (84.03%)	
Mild aggressive behaviour	19 (6.25%)	31 (15.74%)	50 (9.98%)	Pearson chi2=26.64
Moderate aggressive behaviour	10 (3.29%)	6 (3.06%)	16 (3.19%)	p<0.001
Severe aggressive behaviour	0 (0.00%)	6 (3.06%)	6 (1.20%)	
Escape	3 (0.99%)	3 (1.52%)	6 (1.20%)	
Extra-psychiatric medical activities, n (%)				
One or more than one	53 (17.4 %)	54 (27.42%)	106 (21.16%)	Not significant
No medical activities	251 (82.57%)	144 (73.10%)	395 (78.84%)	
Organic comorbidity, n (%)				
Present	152 (50%)	65 (32.99%)	217 (43.31%)	Pearson chi2=14.49
Absent	152 (50%)	130 (67.99%)	282 (56.29%)	p<0.001
Nursing care activities, n (%)				
Fall prevention	19 (6.25%)	4 (1.32%)	23 (4.59%)	
Personal daily care	111 (36.51%)	17 (8.63%)	128 (25.55%)	Pearson chi2=178.22
Rehabilitative activities	4 (1.32%)	5 (2.54%)	9 (1.80%)	p<0.001
Behaviour control	1 (0.33%)	77 (39.09%)	78 (15.57%)	
No activity	169 (55.59%)	94 (47.72%)	163 (32.53%)	
Destination at discharge, n (%)				
Outpatient services	175 (57.57%)	107 (54.31%)	282 (56.29%)	
Other psychiatric ward	26 (8.55%)	27 (13.71%)	53 (10.58%)	Pearson chi2=14.81
Protected facility or community	98 (32.24%)	49 (24.87%)	147 (29.34%)	p<0.001
Private specialist or General Physician	5 (1.64%)	13 (6.59%)	18 (3.6%)	

patients, all involuntarily hospitalized, were not sent to any service due to their voluntarily discharge (Pearson chi2=14.81; p<0.001; Table 2).

The evaluation of discharge therapy (Table 3) highlights a situation of great heterogeneity with a statistically significant difference between PVH and PIH (Pearson chi2=49.17; p<0.001). Patients involuntarily hospitalized were more frequently prescribed long-acting antipsychotic therapy, whereas PVH more often were prescribed antidepressant drugs. The majority of patients (73.85%) were treated with polytherapy, in particular PIH (77.49%), without a statis-

Table 3. Therapy variables related to all hospitalizations in SPDT from 1-1-15 to 31-12-15

Variables	Voluntary hospitalizations N=304	Involuntary hospitalizations N=197	Total N=501	Statistical Test Probability
Pharmacological drugs at discharge, n (%)				
Benzodiazepines	12 (3.95%)	3 (1.52%)	15 (2.99%)	
Antipsycotics	39 (12.83%)	30 (15.23%)	69 (13.77%)	
Antidepressants	17 (5.59%)	0 (0.00%)	17 (3.39%)	
Mood stabilizers	3 (0.99%)	4 (2.03%)	7 (1.40%)	
Long-acting injectable antipsychotics	1 (0.33%)	5 (2.54%)	6 (1.20%)	Pearson chi2=49.17
Benzodiazepines + antipsychotics	58 (19.08%)	52 (26.40%)	110 (21.96%)	p<0.001
Antidepressants + other psychiatric drugs	62 (20.39%)	11 (5.58%)	73 (14.57%)	
Mood stabilizers + other psychiatric drugs	47 (15.46%)	31 (15.74%)	78 (15.57%)	
Long-acting injectable antipsychotics + other psychiatric drugs	55 (18.09%)	54 (27.41%)	109 (21.76%)	
Not specified	10 (3.29%)	7 (3.55%)	17 (3.39%)	
Mono- or poly-therapies at discharge, n (%)				
Mono-therapy	81 (26.73%)	43 (22.51%)	124 (24.75%)	Not Significant
Poly-therapy	222 (73.27%)	148 (77.49 %)	370 (73.85%)	
Route of therapy administration during hospitalization, n (%)				
Oral	230 (75.66%)	118 (59.9%)	348 (69.46%)	Pearson chi2=37.14
Injective	26 (8.56%)	6 (3.05%)	32 (6.39%)	p<0.001
More than one route	48 (15.78%)	71 (36.05%)	119 (2.38%)	

