

Evaluating the Clinical Impact of Involuntary Admission to a Specialized Dual Diagnosis Ward

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ABSTRACT

Background: We aimed to identify characteristics and outcomes of involuntary and voluntary admissions of dual-diagnosis patients in a single, large mental health center in Israel.

Methods: Using a retrospective chart review methodology, 24 patient records were reviewed spanning a period of five years; clinical and demographic variables of voluntary and involuntary admissions were compared.

Results: No significant differences were found in socio-demographic characteristics, admission diagnosis and length of hospitalization between the two types of admission. A smaller proportion of patients discharged from involuntary admissions were in remission compared to those discharged from voluntary admission. Nevertheless, involuntary admissions were associated with longer time to next hospitalization.

Limitations: The data were based on a small number of patients in a single ward, thus the generalizability of the results is uncertain.

Conclusions: The finding of the current study that involuntary admission leads to longer tenure in the community suggests that there may be clinical advantages to involuntary admissions for certain dual diagnosis patients.

INTRODUCTION

Dual-diagnosis (DD) patients are defined as those having a severe mental illness and a substance abuse disorder (SA) (1). DD comprises an important public health issue as a significant number of patients diagnosed with schizophrenia (47%) or bipolar disorder (61%) also carry a SA diagnosis and vice versa: for those with substance abuse disorders (other than alcohol), more than half (53%) were found to have a psychiatric disorder (2). DD patients comprise a unique patient population who require unique treatment programs (3).

Despite the magnitude of this clinical problem, few treatments have been rigorously studied in this patient population. In clinical trials for schizophrenia, bipolar disorder or major depression, active SA is usually an exclusion criterion. Similarly, in trials evaluating treatments for SA, subjects with active psychosis are usually excluded (4, 5).

Involuntary hospital admission of general psychiatric patients is a procedure which, despite being somewhat controversial, enjoys wide clinical acceptance (6). It may temporarily reduce patient autonomy, cause discomfort or possibly even a traumatic experience (7), while its benefits have not yet been fully defined.

Data about potential long-term effects of involuntary admission of general psychiatric patients are still scarce (8, 9). One systematic review found that when compared with voluntarily-admitted patients, involuntary patients had at least equal or longer hospitalizations and an equal or higher readmission risk (10). Involuntary hospitalizations were not associated with worse clinical outcomes except for lower treatment satisfaction (9). In an Israeli study,

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court-ordered patients had a lower probability for hospital readmission, possibly related to longer length of stay (11).

Co-occurring addiction is one of many complex interacting risk factors that are believed to be associated with involuntary admission (10), i.e., the type and severity of psychopathology, socio-demographic factors, social and community support, responsiveness of the health care system, and treatment adherence. Studies to date have been primarily descriptive, focusing on epidemiological aspects (8, 12) and on patient characteristics (6, 13, 14).

Among patients being treated specifically for SA, legal coercion was associated with greater readiness for change after controlling for addiction severity, prior treatment history and gender (15). Persons who entered treatment due to legal coercion were over three times more likely to engage in recovery-oriented behavior. A positive association between the length of stay in a rehabilitation program and higher motivation for change was found (16). SA patients who were legally compelled to seek treatment remained in treatment longer, and fared at least as well as those who sought treatment voluntarily (17).

In light of the above, the current study was undertaken in order to identify characteristics and outcomes of involuntary hospitalization in the DD population. This study compared clinical and demographic variables between patients who were voluntarily admitted and those who were involuntarily admitted into a DD psychiatric ward. Based on previous findings (9, 10, 11, 17) our hypotheses were: 1) Involuntary hospitalizations would be longer than voluntary ones; 2) patients who were hospitalized involuntarily would have longer time to the next hospitalization (TTNH); and 3) patients who were hospitalized involuntarily would have better clinical outcomes with regard to variables such as cooperation with treatment and clinical status at the time of discharge.

MATERIALS AND METHODS

SUBJECTS

The study utilized a retrospective chart review design. Inclusion criteria were men aged 18-60 with a major DSM-IV Axis I diagnosis accompanied by an SA diagnosis who were hospitalized in the acute psychiatric DD ward (all male) at a large Mental Health Center (MHC) in Israel. The MHC registry was used to identify all patients admitted from February through March and from May through June 2004 (months were selected randomly). This admission was defined as the "first admission" (FA). Five years of data were collected following the FA (through

July 2009). Demographic data were extracted from the hospital computerized database, and clinical variables were extracted from patient discharge summaries. The study was approved by the Ethics Committee of the MHC and conformed to the provisions of the Declaration of Helsinki.

