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Predictors of involuntary hospitalisation of patients suffering from schizophrenia

Abstract

Introduction: Involuntary hospitalisation (IH) of patients with mental disorders is a controversial, but in some cases necessary medical procedure. Patients diagnosed with a schizophrenic disorder are increasingly hospitalised against their will compared to other psychiatric patients. We still do not know enough about what are the factors that make some patients suffering from schizophrenia more prone to IH than others. **Goal:** The goal of the study was to identify predictors for IH of patients suffering from schizophrenia. **Material and method:** In this clinical observational study, the case-control group of cases was comprised by a consecutive sample of 50 patients involuntarily hospitalised at the Clinic for Mental Disorders "Dr Laza Lazarević" in Belgrade. The control group consisted of a sample of 100 voluntarily hospitalised patients, chosen by a random selection method from the entire population of voluntarily hospitalised patients in the same time period, matched with cases according to sex and age. Groups were compared on the basis of sociodemographic, clinical and medical case history variables. **Results:** The study showed that higher education of patients suffering from schizophrenia, previous IHs, shorter duration of illness, psychoactive substance abuse, and non-compliance were the predictors of IH. **Conclusion:** Identification of IH predictors has great significance for the organisation of the health service and improvement of patient treatment.

Keywords: Education. Duration of Illness. Psychoactive Substance. Compliance.

Ivana Stasevic Karlicic[1,2], Milena Stasevic[3], Igor Grbic[3], Slobodan Jankovic[4], Zoran Bukumiric[5], Slavica Djukic Dejanovic[4]

[1]Psychiatrist and Forensic Psychiatrist, Head of Emergency Department, Clinic for Psychiatric Disorders Dr. Laza Lazarevic, Belgrade, Serbia, [2]Assistant Professor, Faculty of Medicine, University of Pristina, Serbia, [3]Psychiatrist, Clinic for Psychiatric Disorders Dr Laza Lazarevic, Belgrade, Serbia, [4]Full Professor, Faculty of Medical Sciences, University of Kragujevac, Serbia, [5]Assistant Professor, Faculty of Medicine, University of Belgrade, Serbia

Correspondence: Ivana Stasevic Karlicic, Visegradska 26, 11000 Belgrade, Serbia. ivanastasevic73@gmail.com

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Introduction

Involuntary hospitalisation (IH) of patients with mental disorders is a controversial, but in some cases necessary medical procedure. It may be defined as a restrictive and involuntary medical measure which limits the freedom and rights of patients, and it is conducted for the purpose of treating a person with a disorder within a certain critical period. IH rates are considered an indicator of legislation in the area of mental health, whose concept would have to be such so as to ensure human rights, freedom, and contemporary methods of treating hospitalised patients within organised departments.[1]

Studies showed that IH of patients with mental disorders for hospital treatment does not involve an increased risk of a negative outcome; it may, however, have a very strong effect on specific domains of the outcome, such as satisfaction with the treatment and the quality of life.[2] It is known that an involuntary legal status during admission is a predictor of frequent use of restrictive measures, physical restraint, and isolation during treatment.[3] It is very important to identify the specific factors related to the patient and the health service which represent predictors of IH, for the purpose of reducing their number. The available epidemiological data shows that IH rates differ significantly in different European countries and that, regardless of constant efforts to decrease their number, they show a gradual increase in most countries of West Europe.[1,4] There is no data for our country, since the appropriate epidemiological studies have not yet been conducted. The majority of studies conducted so far demonstrated that patients diagnosed with a schizophrenic disorder and other severe non-affective psychoses are more frequently hospitalised against their will compared to other psychiatric patients and represent up to three fourths of all IH.[1,5-8] Nevertheless, we still do not know enough regarding the factors that make some patients suffering from schizophrenia more prone to IH than others. International studies show that those may be certain sociodemographic (male sex, younger age, lower education, single life) and clinical factors (substance abuse, younger age at the moment of falling ill, shorter duration of illness, type of first hospitalisation), although there are contradictory findings as well.[7,9-11]

The goal of this study is to determine sociodemographic, clinical and medical case history characteristics of patients suffering from schizophrenia as predictors for their IH.

