SOCIAL AND CLINICAL DETERMINANTS OF COMPULSORY AND VOLUNTARY ADMISSIONS WITHIN THE FRAMEWORK OF AN ITALIAN COMMUNITY MENTAL HEALTH SYSTEM

Silvia Guadagno[1], Matteo Balestrieri[2,3], Umberto Albert[4,5], Elisa Maso[2] & Giulio Castelpietra[3,6]

[1]Udine Nord Community Mental Health Centre, Mental Health Department, Friuli Centrale Healthcare Agency, Udine, Italy
[2]Psychiatric Unit, Department of Mental Health, Friuli Centrale Healthcare Agency, Udine, Italy
[3]Department of Medicine (DAME), University of Udine, Udine, Italy
[4]Department of Medicine, Surgery and Health Sciences, University of Trieste, Trieste, Italy
[5]UCO Clinica Psichiatrica, Department of Mental Health, Giuliano Isontina Healthcare Agency, Trieste, Italy
[6]Outpatient and Inpatient Care Service, Central Health Directorate, Friuli Venezia Giulia Region, Trieste, Italy

SUMMARY

Social and clinical determinants of 30 compulsory admissions (CAs) to a psychiatric ward during a six-month period were compared to 134 voluntary admissions (VAs), and outcomes of hospitalisation were assessed in relation to its types. Psychosocial and clinical characteristics at admission and discharge were measured using 5 scales. Unemployment, hospitalisations >7 days and continuing hospitalisation in Community Mental Health Centres were positively associated with CA. At admission, CAs showed lower functioning, while outcome at discharge was similar. Social determinants had a main role in determining CAs. Clinical and psychosocial outcomes might have been improved by a mental health system community-based.

Key words: compulsory admission - voluntary admission - outcome

*   *   *   *   *

INTRODUCTION

Compulsory admission (CA) to psychiatric facilities has been described as distressing, disempowering, and associated with high readmission rates (Rains et al. 2019). CA has been demonstrated to differ from voluntary admission (VA) for several factors, such as psychotic disorders, unemployment, previous CAs, longer length of stay (LOS) and paucity of community services available (Emons et al. 2014, Kallert et al. 2008, Walker et al. 2019). CA, hence, is considered an indicator for the quality of national mental health policy, and concern has been expressed by its rise (Rains et al. 2019). Great unexplained variation of CAs across countries has been observed, even taking into account different legislative systems (Rains et al. 2019). The lowest rate of CA among 22 high-income countries has been observed in Italy (Rains et al. 2019), with Friuli Venezia Giulia (FVG) region having the lowest Italian rate (Castelpietra 2017). This achievement was linked to the deinstitutionalisation process started in the FVG main city, Trieste, resulting in the first closure of a European psychiatric hospital in 1980, which led to a development of mental health services strongly community-organized (Fontecedro et al. 2020). Trieste was described as an outlier compared to other settings, with a high use of community care (Salvador-Carulla et al. 2005), and this clinical practice has been generalized to all FVG mental health services (MHSs) (Castelpietra 2017). Although several studies compared the characteristics between CA and VA across Italy (Balducci et al. 2017, de Girolamo et al. 2008, Di Lorenzo et al. 2018), none derived from FVG. Moreover, international studies analysing the outcomes of CA vs. VA are few (Kallert et al. 2008), and this also applies to Italy (de Girolamo et al. 2008, Ielmini et al. 2018, Mandarelli et al. 2014, Montemagni et al. 2011). Furthermore, we did not find any Italian research analysing the outcomes of hospitalisations linked to functional and psychosocial features, through the use of different scales.

The aims of the present study were, thus, to evaluate the characteristics of inpatients' CAs compared to VAs during a six-month period, and to assess whether outcomes of hospitalisation differed in relation to its types.

SUBJECTS AND METHODS

The study sample consisted in all patients consecutively admitted to the General Hospital Psychiatric Unit (GHPU) of "Friuli Centrale" Healthcare Agency, Udine (FVG region), from the 1st of October 2017 to the 31st of March 2018. The GHPU is a 15 beds emergency psychiatric unit with a catchment area of 700.000 inhabitants.

Each patient was interviewed at the time of admission (T0) and at the time of discharge (T1) from GHPU, collecting socio-demographic and clinical information and administering five different scales:

- Global Assessment of Functioning (GAF) for psychological, social and occupational/educational functioning;
- Clinical Global Impression (CGI) for severity of illness;
- Personal and Social Performance (PSP) for personal functioning;
- Mini-ICF-APP for limitations and restrictions in activity and participation;
- Health of Nation Outcome Scale (HoNOS) for clinical and psychosocial evaluation of outcomes.