Demographic data collected included: age, marital status, country of origin, religion, years of education, military service, medical history and supportive relationship. The clinical data included: number of previous hospitalizations, time from the previous hospitalization (prior to the FA), substance used, mental status upon admission (specifically suicidal ideations, hallucinations, reality testing and insight), length of hospital stay (LOS), level of cooperation with treatment at the time of discharge, whether or not the discharge was against medical advice (AMA), level of remission at the time of discharge (psychotic, partial remission or complete remission) and TTNH.

DATA ANALYSIS

Three analyses were performed:

- Analysis 1: Comparison between patients whose FA was voluntary versus those whose FA was involuntary (between subjects analysis).
- Analysis 2: Comparison between the first voluntary admission and the first involuntary admission of the same patient, such that each patient served as his own control (intra-subject analysis).
- Analysis 3: Comparison between all voluntary admissions and all involuntary admissions across the entire study sample (between-admissions analysis).

Statistical analyses were conducted using SAS[®] version 9.1 (SAS Institute, Cary, North Carolina). The two-sample T-test was applied for testing the statistical significance of the changes in continuous variables, Chi-square test or Fisher's exact test (as appropriate) were applied for testing the statistical significance of differences between categorical variables. All tests applied were two-tailed; only those which referred to the study hypotheses that emerged from previous studies (9-11, 17) were one-tailed, and the level of significance was set to 0.05. Level of significance between 0.05 – 0.1 was defined as marginal.

RESULTS

Twenty-four patients were included in the analysis, within the five years follow up they had 108 hospitalizations altogether and among them, 16 patients had both voluntary and involuntary hospitalizations. The socio-demographic and clinical characteristics of the patients are presented in

Table 1. Characteristics of the patient population at first admission

Parameter	All	Voluntary	Involuntary		P value
Males, N (%)	24 (100.0)	15 (100.0)	9 (100.0)		
Age, mean \pm SD (years)	35.3 \pm 8.3	33.9 \pm 8.1	38.9 \pm 7.5	t(22)=-1.49	0.151
Range	23.0 – 55.0	23.0 – 49.0	31.0 – 55.0		
Education, mean \pm SD (years)	9.8 \pm 2.3	9.6 \pm 2.7	10.4 \pm 1.5	t(21)=-0.75	0.459
Marital status, N (%)				$\chi^2(1)=0.32$	0.572
Single	18 (75.0)	13 (86.7)	7 (77.8)		
Divorced	4 (16.7)	2 (13.3)	2 (22.2)		
NA	2 (8.3)				
Country of origin, N (%)				$\chi^2(2)=3.89$	0.143
Israel	13 (54.2)	9 (60.0)	5 (55.6)		
Russia	8 (33.3)	6 (40.0)	2 (22.2)		
Other	2 (8.3)	-	2 (22.2)		
NA	1 (4.2)				
Religion, N (%)				$\chi^2(1)=2.06$	0.152
Jewish	19 (79.2)	12 (80.0)	9 (100.0)		
Other	3 (12.5)	3 (20.0)	-		
NA	2 (8.3)				
Military service, N (%)	15 (62.5)	9 (60.0)	7 (77.8)	$\chi^2(1)=0.8$	0.371
Supportive relationship, N (%)	2 (8.3)			$\chi^2(4)=4.91$	0.297
None	10 (41.7)	8 (53.3)	2 (22.2)		
Parents	7 (29.2)	3 (20.0)	5 (55.6)		
Parents + Partner	2 (8.3)	1 (6.7)	1 (11.1)		
Nuclear family	2 (8.3)	2 (13.3)	-		
Siblings	1 (4.2)	1 (6.7)	1 (11.1)		
NA	2 (8.3)				
Additional physical diagnosis N (%)	13 (54.2)	4 (26.7)	5 (55.6)	$\chi^2(1)=2.0$	0.157

SD=standard deviation; NA=data not available

Table 1. There were no statistically significant differences found among socio-demographic parameters between the voluntary and involuntary patient populations.

CLINICAL VARIABLES (TABLE 2):

In all three analyses there were no significant differences in the proportion of patients with suicidal ideation, hallucinations or abnormal reality testing at admission.

Analysis 3 revealed a trend for a higher proportion of voluntarily admitted patients to have insight (partial or complete) at admission as compared with involuntary patients.

There were no significant differences in LOS between admission subtypes in any of the analyses. In analysis 1 and 2 there was no significant difference in the proportion of patients who were discharged AMA or who were cooperative with treatment at the time of discharge between admission subtypes. Analysis 3 revealed a trend for voluntary patients to be more cooperative with treatment at discharge and more likely to be discharged with the consent of the attending staff (not AMA).

Analyses 1 and 3 showed that a higher percentage of voluntary patients were in partial or complete remission upon discharge and that more patients discharged from involuntary hospitalizations were in a psychotic state, differences that were not found in analysis 2.