Material and method

This clinical observational case-control study was conducted at the Clinic for Mental Disorders "Dr Laza Lazarević" in Belgrade in the period from 01/01/2010 to 01/01/2013, and it included patients treated under the diagnosis of schizophrenia, which was made in accordance with the valid International Statistical Classification of Mental and Behavioural Disorders (ICD-10).[12] The subjects were split into two groups. The case group consisted of a consecutive sample of 50 involuntarily hospitalised patients. The control group consisted of a sample of 100 voluntarily hospitalised patients, chosen by a random selection method from the entire population of voluntarily hospitalised patients in the same time period, matched with cases according to sex and age. The study excluded patients under 18 and over 65 years of age, mentally disabled patients, those deprived of business ability, followed by those against whom a mandatory treatment measure was declared as a criminal sanction, as well as patients with a place of residence outside the territory of the City of Belgrade. For subjects who were hospitalised multiple times in the above period, the data from the first hospitalisation was included in the research. Sociodemographic (education, marital status, employment, and habitation), clinical (psychomotor behaviour at admission, existence of hallucinations at admission, consummation of psychoactive substances before admission, self-injury seven days before admission, suicidality at admission) and medical case history variables (number of previous IHs, contact with the psychiatric department three months before admission, taking prescribed medication two weeks before admission) were observed.

Consummation of psychoactive substances was assessed based on data received from patients, families, and results of tests for detecting the presence of psychoactive substances in urine conducted upon admission. Suicidality was assessed by detecting suicidal ideas, plans, or suicide attempts. All data was obtained through insight into medical case histories and the electronic health information system of the Clinic "Dr Laza Lazarević".

Ethical aspects

The study has been approved by the Ethics Committee of the Dr Laza Lazarević Clinic, in January 2014, under number 25/14. As far as informed consent of the patients included in the study is concerned, there are no consents since the data for the study have been taken from the electronic database of the Clinic with the approval of Ethical Committee.

Strength of the study

According to bibliography data, patients diagnosed with schizophrenia whose first hospitalisation was involuntary, are re-hospitalised involuntarily in approximately 30% of cases.[13,14] With patients with first voluntary hospitalisation, this percentage amounts to approximately ten per cent. When α=0.05, a sample of 144 subjects is required for the strength of the study r=0.80 (the G Power programme was used).

Statistical data processing

Descriptive statistic methods, methods for testing statistical hypotheses, and methods for analysis of the ratio of outcome and potential predictors were used for the analysis of primary data. The following descriptive statistical methods were used: central tendency measures (arithmetic mean, median), variability measures (standard deviation), and relative numbers (structure indicators). The following methods for testing statistical hypotheses were used: the t-test for two independent samples, the Mann-Whitney test, the Chi-square test, and the Fisher's exact test. Logistic regression was used from the methods for analysis of the ratio of outcome and potential predictors.

Statistical hypotheses were tested at the level of statistical significance (alpha level) of 0.05.

All data were processed in the IBM SPSS Statistics 22 (IBM Corporation, Armonk, NY, USA) software package.

Results

The case group consisted of 50 involuntarily hospitalised patients diagnosed with schizophrenia, 22 female and 28 male, with average age of 38.00±10.00 (from 22 to 61 years), while the control subject group consisted of 100 voluntarily hospitalised patients diagnosed with schizophrenia, 44 women and 56 men, with average age of 38.10±9.90 years (from 21 to 62 years). The sociodemographic characteristics of all subjects are presented in Table 1. Most study group subjects had completed secondary vocational education, they were unmarried, unemployed, they lived with their parents, and were not burdened with family, and similar findings were obtained from the control subject group. A statistically significant difference between the two observed subject groups was registered between levels of education.

Clinical characteristics of subjects from both groups are presented in Table 2. In the involuntarily hospitalised group, the majority of subjects were agitated at admission, while in the control group most subjects were anxious. A statistically significant difference between the observed groups was registered in terms of psychomotor behaviour at admission, presence of delusions, and suicidality.

Table 3 displays characteristics of subjects in relation to medical case history. Patients who were previously involuntarily hospitalised, those who had no contact with the health service, as well as patients who stopped or failed to take therapy at all up to two weeks before admission, were involuntarily hospitalised far more frequently.

Logistic regression

The multiple logistic regression model (Table 4) includes those IH predictors which were statistically significant in the simple logistic regression model, at the level of significance of 0.05 and for which, based on previous research, it is considered that they may be significant for the occurrence of IH. The model contains five predictors which were compared with 144 subjects (45 of which had an outcome of interest). The entire model (with all predictors) was statistically significant (Chi-square=54.357; DF=5; $p<0.001$). There is no significant multicollinearity between the predictors.