tically significant difference compared to PVH. Oral drug administration was registered for the majority of hospitalized patients (67.86), with a higher percentage in PVH (75.66%) compared to PIH (55.84%), with a statistically significant difference (Pearson chi2=37.14; p<0.001; Table 3).

Medical and nursing diagnoses of patients voluntarily and involuntarily hospitalized

The psychiatric diagnoses formulated at discharge, according to the ICD-9-CM (16), were grouped into 7 categories for statistical reasons (Table 4). We have shown a statistically significant different distribution between VH and IH at discharge (Pearson chi2=52.00; p<0.001): the majority of patients (39.92%) at discharge had a diagnosis of Schizophrenia and Other Psychosis, with a percentage of 38.87% in VH and 47.72% IH, followed by Personality Disorders, the second most represented category. The diagnoses of Major Depressive Episode and Dysthymia as well as Anxiety and Adjustment Disorders were recorded with higher frequency among patients voluntarily hospitalized, whereas Manic Episode in Bipolar Disorder, Dementia and Organic Psychosis were more frequent among patients involuntarily hospitalized; Alcohol and Substance Abuses presented an overlapping distribution between the two patient groups.

NANDA-I Diagnoses (Table 4) (19), formulated at the admission of the patient in the ward, overlapped to the admission reasons above highlighted (Table 2), presented a statistically significant different frequency between patients voluntarily and involuntarily admitted (Pearson chi2=50.99; p<0.001). The majority of patients (22.16%) were diagnosed Ineffective Health Management followed by Ineffective Impulse Control Diagnosis associated with Disturbed Personal Identity (20.76%), with a very similar percentage in the two groups. We found that the diagnosis of Risk for Suicide presented a much higher percentage among PVH (26.97%) than in PIH (7.6%). The Dysfunctional Family Processes represents 17.37% of all nursing diagnoses with an overlapping percentage between the two groups. Ineffective Impulse Control was identified

Table 4. Diagnosis variables related to all hospitalizations in SPDT from 1-1-15 to 31-12-15

Variables	Voluntary hospitalizations N=304	Involuntary hospitalizations N=197	Total N=501	Statistical Test Probability
Psychiatric diagnoses (ICD-9-CM) at discharge, n (%)				
Schizophrenia and other psychosis	106 (38.87%)	94 (47.72%)	200 (39.92%)	
Personality disorders	63 (20.72%)	25 (12.69%)	88 (17.56%)	
Depressive disorders	53 (17.43%)	8 (4.06%)	61 (12.18%)	
Manic Episode in Bipolar disorders	18 (5.92%)	29 (14.72%)	47 (9.38%)	Pearson chi2=52
Anxiety Disorders - Adjustment disorders	21 (6.91%)	6 (3.05%)	27 (5.39%)	p<0.001
Dementia and other organic psychosis	9 (2.96%)	16 (8.12%)	25 (4.99%)	
Alcohol and substance abuse and dependence	14 (4.61%)	10 (5.08%)	24 (4.79%)	
Others	20 (6.58%)	4 (2.03%)	24 (4.79%)	
Nursing diagnoses (NANDA-I) at admission, n (%)				
Ineffective Health Management	65 (21.38%)	46 (23.35%)	111 (22.16%)	
Ineffective Impulse Control + Disturbed Personal Identity	61 (20.07%)	43 (21.83%)	104 (20.76%)	
Risk for Suicide	82 (26.97%)	15 (7.6%)	97 (19.36%)	Pearson chi2=50.99
Dysfunctional Family Processes	49 (16.12%)	38 (19.29%)	87 (17.37%)	p<0.001
Ineffective Impulse Control	13 (4.28%)	28 (14.21%)	41 (8.18%)	
Disturbed Personal Identity	18 (5.91%)	23 (11.68%)	41 (8.18%)	
Others	17 (5.6%)	3 (1.52%)	20 (3.99%)	

in 14.21% of patients involuntarily admitted and only in 4.28% of patients voluntarily admitted. Disturbed Personal Identity was diagnosed in 8.18% of the sample, with a difference between IH (11.68%) and VH (5.91%).