All three analyses showed that TTNH in involuntarily-admitted patient tended to be longer than for voluntarily admitted patients. In Analysis 1 and 2 TTNH among voluntarily admitted patients was 7.6 ± 12.2 and 4.7 ± 3.9 months respectively, while for involuntarily admitted patients TTNH was 18.5 ± 19.8 and 10.8 ± 7.7 respectively ($p = 0.055$ and $p = 0.062$ respectively). In analysis 3 TTNH in voluntary patients was 6.0 ± 9.1 while in the involuntary group is was 14.6 ± 14.5 ($t(26) = -3.13$, $p = 0.019$).

DISCUSSION

Many variables may potentially affect hospital readmission rates and TTNH (18-24). These can include hospitalization characteristics (e.g., LOS, type of hospitalization and treatment), patient characteristics (demographics), clinical variables and characteristics of community care. Our results showed that admission status was associated with TTNH, but not LOS, discharge clinical status, or other demographic and clinical variables. Although these findings do not support our hypothesis that longer LOS would be associated with longer TTNH, they do concur with an earlier report that voluntarily-admitted patients have a higher rate of multiple readmissions compared with patients admitted involuntarily (25).

Our results partially differ from those of a previous Israeli study that found significantly longer LOS and

Table 2. Clinical variables at admission and discharge

	Analysis 1: First admission between subjects design			Analysis 2: Both types of admission intra-subject design			Analysis 3: Both types of all admissions - between admission design		
	Voluntary N=15 N(%)	Involuntary N=9 N(%)	P value	Voluntary N=16 N(%)	Involuntary N=16 N(%)	P value	Voluntary admissions N=72, N(%)	Involuntary admissions N=36, N(%)	P value
No. of previous hospitalizations	6.7 ± 7.1	8.0 ± 7.8	t(22)=-0.41 0.687	15 (100.0)	5 (31.3)	χ ² (1)=12.92 0.0003	68 (95.8)	8 (22.9)	χ ² (1)=57.5 <0.0001
Cooperative at admission	15 (100.0)	3 (33.3)	χ ² (1)=13.33 0.0003	15 (100.0)	5 (31.3)	χ ² (1)=12.92 0.0003	68 (95.8)	8 (22.9)	χ ² (1)=57.5 <0.0001
Type of Drug									
Opiates	6 (40.0)	2 (22.2)	χ ² (4)=4.24 0.374	5 (33.3)	3 (18.8)	χ ² (3)=3.19 0.363	16 (22.9)	6 (17.6)	χ ² (6)=10.82 0.094 (Fisher exact test: p=0.099)
Cannabinoid	1 (6.7)	2 (22.2)		-	-		8 (11.4)	3 (8.8)	
Alcohol							1 (1.4)	-	
Cannabinoid + Opiates	3 (20.0)	1 (11.1)		5 (33.3)	4 (25.0)		16 (22.9)	6 (17.6)	
Opiates, Cannabinoid, Alcohol	3 (20.0)	4 (44.4)		3 (20.0)	8 (50.0)		19 (27.1)	16 (47.1)	
Alcohol, cannabinoids							-	2 (5.9)	
Opiates, Alcohol	2 (13.3)	-		2 (13.3)	1 (6.3)		10 (14.3)	1 (2.9)	
Suicidal Ideation at admission	8 (53.3)	5 (55.6)	χ ² (1)=0.01 0.916	8 (53.3)	11 (68.8)	χ ² (1)=0.78 0.3785	38 (53.5)	17 (50.0)	χ ² (1)=0.11 0.735
Hallucinations at admission	15 (100.0)	7 (77.8)	χ ² (1)=3.64 0.056 (Fisher exact test: p=0.13)	15 (100.0)	15 (93.8)	χ ² (1)=0.97 0.325	64 (90.1)	30 (88.2)	χ ² (1)=0.09 0.765
Abnormal reality testing at admission	12 (80.0)	7 (77.8)	χ ² (1)=0.017 0.897	13 (86.7)	11 (68.8)	χ ² (1)=0.83 0.361	56 (78.9)	26 (74.3)	χ ² (1)=0.08 0.781
Insight at admission									
no	4 (26.7)	3 (33.3)	χ ² (2)=3.64 0.162	4 (26.7)	7 (43.8)	χ ² (2)=4.26 0.119	10 (14.1)	16 (45.7)	χ ² (2)=18.9 <0.0001
yes	1 (6.7)	3 (33.3)		1 (6.7)	4 (25.0)		8 (11.3)	8 (22.9)	
partial	10 (66.7)	3 (33.3)		10 (66.7)	5 (31.3)		53 (74.6)	5 (13.3)	
Discharge with the consent of the staff	12 (80.0)	5 (55.6)	χ ² (1)=1.63 0.202	12 (75.0)	10 (62.5)	χ ² (1)=0.58 0.446	58 (80.6)	22 (62.9)	χ ² (1)=3.91 0.048
Cooperative with treatment at discharge	13 (86.7)	6 (66.7)	χ ² (1)=1.36 0.243	14 (87.5)	8 (50.0)	χ ² (3)=3.11 0.374	59 (81.9)	20 (55.6)	χ ² (1)=6.24 0.0125
Length of stay (days)	73.9 ± 78.1	57.3 ± 59.6	t(22)= 0.54 p=0.591	42.5 ± 41.9 (N=16)	44.9 ± 49.4 (N=16)	paired t-test=-0.15 0.881	40.4 ± 65.8	39.9 ± 50.1	t(103)=-0.16 0.877