Table 1: Sociodemographic characteristics of subjects

Socio-demographic characteristics	n (%)		p
	Study group	Control group	
Sex			
Female	22 (44.0)	44 (44.0)	1.000[a]
Male	28 (56.0)	56 (56.0)	
Age (in years)			
X±SD	38.0±10.0	38.1±9.9	0.940[b]
Education			
No education	0 (0)	2 (2.0)	0.012[c]
Primary education	4 (8.0)	24 (24.0)	
Secondary education	36 (72.0)	53 (53.0)	
First-level university degree	2 (4.0)	9 (9.0)	
University degree	8 (16.0)	12 (12.0)	
Marital status			
Unmarried	42 (84.0)	80 (80.0)	0.873[a]
Married	2 (4.0)	7 (7.0)	
Widow/widower	0 (0)	2 (2.0)	
Divorced	6 (12.0)	11 (11.0)	
Employment			
Unemployed	41 (82.0)	70 (70.0)	0.285[d]
Employed	2 (4.0)	6 (6.0)	
Retired	7 (14.0)	24 (24.0)	
Living arrangement			
Alone	4 (8.0)	11 (11.0)	0.564[d]
With others	46 (92.0)	89 (89.0)	
Family burden	27 (54.0)	60 (60.0)	0.483[d]

n-number of subjects; p-statistical significance; X-mean value; SD: Standard deviation; [a]Fisher's exact test, [b]t-test, [c]Mann-Whitney test, [d]χ^2-test

Table 2: Clinical characteristics of subjects

Clinical characteristics	n (%)		p
	Study group	Control group	
Psychomotor behaviour at admission			
Peaceful	2 (4.0)	19 (19.0)	<0.001[c]
Anxious	15 (30.0)	62 (62.0)	
Agitated	25 (50.0)	19 (19.0)	
Aggressive	8 (16.0)	0 (0)	
Delusions	50 (100.0)	91 (91.0)	0.030[a]
Alcohol	8 (16.0)	10 (10.0)	0.286[d]
Opioids	1 (2.0)	2 (2.0)	1.000[a]
Marijuana	2 (4.0)	1 (1.0)	0.258[a]
Stimulants	1 (2.0)	1 (1.0)	1.000[a]
Hallucinogens	0 (0)	0 (0)	-
Hallucinations	49 (98.0)	88 (88.0)	0.033[a]
Self-injury	1 (2.0)	2 (2.0)	1.000[a]
Suicidality			
Without suicidality	50 (100.0)	82 (82.0)	0.001[c]
Suicidal ideas	0 (0)	11 (22.0)	
Plan	0 (0)	3 (3.0)	
Attempt	0 (0)	4 (4.0)	

n-number of subjects; p-statistical significance; X-mean value; SD: Standard deviation; [a]Fisher's exact test, [b]t-test, [c]Mann-Whitney test, [d]χ^2-test

Table 3: Characteristics of patients in relation to medical case history

From the medical case history	n (%)		p
	Study group	Control group	
Number of previous involuntary hospitalisations: median (range)	3 (0-20)	4.5 (0-23)	0.009[c]
Contact with the psychiatric department three months before admission			
No examinations	39 (78.0)	50 (50.0)	0.001[c]
One examination	4 (8.0)	15 (15.0)	
Two examinations	4 (8.0)	13 (13.0)	
Three examinations	2 (4.0)	19 (19.0)	
Four examinations	1 (2.0)	2 (2.0)	
Five examinations	0 (0.0)	1 (1.0)	
Compliance- taking prescribed medication two weeks before admission			
Stopped taking therapy	38 (84.4)	59 (59.6)	0.006[d]
Irregular therapy	5 (11.1)	15 (15.2)	
Regular therapy	2 (4.4)	25 (25.3)	

n-number of subjects; p-statistical significance; X-mean value; SD: Standard deviation; [a]Fisher's exact test, [b]t-test, [c]Mann-Whitney test, [d]χ^2-test

Discussion

This study has shown that numerous characteristics of schizophrenic patients were statistically significantly connected to IH.