The variables related to the status of hospitalizations according to our model of single and multiple logistic regression

After extrapolating the variables that correlated in a statistically significant way to the hospitalization status (VH=0, IH=1) to the single logistic regression, we subsequently applied the multiple logistic regression model, correlating all the statistically significant variables to the status of hospitalization. In Table 5, the variables with an Odds Ratio >1 statistically significantly correlated with IH are shown: the manifestation of aggressiveness during hospitalization, the absence of organic co-morbidity, the need for extra-psychiatric medical services, assistance and rehabilitation activities during hospitalization and a complex therapy that requires multiple routes of administration.

Discussion

Our sample was sufficiently representative of patients admitted to a SPDT over a full calendar year. During the observation period of our study, we reported 501 hospitalizations, of which 60% were voluntary and 40% were compulsory treatment. This data is in line with scientific literature, in particular, with a recent Norwegian study, which in 2013 evaluated the predictors of involuntary hospitalizations, reporting 56% patients in VH and 44% of patients in IH (6).

The first observation that emerges from our demographic data is related to the age of involuntary patients, significantly higher than voluntary patients. Although we could expect an opposite result, since many psychiatric disorders begin at young age, recent literature confirms our result. In fact, two studies, carried out in Norway (6) and in China (21), respectively in 2013 and 2014, showed that the average age of patients involuntarily admitted (30.9 years in the Chinese study and 40.4 in the Norwegian study) was significantly higher than those admitted voluntarily. This data can explain the high percentage of our PIH who

Table 5. Variables statistically significantly related to dependent variable (VH=0, IH=1) in our multiple regression logistic model

Variables	Odds Ratio	Standard Error	Probability	95% Confidence Interval
Aggressive behaviour (mild, moderate, severe): present vs not present*	2.49	0.72	0.002	1.41-4.39
Organic comorbidity: not present vs present*	2.17	0.48	0.0001	1.41-3.34
Medical activities: present vs not present*	1.72	0.44	0.030	1.05-2.82
Rehabilitative activities: present vs not present*	1.63	0.1	0.0001	1.44-1.83
Route of therapy administration: more than one vs oral administration*	1.52	0.18	0.001	1.2-1.92

* reference variable

had retirement pension (12.5%), similar to the Norwegian study above mentioned (6), which showed 7.9% of retirees among involuntary patients, in both studies higher than voluntary patients. This result suggests that severe mental disorders which induce patients to refuse treatments can be an important antecedent of disability and/or early retirement, as other authors reported (22).

Regarding the nationality, the majority of our patients was Italian, followed by 15.12% of non-European patients, which reflects the immigrant percentage of 12% of total population registered in Emilia Romagna region (23).

Among demographic variables, the percentage of male patients was more represented, with a slightly higher frequency among involuntary patients, result in line with the literature (3): a recent study carried out in Dublin (24) reported a percentage of male patients involuntarily admitted comparable to ours (59.4%).

Among the demographic variables analyzed, we highlighted that involuntary patients more frequently lived alone, indicating relational difficulties or social maladjustment, in accordance with literature (25).

With regard to the clinical features evaluated, we have shown that patients in IH were more frequently hospitalized for Acute worsening of psychopathology, whereas voluntary patients for Self-injurious Behaviour or Suicide Risk. This observation highlights the different clinical profile of the two groups of patients concerning the adherence to treatment and indirectly suggests the appropriateness of hospitalizations.

