

CORRELATES OF INVOLUNTARY ADMISSION: FINDINGS FROM AN ITALIAN INPATIENT PSYCHIATRIC UNIT

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SUMMARY

Background: Involuntary admission is challenging in terms of providing the most effective but least restrictive care in accordance with the country's regulations. A better understanding of correlates of voluntary versus involuntary admission legal status is crucial to improve clinical decision-making and effectiveness of the overall mental health care system.

Subjects and methods: We collected chart-review data pertaining to 848 patients, discharged between June 2011 and June 2014, from an Italian inpatient psychiatric unit. Diverse sociodemographic and clinical variables were collected. Bivariate analyses and binary logistic regression were performed to examine correlates of involuntary admission.

Results: Bivariate analyses showed that involuntary status was related to: the reason for hospitalization, not being on psychiatric medications at admission, and being admitted from another inpatient ward (in particular, from the emergency department). The final regression model identified four main variables independently associated with legal status: being admitted for psychotic features, suicidal behavior, or impulsive behavior, and not being on medication at admission (Nagelkerke pseudo $R^2=0.15$, $p<0.001$). A strong association with length of stay was also documented.

Conclusions: Understanding the causes and consequences of involuntary admission will enhance the field's understanding of how to provide the most effective, but least restrictive, psychiatric care.

Key words: community psychiatry - involuntary admission - mental health - mental illness - risk factors

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INTRODUCTION

The practice of involuntary hospitalization in psychiatric institutions and inpatient units has been a widely debated topic across diverse countries in recent decades, partly driven by the need to balance treatment of serious mental disorders and the limited available resources for such treatment (WHO 2011). The use of coercive measures and involuntary commitment is often required in order to give medical and psychiatric assistance and to avoid physical and psychological harm to patients themselves and/or to others. Compulsory measures can weaken the therapeutic relationship and increase perceived coercion experienced by patients (Sheehan & Burns 2011). Different approaches have been developed to regulate the application of those measures - taking into account human rights, public safety, the need for adequate treatment (Salize et al. 2002), and the fact that patients with mental illnesses commonly have undiagnosed or untreated medical problems (Craw & Compton 2006, Viron & Stern 2010) - to provide the most effective care and avoid negative outcomes (Kallert et al. 2008). Moreover, the correct use of involuntary commitment is both a political and professional goal in terms of being a good indicator of the legal framework of the mental health care system and a marker of quality of services provided (Donisi et

al. 2014, Salize & Dreßing 2004). A good practice for a mental health system is to apply interventions where coercion is assessed repeatedly, to enhance the beneficial effects, if any, of compulsory treatments (Newton-Howes & Mullen 2011).

In Europe, each country has different laws and criteria regulating involuntary commitment, just as there is substantial variation in the provision of treatment, ranging from community-based mental health systems to those that remain primarily hospital-based (Amaddeo et al. 2007). In Italy, the introduction of the Mental Health Act in 1978 marked the closure of mental hospitals and the shifting to a community-based mental health network organized in facilities spread across the territory and funded by the National Health Service. The Mental Health Departments represented in the country consist of acute inpatient units located in general medical hospitals, as well as outpatient mental health services such as residential communities, apartment groups, recovery-oriented day treatment centers, and day hospital programs located within general medical hospitals (Piccinelli et al. 2002).

Since deinstitutionalization has brought about a progressive decrease in the number of beds for a given catchment area (Guaiana & Barbui 2004, Keown et al. 2011), studies have focused on the proportion of involuntary commitments and the characteristics affecting the use of

involuntary admission, ranging from severity of mental illness to sociodemographic factors. Psychotic disorders and substance use disorders, as well as male gender and immigrant status, have been shown by some studies to be predictors of involuntary psychiatric admission (Lay et al. 2011, Ng & Kelly 2012, Salize & Dreßing 2004, Wheeler et al. 2005, Zhou et al. 2015).

Furthermore, recent prospective and retrospective studies have reported female gender, being under the age of 30, higher level of education, and religious affiliation (perhaps because of cultural resistance to seeking mental health care) as predictors of involuntary commitment (Casella & Loch 2014, Chang et al. 2013, Singh et al. 2014, Zeppegno et al. 2005).

