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Revolving-door Patients in a Public Psychiatric Hospital in Israel: Cross Sectional Study

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Aim To study social, demographic, clinical, and forensic profiles of frequently re-hospitalized (revolving-door) psychiatric patients.

Methods The study included all patients (n=183) who were admitted to our hospital 3 or more times during a 2-year period from 1999 through 2000. We compared these patients to 2 control groups of patients who were admitted to our hospital in the same period. For comparison of forensic data, we compared them with all non revolving-door patients (n=1056) registered in the computerized hospital database and for comparison of medical and clinical data we compared them with a random sample of non revolving-door patients (n=98). The sample was sufficiently large to yield high statistical power (above 98%). We collected data on the legal status of the hospitalizations (voluntary or involuntary) and social, demographic, clinical, and forensic information from the forensic and medical records of revolving-door and non revolving-door patients.

Results In the period 1999-2000, 183 revolving-door patients accounted for 771 (37.8%, 4.2 admissions per patient) and 1056 non revolving-door patients accounted for 1264 (62.5%, 1.2 admissions per patient) of the 2035 admissions to our hospital. Involuntary hospitalizations accounted for 23.9% of revolving-door and 76.0% of non revolving-door admissions. Revolving-door patients had significantly shorter mean interval between hospitalizations, showed less violence, and were usually discharged contrary to medical advice. We found no differences in sex, marital status, age, ethnicity, diagnoses, illegal drug and alcohol use, or previous suicide-attempts between the groups.

Conclusions Revolving-door patients are not necessarily hospitalized for longer time periods and do not have more involuntarily admissions. The main difference between revolving-door and non revolving-door patients is greater self-management of the hospitalization process by shortening the time between voluntary re-admission and discharge against medical advice.

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Public mental health systems strive to maintain mentally ill individuals in the community, because hospitalization is the most costly category of care (1,2). Psychiatric patients who are frequently readmitted to hospitals, ie, patients with 3 or more psychiatric admissions in a 2-year period, are referred to as revolving-door patients (3,4). The term "recidivists" is also often used to describe patients who relapse to prior criminal habits and/or are repeatedly psychiatrically hospitalized (5), as well as the term "heavy users," signifying the patients who show an above-average utilization of medical care (6). In the authors' opinion, a more appropriate term for the patients who are admitted to hospital repeatedly and remain well for only short periods of time is "frequent users" or "high frequency users" (7).

Service system variables, such as the shift to outpatient care, might influence hospital admission and readmission. Some studies speculate that the revolving-door phenomenon is a byproduct of insufficient social welfare services resulting from deinstitutionalization policies, inadequate rehabilitation facilities, or inadequate continuity of outpatient-treatment (8,9). Others suggest that it is a function of attributes of mental illness (10,11). Most studies suggest that re-hospitalization is not significantly related to housing, family or money problems, but is rather a function of patients' symptoms and lack of adherence to treatment regimens (12,13). Variables repeatedly associated with revolving-door phenomenon have been involuntary first hospitalization (14), alcohol and drug use, medication non-compliance, number of prior hospitalizations (15), and self-harm (16).

Attempts to reduce the revolving-door phenomenon include conversion to depot medication before hospital discharge in an effort to facilitate medication adherence during transition to outpatient care.

Outpatient civil commitment, when used judiciously, appears to contribute to maintaining hospital recidivists or patients with a history of criminal and/or aggressive behavior in the community (17). Court-mandated outpatient treatment may improve long-term outcomes by stimulating case management efforts, mobilizing supportive resources, improving compliance with treatment in the community, reducing clients' psychiatric symptoms and dangerous behavior, improving their social functioning, and finally by reducing the chance of illness relapse and re-hospitalization (18).

An additional cause of revolving-door phenomenon may be related to the fact that between 6% and 35%

of psychiatric patients discharge themselves from hospital against medical advice. Premature discharge may prevent patients from deriving the full benefit of hospitalization and may result in rapid re-hospitalization (19).

The Mental Health Reform in Israel aims to promote quality of care, efficient use of resources, deinstitutionalization, and community based treatments while reducing the stigma of patients with mild psychiatric conditions. The intention was to create incentives for health service providers to improve continuity and comprehensiveness of care, shift patients from hospital to community care facilities, and negotiate low prices with providers.

Use of ambulatory services was expected to increase if health funds were to facilitate access to them or reduce stigma (20). However, though the number of psychiatric hospital beds has been significantly reduced, the number of community-based aftercare clinics has not increased commensurately, thus boosting the revolving-door phenomenon.

The revolving-door phenomenon has become a major problem in Israel. Each year, of the 16000 psychiatric admissions nationwide, 12000 are readmissions, including 5500 that are at least third readmission in a 2-year period. In terms of patients admitted rather than admissions, almost 15% of patients were hospitalized 3 times or more during a 2-year period (21).