A total number of 134 patients voluntarily admitted to GHPU were compared with 30 patients compulsory admitted. Chi-square statistics (χ^2) or Fisher exact test were used to test the differences between proportions in the two groups. Multivariate logistic regression analysis was used to assess the associations between outcome (types of hospitalisation) and socio-demographic and clinical predictors, using the pseudo-R^2 to select the best fitting logistic regression model. The Student's t-test was used to compare differences in score means of outcome scales in the two groups. A P-value (P) < 0.05 was set as the threshold for statistical significance. Analyses were performed using the statistical software Stata/SE (version 15.1).

The study was approved by the Ethical Committee of FVG region.

RESULTS

During the six-month study period, 134 patients (81.7%) were VAs, while only 30 (18.3%) were CAs. The mean LOS in GHPU was 6.4 days (median = 4; range = 0-51) for VA and 16.2 days for CA (median = 13; range = 3-79).

Sociodemographic and clinical variables

As summarized in Table 1, most of patients in both groups were aged more than 30 years, Italians and living alone. More than 75% have been previously in contact

Table 1. Sociodemographic and clinical characteristics of patients voluntarily (VA) and compulsory (CA) admitted to the General Hospital Psychiatric Unit. Chi-square test (χ^2) or Fisher Exact test and respective P-values were used to assess the differences between proportions. Mutually adjusted odds ratios (OR) and 95% confidence intervals (95% CI) are estimated by means of logistic regression analysis. The multivariate logistic regression model took into account only variables resulted significant at χ^2 or Fisher Exact test plus number of VAs. Significant P-values, OR and 95% CI were highlighted *in italics*

Variables	VA (n=134) N (%)	CA (n=30) N (%)	χ^2 Fisher* P-value	Multivariate logistic regression[b] OR	95% CI
Gender					
Females	65 (48.5)	11 (36.7)	0.24	1.0	-
Males	69 (51.5)	19 (63.3)		0.92	0.08-11.13
Age (years)					
18-29	35 (26.1)	7 (23.3)		1.0	-
30-49	47 (35.1)	16 (53.3)	0.15	*23.91*	*1.10-520.21*
≥50	52 (38.8)	7 (23.3)		14.78	0.29-754.43
Place of birth					
Italy	101 (75.4)	18 (60.0)		1.0	-
EU	17 (12.7)	2 (6.7)	*0.02**	3.11	0.07-128.19
Extra EU	16 (11.9)	101 (33.3)		14.34	0.25-821.33
Marital Status					
Alone	93 (69.4)	26 (86.7)	0.07*		
Cohabintant	41 (30.6)	4 (13.3)			
Occupational Status					
Employed	45 (33.6)	5 (16.7)		1.0	-
Unemployed	37 (27.6)	20 (66.7)	*0.002**	*50.90*	*1.64-1575.61*
Ecomically inactive	36 (26.9)	4 (13.3)		0.61	0.03-14.23
Retired	16 (11.9)	1 (3.3)		2.44	0.01-1144.28
Contacts with MHS in the last 10 years					
None	32 (23.9)	4 (13.3)	0.33*		
Present	102 (76.1)	26 (86.7)			

VT - voluntary admission; CT - compulsory admission; N - numbers; OR - odds ratio; CI - confidence interval; EU - European Union; MHS - mental health services; CMHC - Community Mental Health Center; AD - antidepressants; BDZ - benzodiazepine; AP - antipsychotic; [a] Each type of drug is treated as a categorical variable (0/1). Individuals who were not prescribed each drug type, were used as reference category (Odds Ratio =1); [b] Pseudo-R^2 for the model = 0.72