* LOS - length of stay
 ** AMA -Not Against Medical Advice
 *** TTNH - Time to next hospitalization

Table 2. continuation

	Analysis 1: First admission between subjects design		P value	Analysis 2: Both types of admission intra-subject design		P value	Analysis 3: Both types of all admissions - between admission design				
	Voluntary N=15 N(%)	Involuntary N=9 N(%)		Voluntary N=16 N(%)	Involuntary N=16 N(%)		Voluntary admissions N=72, N(%)	Involuntary admissions N=36, N(%)	P value		
Mental status on discharge											
Psychotic	-	4(44.4)	$\chi^2(2)=8.25$	1(6.3)	3(18.8)	$\chi^2(2)=2.29$	0.318	5(6.9)	13(36.1)	$\chi^2(2)=14.95$	0.0006
Partial remission	5(33.3)	1(11.1)		4(25.0)	6(37.5)			22(30.6)	9(25.0)		
Complete remission	10(66.7)	4(44.4)		11(68.8)	7(43.8)			45(62.5)	14(38.9)		
TTNH* (months)	7.6 ± 12.2	18.5 ± 19.8	$t(21)=-1.64$	4.7 ± 3.9 (N=9)	10.8 ± 7.7 (N=9)	paired t-test= -2.14	0.0652	6.0 ± 9.1 (N=62)	14.6 ± 14.5 (N=21)	$t(26)=-3.13$	0.019

*TTNH - Time to next hospitalization

TTNH for patients who were involuntarily admitted by court-order, as compared to voluntary admissions. In that study, the authors attributed the longer TTNH to the longer LOS as well as greater improvement in BPRS (11). The authors also suggested that admission status may have influenced the rate of hospital readmission. This suggestion was based on the observation that patients who underwent court-ordered hospitalizations had a comparatively low rate of hospital readmission despite having a clinical profile generally associated with a high risk of hospital readmission (25). In contrast to other studies that showed significantly longer average LOS for involuntary hospitalizations as compared to voluntary ones (23), we did not find such a difference although it is possible that with a larger sample size a difference would have been apparent. Of note, another study found that among acute psychiatric hospitalizations, there was an inverse relationship between the degree of substance abuse and LOS, with DD patients more commonly leaving against medical advice (26).

We found that the discharge clinical status of involuntarily admitted patients tended to be worse than that of voluntarily admitted patients. This finding is similar to those from a large U.S. study in which significantly more psychotic symptoms at discharge were found among involuntarily-admitted patients than voluntarily admitted ones (27). The authors attributed their finding to the fact that many involuntarily admitted patients were prematurely discharged prior to resolution of psychotic symptoms once they no longer met criteria for continued involuntary admission.

The relationship between LOS and TTNH is complex. Voluntary patients may demand to be released before adequate remission has been achieved, and such premature discharge against medical advice, may result in rapid re-hospitalization (28). Previous studies of general psychiatric inpatients have in fact shown that involuntary admissions are associated with longer TTNH (11). This fact had been previously attributed to longer LOS and to discharge with the staff's consent, both of which facilitate patient stabilization and consequent longer TTNH. In the current study of the DD population, involuntary admission tended to be followed by longer TTNH, regardless of the LOS, level of remission, or cooperation with treatment towards discharge. Moreover, there was no significant difference in staff consent to discharge between the two types of admissions.

Previous studies of SA patients have found an association between involuntary treatment and greater motiva-

tion for change (15, 17). This finding may help explain our results of longer TTNH in involuntarily admitted DD patients.

Limitations of the present study include the fact that it is comprised of a small number of subjects from a single hospital unit, making the generalizability of our results uncertain. The retrospective nature of the study also makes it possible that confounding variables were unaccounted for. Large prospective longitudinal studies are needed to confirm our findings, as well as to evaluate the effect of voluntary and involuntary admissions on additional clinical variables such as readiness for change at discharge and clinical course in the community.

Conclusions: Involuntary admission of DD patients leads to longer tenure in the community and thus may have clinical benefits preventing rapid re-hospitalization in this population.

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Author's contribution

Yael Delayahu: *conception and design, analysis and interpretation of data, drafting or critical revision*

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