Moreover, not being in outpatient treatment is reported as an individual characteristic that contributes to involuntary admission (Guzzetta et al. 2010), and it is known that poor adherence and poor quality of outpatient care can lead to relapse (Mattioni et al. 1999, Verdoux et al. 2000, Priebe et al. 2009).

In our study, we used data from a large sample of consecutive admissions to the inpatient unit serving a specific catchment area. We hypothesized that the following ten variables would be predictors of involuntary admission: male gender, younger age, single marital status, foreign nationality (i.e., not being a citizen of Italy), diagnosis of a psychotic disorder, presence of a substance use disorder, presence of a medical comorbidity, not being on psychiatric medications at the time of admission, being admitted from another inpatient ward as opposed to the emergency department, and having had more than one prior hospitalization. We also expected that involuntary admission would be associated with a greater length of stay.

The purpose of the present study was to develop a better understanding of the current patterns of admission in a psychiatric inpatient unit in Perugia, Umbria, Italy, and to examine the correlates of voluntary or involuntary admission. Research on correlates of involuntary admission might have implications for both clinical and policy decision-making at the local level and more broadly.

SUBJECTS AND METHODS

Setting and Sample

The sample was recruited consecutively at the Psychiatric Inpatient Unit in the General Teaching Hospital of Santa Maria della Misericordia in Perugia, Umbria, Italy, from June 2011 to June 2014. This inpatient unit serves a catchment area of 501,351 residents on an area of 4,298.38 km², with a population density of 116 inhabitants per km² (ISTAT 2015). The unit has 17 beds.

The inpatient unit is a locked ward providing intensive evaluation, diagnostic assessment, crisis stabilization, and coordination of care for psychosocially complex cases. The hospital admission is carried out in

different manners; for example, the patients can be referred from the territorial outpatient service or after a consultation performed within the hospital by a psychiatrist from the inpatient unit. The legal status at admission is based on the illness severity and on how the patient collaborates with the treatment needed. The criteria for involuntary commitment are regulated by Law N. 180, which allows for compulsory admission if all the following circumstances are satisfied: emergency interventions are needed, the patient refuses voluntary treatment, and outpatient treatment is deemed inadequate or infeasible. The commitment has to be carried out by two physicians; subsequently, the mayor of the patient's municipality will authorize placement of the patient and will notify the Tutelary Judge accordingly within 48 hours. The duration of the treatment is seven days, but can be extended based on the patient's illness severity. Discharge occurs only after illness stabilization, and after a discharge plan for the long-term is agreed upon by the territorial service of the patient's catchment area, and with the help of the family when possible. In case of lack of availability of beds, the compulsory treatment, which is court ordered and has to be executed by law, is temporarily provided in the hospital until another psychiatric inpatient unit is secured for the mandatory hospitalization.

The whole sample consisted of 1,236 consecutive admissions, though some patients were included more than once due to multiple admissions. To ensure a dataset with independent observations, the sample used for this analysis included patients only at their first admission during the study period, for a total of 848 patients.

Procedures

Data were collected from the patient's admission records. All sociodemographic, psychological, and clinical information was extracted from medical charts. Patients were not assessed directly. Variables were gathered and entered directly into an IBM SPSS Statistics database. The research ethics committee of the Umbria region gave approval for the study.

Data Analyses

Descriptive analysis and examination of the distributional properties of sociodemographic, clinical, and legal status variables were first carried out. Secondly, bivariate analyses were performed using chi-square tests for categorical variables and t-tests for continuous variables. A logistic regression model was then built with the variables that were significantly associated ($p < 0.05$) with admission legal status in the bivariate tests. Involuntary versus voluntary legal status on admission was used as the dependent variable. Backward stepwise elimination was performed by sequentially removing variables with a non-significant p -value. IBM SPSS Statistics 21.0 software was used for all statistical tests.