The Mental Health Reform in Israel, with the shift of mental health care to the community and reduction of the number of hospital beds, calls for a measurement of performance indicators (eg, length of stay, re-hospitalization after 30 and 180 days) and introduction of fines for excess re-hospitalizations or excess length of hospitalization (20). To achieve this, it is necessary to make an evaluation of risk factors of revolving-door phenomenon. The aim of this study was to assess the social, demographic, clinical and forensic profiles of revolving-door patients in Lev Hasharon Mental Health Center, a public university affiliated hospital in Netanya, Israel.

METHODS

Participants

The study sample (n=183) included medical records of all patients who were admitted to Lev-Hasharon Mental Health Center (MHC) in Netanya, Israel, 3 or more times

during a 2-year period, according to the operational definition of the Israel Ministry of Health for revolving-door patients (3). We examined the number of admissions, not the number of patients who came to the emergency department.

The final decision whether or not a patient is admitted is made by the on-call physician in the emergency department. The referring agent (self-referral, general practitioner, psychiatrist) was not recorded, since it does not necessarily impact the emergency department physician's decision to admit the patient. It should be noted that patients discharged from Lev Hasharon MHC have the option to receive aftercare in the hospital outpatient clinic, usually from the same psychiatrist who treated him or her in the hospital. Thus, the hospital staff is generally familiar with revolving-door patients.

In Israel, most of the community mental health clinics are associated with a psychiatric emergency department that provides services around the clock (21). Admission practices are similar in most psychiatric hospitals in Israel, and Lev Hasharon MHC, a public university affiliated hospital, is representative of public mental health facilities in Israel.

In this study we used 2 control samples. The first sample was drawn from the forensic database registering the legal admission status of all non-revolving-door patients admitted to Lev-Hasharon MHC during the two-year period ($n=1056$). The second sample was a random sample which included medical records of every 20th patient admitted to Lev-Hasharon MHC during the same period ($n=98$). Non revolving-door patients had at least one lifetime hospitalization, with no history of a revolving-door pattern of hospitalizations.

Data collection

Social and demographic data, including sex, age, marital status, place of residence, and religious affiliation, were collected from patients' files by one of the authors. Clinical and forensic data included diagnosis, number of previous admissions, duration of the first hospitalization, duration of time between the first and second hospitalization, number of admissions during the study period, mean length of lifetime hospitalizations, department at the time of discharge (open or closed ward), place of discharge (with family, sheltered housing), type of ambulatory treatment (cognitive or group therapy, pharmacotherapy),

type of medication, frequency of outpatient visits, history of aggression, suicidal behavior, use of illegal drugs and alcohol, type of discharge (by physician, by the Regional Psychiatric Board, against medical advice, to another hospital), and the type of ambulatory treatment (compulsory or voluntary).

Statistical analysis

All comparisons of revolving-door patients with non-revolving door patients were performed using χ^2 tests for categorical variables and t tests for continuous variables. To test the predictive model, variables significantly associated with revolving-door status based upon the above-mentioned univariate analyses, were entered into a stepwise logistic regression. The sample was large enough to account for a medium effect size at $P < 0.05$. SPSS, version 11.0 (SPSS Inc., Chicago, IL, USA) was used for all statistical analyses.

RESULTS

All analyses had high statistical power (above 98%), except for length of hospitalization (53%) due to a large standard deviation.

Admissions and legal status

Of the 2035 admissions during the 2-year period, 735 (36%) were involuntary and 1300 voluntary. One hundred eighty three revolving-door patients accounted for 771 (37.8%) of the hospitalizations, 176 (23.9%) of which were involuntary (Table 1). Non revolving-door patients ($N=1056$) accounted for 1264 hospitalizations (62.2%), including 559 (76.0%) involuntary hospitalizations, almost 3 times as many as revolving-door patients. Though the number of admissions was higher, the mean number of days in hospital was significantly lower in the revolving-door group (71.0 vs 91.4; $t_{(279)}=7.2$; $P=0.001$).

Socio-demographic data

Sex distribution was similar in the revolving-door and non-revolving-door groups (45.4% women and 42.9% women, respectively) ($\chi^2=0.16$; $P=0.700$). Place of residence and marital status were similar in both groups. Most of the patients lived alone (single, divorced, or widowed): 66.7% in the revolving-door group and 64.3% in the control group. Thirty three percent of the revolving-door patients were married (35.7% in the study group)

($\chi^2 = 0.161$; $P = 0.392$). The mean age was 41.5 ± 13.1 (range, 19-78) in the revolving-door group and 40.4 ± 15.1 (range, 19-93) in the non revolving-door group.