Table 1. Continues

Variables	VA (n=134) N (%)	CA (n=30) N (%)	χ^2 Fisher* P-value	Multivariate logistic regression[b] OR	95% CI
Somatic disorder at admission					
None	79 (59.0)	16 (53.3)	0.57		
Present	55 (41.0)	14 (46.7)			
Cognitive impairment					
None	100 (74.6)	26 (86.7)	0.23*		
Present	34 (25.4)	4 (13.3)			
N VA in the last 10 years					
0	82 (61.2)	20 (66.7)		1.0	-
1	19 (14.2)	5 (16.7)	0.64	0.33	0.01-7.74
≥2	33 (24.6)	5 (16.7)		*0.001*	*0.000-0.46*
N CA in the last 10 years					
0	127 (94.8)	22 (73.3)		1.0	-
1	5 (3.7)	4 (13.3)	*0.002**	860.40	0.11-635.0
≥2	2 (1.5)	4 (13.3)		4.32	0.06-324.40
Suicide ideation at admission					
No	77 (57.5)	29 (96.7)	*<0.001*	1.0	-
Yes	57 (42.5)	1 (3.3)		0.41	0.02-9.03
Suicide attempt at admission					
No	114 (79.2)	20 (100.0)	*0.03**		
Yes	30 (20.8)	0			
Psychiatric disorder at discharge					
Non affective psychosis	31 (23.1)	25 (83.3)		1.0	-
Anxiety disorders	44 (32.8)	-		-	-
Substance use	19 (14.2)	2 (6.8)	*<0.001**	-	-
Affective disorders	29 (21.6)	3 (10.0)		0.12	0.004-2.93
Other disorders	11 (8.2)	-		-	-
Length of hospitalisation					
<7 days	102 (76.1)	7 (23.3)	*<0.001*	1.0	-
≥8 days	32 (23.9)	23 (76.7)		*27.32*	*1.79-416.78*
N drugs at discharge					
0	6 (4.5)	2 (6.8)			
1	27 (20.1)	7 (23.3)	0.33*		
2	53 (39.5)	15 (50.0)			
≥3	48 (35.8)	6 (20.0)			
Type of psychotropic drug at discharge [a]					
AP typical	59 (44.0)	24 (80.0)	*<0.001*	3.84	0.14-105.37
AP atypical	67 (50.0)	5 (16.7)	*0.001*	0.21	0.009-4.90
AD	30 (22.4)	-	*0.002**		
BDZ	101 (75.4)	20 (66.7)	0.33		
Mood stabilizers	25 (18.7)	1 (3.3)	*0.05**		
Other drugs	15 (11.2)	5 (16.7)	0.41		
Long-acting AP treatment at discharge					
No	123 (91.8)	13 (43.3)	*<0.001*	1.0	-
Yes	11 (8.2)	17 (56.8)		3.97	0.19-82.62
Placement after discharge					
Home	99 (73.9)	15 (50.0)		1.0	-
CMHC	15 (11.2)	13 (43.3)		*33.98*	*2.34-492.76*
Hospital ward	3 (2.2)	-	*0.003**	-	-
Other psychiatric facility	14 (10.4)	2 (6.8)		0.16	0.002-9.55
Prison	3 (2.2)	-		-	-

VT - voluntary admission; CT - compulsory admission; N - numbers; OR - odds ratio; CI - confidence interval;
EU - European Union; MHS - mental health services; CMHC - Community Mental Health Center; AD - antidepressants;
BDZ - benzodiazepine; AP - antipsychotic; [a] Each type of drug is treated as a categorical variable (0/1). Individuals who were not prescribed each drug type, were used as reference category (Odds Ratio =1); [b] Pseudo-R^2 for the model = 0.72[b]

Table 2. Means and standard deviation (SD) of outcome scales in patients voluntarily (VA) and compulsory (CA) admitted and discharged from the General Hospital Psychiatric Unit. Student's t-test and respective P-values were used to assess the differences between means

| Outcome scales | Admission at GHPU (T0) | | T-test | Discharge from GHPU (T1) | | T-test |
	VA Mean (SD)	CA Mean (SD)	P-value	VA Mean (SD)	CA Mean (SD)	P-value
GAF	36.04 (12.76)	23.67 (7.30)	<0.001	56.49 (16.06)	51.33 (12.17)	NS
CGI	4.64 (0.80)	5.17 (0.46)	<0.001	3.35 (1.18)	3.83 (0.95)	<0.05
PSP	37.31 (12.26)	27.67 (6.40)	<0.001	55.00 (16.31)	51.67 (12.69)	NS
Mini ICF	25.92 (8.01)	33.13 (5.68)	<0.001	15.62 (10.25)	17.33 (6.47)	NS
HoNOS	15.71 (4.26)	17.67 (3.44)	<0.05	8.13 (4.48)	8.83 (3.26)	NS