Table 1. Sociodemographic and Clinical Correlates of Voluntary versus Involuntary Admission Status, Bivariate Tests, n=848

Variable	Total Sample (n=848)	Patients Voluntarily Admitted (n=538)	Patients Involuntarily Admitted (n=309)	Test Statistics
Male gender	424 (50%)	266 (49.4%)	158 (51.1%)	$\chi^2=0.22$, df=1, p=0.63
Age, in years	41.6±14.1	41.6±14.4	41.7±13.7	t=0.20, df=845, p=0.84
Marital Status				
Single, never married	506 (59.7%)	309 (57.8%)	197 (64.2%)	
Currently married	212 (25%)	147 (27.5%)	65 (21.2%)	
Separated / widowed / divorced	94 (11.1%)	61 (11.4%)	33 (10.8%)	$\chi^2=4.65$, df=3, p=0.20
Not declared	30 (3.5%)	18 (3.4%)	12 (3.9%)	
Foreign nationality	132 (15.6%)	86 (16.0%)	46 (14.9%)	$\chi^2=0.18$, df=1, p=0.67
Reason for admission:*				
Mood/Obsessive compulsive/Anxiety	123 (14.5%)	84 (15.6%)	39 (12.6%)	
Psychosis	235 (27.7%)	125 (23.2%)	110 (35.6%)	
Impulsive behavior	268 (31.6%)	142 (26.4%)	126 (40.8%)	$\chi^2=68.19$, df=3, p<0.001
Suicidal behavior	144 (17.0%)	130 (24.2%)	14 (4.5%)	
Presence of a substance use disorder	108 (15.6%)	64 (15.1%)	44 (16.4%)	$\chi^2=0.21$, df=1, p=0.65
Presence of a medical comorbidity	212 (25.3%)	139 (26.2%)	73 (23.6%)	$\chi^2=0.70$, df=1, p=0.40
Not on medication at time of admission	304 (36.3%)	165 (31.1%)	139 (45.3%)	$\chi^2=16.97$, df=1, p<0.001
Admission from another ward	563 (66.8%)	383 (71.5%)	180 (58.6%)	$\chi^2=14.47$, df=1, p<0.001
More than one hospitalization	388 (31.4%)	259 (32.5%)	129 (29.5%)	$\chi^2=1.22$, df=1, p=0.27

*For this analysis, reasons for admission with small cell sizes were excluded (e.g., substance intoxication, abuse, or dependence; eating disorders; others), n=770.

Table 2. Predictors of Voluntary versus Involuntary Admission Status, Initial Binary Logistic Regression Model, Followed by Results of Backward Stepwise Elimination

Predictors	p-value	OR	95% C.I. for OR	
			Lower	Upper
Not on medication at time of admission	0.240	1.27	0.86	1.91
Admission from another ward	0.920	1.00	0.93	1.06
Suicidal behavior	0.042	0.43	0.19	0.97
Impulsive behavior	0.001	3.04	1.60	5.80
Psychosis	0.002	2.92	1.49	5.73
	Nagelkerke R ² =0.16			
Not on medication at time of admission	0.001	1.72	1.25	2.37
Suicidal behavior	<0.001	0.21	0.11	0.42
Impulsive behavior	0.012	1.79	1.14	2.82
Psychosis	0.023	1.72	1.08	2.74
	Nagelkerke R ² =0.15			

RESULTS

Sociodemographic characteristics are shown in Table 1. The sample had a mean age of 41.6 years (SD=14.1), ranging from 15 to 90 years old. The sample had coincidentally an equal gender distribution, with 424 males (50%) and 424 females (50%). As for the

patients' citizenship, most were Italian (n=715, 84.4%); non-Italian patients were most commonly from Romania (n=27, 3.2%) and Morocco (n=16, 1.9%). More than one half of the sample was single and never married (n=506, 59.7%) at the time of their admission.

For the bivariate analyses, the sample was divided by legal status (Table 1). Voluntary admission was more

common ($n=538$, 63.5%) than to involuntary commitment ($n=309$, 36.5%). Bivariate analyses showed that gender was not associated with legal status ($\chi^2=0.22$, $df=1$, $p=0.63$), and neither were age ($t=0.20$, $df=845$, $p=0.84$), being single ($\chi^2=4.65$, $df=3$, $p=0.20$), or non-Italian citizenship ($\chi^2=0.18$, $df=1$, $p=0.67$).