We observed a statistically significant difference also in the length of the hospitalization which, in accordance with literature (25), was longer in IH compared with VH, which could indicate greater difficulties in treating involuntary patients.

A similar assessment has also emerged from the previously mentioned Norwegian study which reported an aggressive behaviour that often required police intervention during the hospitalization process with a higher percentage among IP compared to PVH (6,26-28). This finding is in line with the data concerning PIH care needs; in fact, behavioral control was necessary for a greater number of patients in IH than those admitted voluntarily, which was also confirmed by the statistically significant positive correlation between IH and need for assistance, as evidenced by the multiple logistic regression model.

The complexity of PIH management is further indicated by the data on therapy administration in the ward. We have indeed observed that, although the majority of patients in both groups took oral therapy, the percentage of patients undergoing compulsory treatment taking multiple-pathway medications, particularly intramuscular long acting therapies, was much greater, a result that can be explained by the need to prescribe a more complex therapy or with the PIH refusing therapy due to lack of compliance.

Regarding the psychiatric diagnosis at discharge (ICD-9-CM) (20), the most representative among PIH was Schizophrenia or Other Psychosis (47.72%) in higher percentage compared to the group of PVH (38.87%). This data is in line with the results of the latest research, as shown by the study carried out in Switzerland in 2011 which, reports that among all the diagnostic groups, patients with schizophrenia are more likely to be hospitalized with mandatory medical treatment (18, 29).

This pathology frequently induces serious behavioral changes and refusal of treatment, as clinical experience teaches. According to 2014 ISTAT report (30), the diagnosis of Schizophrenia or Other Psychosis was the most frequent among patients discharged from compulsory medical treatment in Emilia Romagna in 2014: 512 patients out of a total of 984 patients discharged from IH, corresponding to 52% of the total (30).

We found significant difference in the frequency of the discharge diagnosis of Major Depressive Episode and Dysthymia as well as Self-injurious behaviors or Risk of Suicide as a diagnosis for admission, which were more present among PVH. Another frequent association that we have found is between PIH and diagnosis of Manic Episode in Bipolar Disorder, that can be justified by the symptom characteristic of this pathology: a state of excitement with megalomaniac experiences that, especially if severe with psychotic symptoms, can lead to a refusal of therapy.

The patients of our sample admitted involuntarily presented psychiatric disorders with a low prevalence of comorbidity. In our analysis of multiple logistic regression, the absence of organic comorbidity correlated significantly with compulsory hospitalization.

With regard to NANDA-I nursing diagnoses (19), we found that they overlapped the reasons for hospitalization, both having been formulated at the time of admission.

We found that the diagnosis of Suicide Risk (7.60% in PIH) was present in 26.97% of patients admitted to voluntary treatment, totally in line with the reasons for hospitalization (Self-injurious behaviors or Suicidal risk) and psychiatric medical diagnosis (Major Depressive Episode and Dysthymia). Moreover, in line with the reasons for hospitalization and medical diagnosis, a high percentage of PIH (14.21%) was diagnosed as Ineffective Impulse Control. This data was also related to the need for Behaviour Control, most frequently present in the group of patients in IH in comparison with voluntarily admitted patients, who more often required Personal daily care. We have to notice that the different care needs can have been conditioned by the different age of patients.

We must also emphasize that both nursing diagnosis and psychiatric medical ones presented an overlapped statistically significant different distribution in the two groups, which therefore appeared different from the psychopathological point of view.

Regarding the discharge destination, we reported that PIH more frequently than PVH were transferred to other hospital departments, including psychiatric wards located in other public or private affiliated hospitals. This observation could indicate that patients admitted in compulsory regime more often presented such serious and complex clinical conditions as to require additional long-term treatment in another psychiatric ward or protected health care facility, where they were transferred since only urgent and short-term treatments can be provided in SPDT, according to our national and local guidelines.

Another important result concerning discharge modality is the percentage of 3.55% of PIH who were not sent to any service due to their self-discharge. This data suggest that the original refusal of treatment expressed by these patients, who had then required compulsory procedure, was persistent and difficult to modify even after a period of treatment, indicating the most serious pathology.