A statistically significant difference was found in the level of education between the involuntarily and voluntarily hospitalised patients. However, our assumption that the lower education level presents the factor which is significantly connected to IH was not confirmed. The greatest statistical difference in our study was found in the group of highly educated people, who were far more frequently involuntarily hospitalised (U=1980.0; p=0.012). Also, in the multiple logistic regression model, the level of education was singled out as a significant predictor of IH. Similar findings were referred only in one Brazilian study,[11] which is contradictory compared to a majority of previous studies[7,10,15] This may be explained with the fact that highly-educated people have greater awareness of personal rights, and that they are less susceptible to pressure and

Table 4: Multiple logistic regression model

Independent variable	B	p	OR	95% trust interval	
				Lower limit	Upper limit
Degree of education	0.880	0.004	2.41	1.34	4.35
Number of previous involuntary hospitalisations	0.343	0.056	1.41	0.99	2.00
Contact with the psychiatric department three months before admission	–0.431	0.103	0.65	0.39	1.09
Compliance (taking prescribed medication two weeks before admission)	–0.303	0.669	0.74	0.18	2.97
Degree of psychomotor behaviour at admission	1.798	<0.001	6.04	2.76	13.23

suggestions from persons from their environment, primarily relatives. The other sociodemographic characteristics (marital status, employment, single life, and positive heredity) were not significantly related to IH of patients diagnosed with schizophrenia, which is also not in accordance with results of international studies, which refer the significant connection of IH with single life, unemployment, and absence of marital history.[10,16,17] This may be explained with the complex socioeconomic situation in our country, with the general unemployment rate as one of its basic characteristics. The specificity of mentality also significantly emphasises the still expressed stigmatisation of mental patients and psychiatry in general, which, combined with an underdeveloped system of communal psychiatry and a lacking institutional support, additionally compromises the outpatient treatment of schizophrenic patients in Serbia.

Agitated patients (n=50%, p=0.000) and patients with delusions (n=100%, p=0.03) are far more frequently involuntarily hospitalised, while suicidality (n=0, p=0.005) was statistically significantly connected to voluntary acceptance of treatment.[10,15-19] These were expected findings since these variables are the core part of schizophrenia syndromes. More severe clinical features usually impair the discretion and criticality of these patients, and the positive symptoms such as delusions and hallucinations contribute to an increase in anxiety, uneasiness, feeling of vulnerability, and aggression arising from it.[20] Psychomotor behaviour at admission was also singled out as a significant predictor of IH in the multiple logistic regression model (B=1.798, p≤0.001), i.e. the degree of patient agitation and aggressiveness represents an IH risk factor. This result was also influenced by the legislation which allows IH of patients only in two cases: if they directly endanger their own life and health and/or those of others under the influence of psychopathology.

Patients hospitalised involuntarily had a significantly higher number of previous IHs compared to those hospitalised voluntarily (p=0.002). These findings correspond to results from the bibliography.[19,20]

Patients hospitalised involuntarily had a significantly smaller number of contacts with the psychiatric health department (p=0.01), and they far more frequently stopped taking the prescribed therapy (p=0.06) compared to patients who were hospitalised voluntarily.[21]

Many epidemiological studies which dealt with the phenomenon of IH of mental patients showed a high degree of connection to the quality of work in the community. The legislation with its national characteristics also significantly contributes to and defines the rates of IHs. In 2013, the Law on Protection of Persons with Mental Illness was passed in Serbia, with which the legislation in this area has been significantly approximated to European Union standards. Compared to the previous law, the assessment of aggressive behaviour has been somewhat liberated by excluding patient aggression towards objects as an argument for behaviour posing danger for the environment. The current criteria for IH in Serbia, however, are closer to the American model than some European models; what is interesting is that in Italy, for example, there is no patient safety criterion, but IH is implemented in cases displaying more severe clinical features, regardless of the consequential patient behaviour.[22] Some future studies should show whether this, seemingly more liberal law compared to the previous one, brought about changes in frequency of IH of mental patients.

The growing trend of destigmatisation and deinstitutionalisation of mental patients, primarily those suffering from psychosis, is bringing about a new approach to treatment. Based on the current approach to treatment whose result is not only the absence of symptomatology but also resocialisation, reintegration into society, and promotion of the quality of life, the emphasis of professional work is shifted towards the community. Monitoring patients after hospitalisation, family care, work of the chosen physician, and activities of the local community significantly contribute to the length and quality of remission, and certainly timely reporting for re-treatment. Better understanding and clear definitions of predictors and other factors significantly related to IH of schizophrenic patients, could contribute to better and higher-quality planning of measures in the community directed towards the quality of life of schizophrenic patients.

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