Involuntary status was related to specific disorders listed as the reason for the hospitalization ($\chi^2=68.19$, $df=3$, $p<0.001$), but not to the presence of a substance use disorder ($\chi^2=0.21$, $df=1$, $p=0.65$). Comorbidity with a medical diagnosis did not show an association with legal status ($\chi^2=0.70$, $df=1$, $p=0.40$). Involuntary admission was highly associated with not being on psychiatric medications at the time of admission ($\chi^2=16.97$, $df=1$, $p<0.001$) and being admitted from another inpatient ward ($\chi^2=14.47$, $df=1$, $p<0.001$), in particular from the emergency department (79.8% of all admissions from another ward). Having more than one hospitalization during the enrollment period was not associated with legal status of the first hospitalization during that period ($\chi^2=1.22$, $df=1$, $p=0.27$).

We carried out a logistic regression analysis in order to determine which variables that were significant in bivariate tests were independently significant predictors of involuntary commitment (Table 2). The variable pertaining to reason for admission (the various categories being mutually exclusive as this represented the primary reason for admission according to the admitting psychiatrist) was divided into separate variables using dummy coding. Binary logistic regression identified three out of five variables included in the model as independently associated with the dependent variable; in particular, being admitted for suicidal behavior ($p=0.042$), impulsive behavior ($p=0.001$) and psychosis ($p=0.002$). Being admitted from another ward, ($p=0.92$) and not being on medication at the time of admission ($p=0.24$) were not independently predictive, when controlling for the other independent variables.

We then ran a backward stepwise elimination by excluding the variable with the highest p value in each previous model, obtaining a final regression model with four out of five variables. All the variables included in the final model had a $p<0.05$, and together explained approximately 15% of the total variance, based on the Nagelkerke statistic (which is a "pseudo R-squared" that is meant to mirror the proportion of variance explained by the combination of predictors).

We also found a highly significant association between involuntary admission status and the length of stay ($t=5.35$, $df=810$, $p<0.001$; 14.3 ± 10.6 days among those involuntarily admitted, compared to 10.3 ± 10.0 days in those voluntarily admitted).

DISCUSSION

The data from our sample revealed a set of independent variables significantly associated with legal status of admission to a psychiatric inpatient unit. In our

study, specific reasons for admission (i.e., impulsive, suicidal, and psychotic behaviors) were important determinants of involuntary commitment, confirming what has been reported in the literature. Thought disorder, hallucinations, or delusions stemming from a psychotic condition are well described as being associated with compulsory admission because of the greater severity of symptoms, and poorer insight and adherence, than in other psychiatric conditions (Craw & Compton 2006, Zhou et al. 2015, Hustoft et al. 2013, Kemp & David 1996, Mattioni et al. 1999, Verdoux et al. 2000). In our regression model, involuntary admission was predicted also by suicidal behavior and impulsive behavior, which, like psychotic features, are consistent with the literature. Kallert et al. (2008) reported that suicidal behavior was consistently represented among involuntary patients, and Verdoux et al. (2001) found that subjects with suicidal behavior were more likely to have psychotic disorders and to have a poor clinical course with frequent psychiatric hospitalizations. Impulsive behavior, defined as a predisposition to acting with little or no forethought or consideration of consequences (VendenBos 2007), is found to be a cross-diagnostic feature of many psychiatric disorders among adult psychiatric inpatients (Grant et al. 2005), and our association with involuntary admission is aligned with previous findings (Hustoft et al. 2013, Preti et al. 2009, Way & Banks, 2001).

Concerning our hypotheses pertaining to sociodemographic characteristics such as male gender (Hustoft et al. 2013, Zhou 2015), younger age (Singh et al. 2014), being single (Chang et al. 2013, Riecher et al. 1991), and being from another nation (Lay et al. 2011, Ng & Kelly 2012, Wheeler et al. 2005), we expected these factors to be indicators of social disadvantage or poorer knowledge about access to care networks, thus being associated with involuntary admissions. However, our findings did not corroborate this hypothesis, suggesting an equal availability of network resources across the heterogeneous demographics of the sample analyzed.