SD - standard deviation; VA - voluntary admission; CA - compulsory admission; GHPU - General Hospital Psychiatric Unit;
GAF - Global Assessment of Functioning; CGI - Clinical Global Impression; PSP - Personal and Social Performance;
HoNOS - Health of Nation Outcome Scale

with MHS, but most of them were not hospitalised in GHPU in the last 10 years. Somatic disorders were found in nearly half of the sample. CAs were significantly more likely to be unemployed, psychotic, previously compulsory admitted to GHPU, having a longer length of hospitalisation, using typical antipsychotics (APs), treated with long-acting APs and placed in a Community Mental Health Centre (CMHC) after discharge. CAs were significantly less likely to have suicide ideation at admission and to have attempted suicide previously. In the multivariate logistic regression analysis, the only variables associated with CA, were being aged between 30 and 49 years, being unemployed, having a LOS >7 days and to continue the hospitalisation in a CMHC.

Hospitalisation Outcomes

At T0, a significant difference between VA and CA was observed with regard to mean scores of all outcomes scales, with CA associated to lower performances in all scales. At T1, a difference between CA and VA was found only with regard to severity of illness (CGI), while CA and VA did not differ with regard to functioning (GAF, PSP), clinical and psychosocial outcomes (HoNOS), and limitations and restrictions in activity and participation (Mini-ICF-APP) (Table 2).

An improvement in all scales was observed when comparing T0 and T1, in both VA and CA (t-test (P) <0.001).

DISCUSSION

A main finding of this study was that the most important determinants for CA in the GHPU of Udine were unemployment and a longer LOS. Further, outcomes of hospitalisations were almost similar between CA and VA, albeit compulsory patients were admitted with significantly greater clinical severity and lower psychosocial functioning. To note, this difference was levelled off at discharge.

In contrast with other studies, CA was not associated with VA in relation to male gender, single marital status, psychotic disorders, previous CAs and use of oral and long-acting APs (Balducci et al. 2017, de Girolamo et al. 2008, Di Lorenzo et al. 2018, Walker et al. 2019). Only unemployment, hospitalisations >7 days and being hosted in a CMHC after discharge were positively associated to CAs. According to a recent review, unemployment increased the risk of CA 1.4-fold (Walker et al. 2019), similar to our 1.8-fold increase in patients hospitalised in the GHPUs of FVG (Castelpietra et al. 2019). Further, the mean LOS in our study was lower in both CAs and VAs compared to other Italian research (Di Lorenzo et al. 2018), although a greater LOS has been already observed to be positively associated with CAs (Di Lorenzo et al. 2018, Kallert et al. 2008). Our findings also indicated a proportion of CAs lower than recent research based on GHPU (Balducci et al. 2017), albeit more than 60% of compulsory patients in FVG are admitted in GHPU (Castelpietra et al. 2019). This is in line with the low rate of CAs in the region, due to a strict integration between inpatient and outpatient MHSs (Castelpietra 2017). Unsurprisingly, nearly half of CAs were continuing the hospitalisation in a CMHC, for the great majority with beds and open 24 hours a day (Fontecedro et al. 2020), which might have contributed to low LOS and improved outcomes in CAs after the acute phase. Short hospitalisation, in fact, has been previously associated to greater psychopathological improvement (Barbato et al. 2011). Interestingly, outcomes at discharge were similar in CA and VA, consistent with previous studies measuring psychopathological improvement, but in contrast with those measuring social functioning (Ielmini et al. 2018, Kallert et al. 2008). Several factors may influence the performance of compulsory patients in terms of psychosocial improvement, albeit this is not easy to establish (Rains et al. 2019). MHSs in FVG are strongly community-based and focused on continuity of care, social reintegration, and with many local beds available in CMHCs. This could have to do with, for example, both a rapid recovery of

social functioning and the prevention of CAs (Emons et al. 2014, Rains et al. 2019).

Limitations regarded mainly the small sample size, especially of CAs, which hindered further analyses in specific subgroups. Further, the role of FVG MHSs in patients' improvement could have been better assessed by measuring outcomes after a follow-up period (Kallert et al. 2008).

CONCLUSIONS

This study demonstrated that social determinants, rather than psychopathological conditions, influenced CAs. Moreover, a mental health system based on a community model might enhance clinical and social outcomes, with a greater effect in patients admitted involuntarily. Future research may focus, for instance, on long-term outcomes' improvement and on the role of personalised care, which is also highly developed in FVG (Fontecedro et al. 2020).

Contribution of individual authors:

Silvia Guadagno: data collection, paper drafting.