Another clinical variable we analyzed was the therapy prescribed for discharge. In this regard, we observed that antidepressants, in mono-therapy or in poly-therapy, were prescribed with a much higher percentage to patients in VH compared to those in IH, in agreement with other characteristics of this group of patients (motivation of hospitalization, medical diagnosis and nursing).

On the contrary, antipsychotics, both in mono-therapy and in poly-therapy, were prescribed in a higher percentage to PIH, also in line with the characteristics associated with these patients.

We have also found that long-acting injectable antipsychotics was prescribed in a much higher per-

centage to patients admitted to compulsory treatment, suggesting that, even at discharge, these patients did not have a total adherence to therapy and therefore required a prescription of a drug that did not require a voluntary daily intake.

Finally, we have to note that the potential risk factors for compulsory hospitalization, according to our multiple logistic regression model, were aggressive behaviour, care and rehabilitative needs and multiple routes of therapy administration, all conditions which indicate the clinical severity and management complexity of PIH.

Some limitations have to be mentioned regarding this study. A limit of our study can be represented by its retrospective design, in which the diagnostic and assistance hypothesis was formulated on the basis of the data obtained from medical and nursing records and not from direct observation of the patient. A further limitation can be identified in the difficulty of obtaining complete and exhaustive information for all patients in the sample. Moreover, given the large number of the sample and the retrospective design, we were not able to formulate a complete nursing assistance plan, assessing the totality of the patients' care needs. In this regard, nursing diagnoses were hypothesized on the basis of admission reasons, retrospectively extracting them from information obtained from medical and nursing records. We must stress that this is a preliminary study whose results are not exhaustive due to the heterogeneity of our sample by age and other variables. To assess the predictability of the risk factors we have highlighted, more detailed analyses and prospective research are needed. Despite these limitations, this study was able to show the prevalent characteristics of a group patients compulsorily treated in an Italian acute psychiatric ward.

Conclusions

Our results highlight that patients who required compulsory treatments were affected by the most severe psychiatric disorders with social maladjustment, needing complex therapeutic and rehabilitative strategies in order to counteract aggressive behaviour, poor therapeutic compliance and prolonged hospitalizations.

In particular, our patients involuntarily admitted, in comparison with voluntarily hospitalized patients, were older, living alone, retired, not having organic comorbidities but requiring medical treatment for tests and therapies. They suffered from Schizophrenia or Other Psychosis, requiring assistance for behavioral control and daily rehabilitative activities. Moreover, they were prescribed long-acting antipsychotics, required prolonged hospitalizations, showed severe aggressive behavior and were more often sent to a protected facility at discharge.

Our results highlight that involuntary state of hospitalization represents a high risk factor for the lengthening of hospitalizations, confirming that it is an extreme therapeutic intervention, that is necessary and cannot be postponed, as stated in the 180 Law, in serious and complex clinical situations.

We hope we have contributed to reflections on the practice of compulsory medical treatments. Following the introduction of the Basaglia 180 Law in 1978 (12), which overcame the stigma of "social danger" as a reason for hospitalization, the improvement of psychiatric practice and the reduction of coercive measures in the psychiatric field have clearly been achieved.

Assessing patients' demographic and clinical characteristics can help clinicians recognize patients who are at risk for involuntary treatment. These factors should be taken into consideration by health policy programs with the aim to reducing the use of involuntary treatment in psychiatric ward. By addressing modifiable factors like poor social support, poor functional status and poor adherence to medication, compulsory admissions could be prevented.

Despite the willingness to reduce the percentage of involuntary admissions, as stated in the regional directives, the possibility of applying involuntary treatments can represent the only possible procedure for increasing prevention and treatment in a few, but extremely severe, clinical situations.

Therefore, this practice should not be demonized, as showed by our study, but should be absolutely limited to patients not otherwise treatable in order to treat and rehabilitate them, always in accordance with the ethical criteria of good professional practice.

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