The presence of a substance use disorder, as well as medical comorbidity, both being clinical features that worsen illness course (Hustoft et al. 2013, Kallert et al. 2005), were not confirmed to be correlates of involuntary commitment in our analysis, even though they tend to have a deleterious impact on clinical outcome with frequent relapses and readmissions (Amaddeo et al. 2007, Sorbara et al. 2003, Swartz & Jantz 2014, Wisdom et al. 2011). This finding also could be explained by the fact that, in Italy, there are specific facilities for the treatment of primary substance abuse.

Moreover, we did not find support for our hypothesis that involuntary admissions were more likely to come from another ward (primarily the emergency department), when controlling for other factors, which suggests that in our setting, any pathway to care is equally represented in voluntary and involuntary legal status. Our findings also suggest that multiple hospi-

talizations to our unit does not represent a correlate of involuntary commitment, though it has been shown by others to be a risk factor for future readmission (Martinez-Ortega et al. 2012, Zhou et al. 2015).

The association between involuntary admission and length of stay that we found in our analysis is very clear (Pauselli et al. 2016). Levine (2008) pointed out that, in psychotic patients, being hospitalized with a forensic first admission predicts a longer length of stay and is, consequently, a risk factor for a more severe course of illness and appears to have prognostic value. Kallert et al (2008), in their systematic review, found that six studies reported a statistically significant longer length of stay in involuntarily admitted patients and two studies found a statistically significant longer length of stay in voluntarily admitted patients. As a matter of fact, involuntary treatment and length of stay in an inpatient psychiatric unit are different aspects of an important topic that psychiatric services in many regions and countries are focusing on: the least restrictive treatment, for as brief a period as possible, for individuals with serious mental illnesses who can primarily be treated in community settings. Given this broadly shared focus of concern, even though the Italian National Health System gives each region some autonomy about its organization, there is no reason to believe that our results are not generalizable to other regions in Italy and indeed to other inpatient psychiatric settings in many other developed countries.

As for methodological limitations, at least the following should be considered. First, we treated voluntary versus involuntary status as a binary construct because, from a legal perspective, this is how it is considered at the time of admission. However, in reality, it is probably more of a continuous construct (though it is never studied in this way), as some “voluntary” patients likely have some level of involuntariness, and some “involuntary” patients have some level of voluntariness. Moreover, there are several factors that could be associated with involuntary admission that we did not have access to. These include not being in outpatient treatment or poor adherence to outpatient treatment, as well as inadequate outpatient care and relapse. Second, for our variable pertaining to repeated hospitalizations, we counted the number of hospitalizations for each patient only in our own unit; in other words, we do not know if patients previously had other hospitalizations in other inpatients units. Furthermore, although we knew about multiple past admissions, we did not have a way of knowing whether each of those past admissions was voluntary or involuntary prior to the opening of our ward. Third, the items pertaining to impulsivity and suicidality were derived from the clinical chart, based on the clinical evaluation of a senior psychiatrist at the time of admission. As such, reliability of the data pertaining to those items could not be assessed. Structured psychiatric interviews were not used to assess diagnosis, substance abuse, or impulsivity and

suicidality. Furthermore, our data collection method, based on structured reviews of clinical charts without directly assessing patients, meant that we did not have data on a number of variables that might be helpful in explaining the likelihood of involuntary admission.

Involuntary admission in psychiatric inpatient services could be perceived by most patients as a negative experience and often described as an unjustified event in their life (Priebe et al. 2009, Katsakou et al. 2012, Thornicroft et al. 2013). Future investigations improving the knowledge of correlates of involuntary admission in psychiatry will be helpful to implement new interventions in mental health services’ routine clinical practice in order to try to reduce as much as possible this often traumatic form of hospitalization. Such interventions should create new clinical strategies that can hopefully lead to better determination of who is at risk for involuntary admission, and what steps can be taken to facilitate voluntary admission and engagement in care. The need for hospitalization should not interfere with the long-term goal of patients’ awareness of illness, self-determination, and treatment motivation, so that they can in the future receive the least restrictive form of care.

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