Matteo Balestrieri: supervision, review of the different drafts.

Umberto Albert: supervision, review of the final drafts.

Elisa Maso: supervision of data collection, review of the final drafts.

Giulio Castelpietra: paper writing, statistical analysis, supervision of te whole project.

References

1. *Balducci PM, Bernardini F, Pauselli L, Tortorella A, Compton MT: Correlates of Involuntary Admission: Findings from an Italian Inpatient Psychiatric Unit. Psychiatr Danub 2017; 29:490-496*
2. *Barbato A, Parabiaghi A, Panicali F, Battino N, D'Avanzo B, de Girolamo G et al.: Do patients improve after short psychiatric admission?: a cohort study in Italy. Nord J Psychiatry 2011; 65:251-8*
3. *Castelpietra G: Non-recours à la contention dans les services de santé mentale: le dispositif de Friuli Venezia Giulia. L'Information psychiatrique 2017; 93:569-73*
4. *Castelpietra G, Balestrieri M, Bovenzi M: Occupational status and hospitalisation for mental disorders: findings from Friuli Venezia Giulia region, Italy, 2008-2017. Int J Psychiatry Clin Pract 2019; 23:265-272*
5. *de Girolamo G, Rucci P, Gaddini A, Picardi A, Santone G: Compulsory Admissions in Italy: Results of a National Survey. International Journal of Mental Health 2008; 37:46-60*
6. *Di Lorenzo R, Vecchi L, Artoni C, Mongelli F, Ferri P: Demographic and clinical characteristics of patients involuntarily hospitalized in an Italian psychiatric ward: a 1-year retrospective analysis. Acta Biomed 2018; 89(6-s):17-28.*
7. *Emons B, Haussleiter IS, Kalthoff J, Schramm A, Hoffmann K, Jendreyschak J et al.: Impact of social-psychiatric services and psychiatric clinics on involuntary admissions. International Journal of Social Psychiatry 2014; 60:672-680*
8. *Fontecedro E, Furlan M, Tossut D, Pascolo-Fabrici E, Balestrieri M, Salvador-Carulla L et al.: Individual Health Budgets in Mental Health: Results of Its Implementation in the Friuli Venezia Giulia Region, Italy. International journal of environmental research and public health 2020; 17:5017*
9. *Ielmini M, Caselli I, Poloni N, Gasparini A, Pagani R, Vender S et al.: Compulsory versus voluntary admission in psychiatry: an observational study. Minerva Psichiatrica 2018; 59:129-134*
10. *Kallert TW, Glockner M, Schutzwohl M: Involuntary vs. voluntary hospital admission - A systematic literature review on outcome diversity. European Archives of Psychiatry and Clinical Neuroscience 2008; 258:195-209*
11. *Mandarelli G, Tarsitani L, Parmigiani G, Polselli GM, Frati P, Biondi M et al.: Mental capacity in patients involuntarily or voluntarily receiving psychiatric treatment for an acute mental disorder. J Forensic Sci 2014; 59:1002-7*
12. *Montemagni C, Badà A, Castagna F, Frieri T, Rocca G, Scalese M et al.: Predictors of compulsory admission in schizophrenia-spectrum patients: excitement, insight, emotion perception. Prog Neuropsychopharmacol Biol Psychiatry 2011; 35:137-45*
13. *Rains LS, Zenina T, Dias MC, Jones R, Jeffreys S, Branthonne-Foster S et al.: Variations in patterns of involuntary hospitalisation and in legal frameworks: an international comparative study. Lancet Psychiatry 2019; 6:403-417*
14. *Salvador-Carulla L, Tibaldi G, Johnson S, Scala E, Romero C, Munizza C: Patterns of mental health service utilisation in Italy and Spain - an investigation using the European Service Mapping Schedule. Soc Psychiatry Psychiatr Epidemiol 2005; 40:149-59*
15. *Walker S, Mackay E, Barnett P, Rains LS, Leverton M, Dalton-Locke C et al.: Clinical and social factors associated with increased risk for involuntary psychiatric hospitalisation: a systematic review, meta-analysis, and narrative synthesis. Lancet Psychiatry 2019; 6:1039-1053*

Correspondence:

Giulio Castelpietra, MD, PhD
Outpatient and Inpatient Care Service, Central Health Directorate
Friuli Venezia Giulia Region, Riva Nazario Sauro 8, 34 100, Trieste, Italy
E-mail: giulio.castelpietra@regione.fvg.it