Follow-up after discharge

Most revolving-door patients were treated in the ambulatory Lev-Hasharon outpatient clinic by the same physicians who treated them while they were hospitalized (106 patients or 74% of the currently ambulatory treated study-group patients) (Table 2). 78.1% of the outpatients in the study group (21.9% were hospitalized during the study period). The place of current ambulatory treatment was known for 83.2% patients (119 of 143). The revolving-door group had shorter mean intervals between the first

and second hospitalization than the non revolving-door group.

Clinical and behavioral data

Diagnoses were made according to the International Classification of Diseases-10 and were drawn from the patients' files by the attending physicians. There were no differences in clinical diagnoses between revolving-door and non revolving-door group (Table 3).

Use of alcohol and drugs

No between-group differences were observed for alcohol and/or drug abuse ($\chi^2 = 0.526$; $P = 0.555$). Lifetime physical-

TABLE 1. Hospitalization status of revolving-door and non revolving-door patients in 1999-2000

	No. (%) of		
	hospitalizations	involuntary hospitalizations	voluntary hospitalizations
Non revolving-door (n = 1056)	1264 (62.2)	559 (76.0)	705 (54.2)
Revolving-door (n = 183)	771 (37.8)	176 (23.9)	595 (45.7)
All (n = 1239)	2035 (100)	735 (100)	1300 (100)

TABLE 2. Hospitalization and discharge data for revolving-door and non revolving-door patients

	Length (mean \pm standard deviation) of hospitalization in		
	revolving-door patients* (n = 183)	non revolving-door patients (n = 1056)	Statistics (t test)
Mean days of lifetime hospitalizations	71.0 \pm 118.2	91.4 \pm 156.1	$t_{(279)} = 7.2$; $P = 0.001$
The length of the first hospitalization (days)	111.1 \pm 289.7	68.0 \pm 88.9	$t_{(270)} = 1.8$; $P = 0.070$
The period between the first and the second hospitalizations (months)	18.1 \pm 36.7	45.0 \pm 72.1	$t_{(222)} = -3.95$; $P = 0.012$

*Forty of the revolving-door patients are currently hospitalized and were therefore not taken into account for this comparison.

TABLE 3. Clinical and forensic data for revolving-door and non revolving-door patients (from random comparison group)*

Characteristics	No. (%) of		P^{\dagger}
	revolving-door patients (n = 183)	non revolving-door patients (n = 98)	
Diagnostic group:*			0.154
psychotic	147 (80.3)	68 (69.4)	
organic	8 (4.4)	4 (4.1)	
affective	23 (12.6)	18 (18.4)	
anxiety	2 (1.1)	4 (4.1)	
other	3 (1.6)	4 (4.1)	
Use of alcohol/drugs	19 (10.4)	13 (13.3)	0.555
Physical violence (as reported by family, clinical staff in the outpatient clinic or police reports)	35 (19.1)	47 (48.0)	0.001
Suicide attempts (as recorded in medical records)	30 (16.4)	21 (21.4)	0.297

*Some patients have more than one diagnosis.

$\dagger\chi^2$ test.

TABLE 4. Logistic regression with revolving-door status as a dependent variable (n = 281)

Dependent variables	B	Standard error	WALD	Exp(B)	95% confidence interval
History of aggression	1.31	0.40	10.33	3.72	1.67-8.28
Discharge against medical advice	2.32	0.53	19.09	10.22	3.60-29.00
Time between first and second hospitalization	0.45	0.11	14.28	1.56	1.24-1.98

ly violent behavior as reported by family, clinical staff in the outpatient clinic, or police was lower in the revolving-door group ($\chi^2 = 25.675$; $P = 0.001$).

Prior suicide attempts

Thirty (16.4%) revolving-door patients had a history of suicide attempts, compared with 21 (21.4%) non revolving-door patients. No difference was found between the groups ($\chi^2 = 1.089$; $P = 0.297$).

Discharge by the Regional Psychiatric Boards

As per Israeli legislation (Law on the Treatment of the Mentally Ill, 1991), the Regional Psychiatric Board constitutes one of the chief instruments in monitoring of compulsory hospitalization, compulsory outpatient treatment, and the quality of all inpatient care of the mentally ill (22).

The Board includes an attorney qualified to serve as a Magistrates' Court Judge, who acts as the chairperson (appointed by the Minister of Justice) and 2 physicians, specialists in psychiatry (appointed by the Minister of Health). Rulings are made by majority vote and can be appealed in the District Court (23). Only Regional Psychiatric Boards can release a patient from court-ordered involuntary hospitalization.

Discharge against medical advice

Revolving-door patients were more frequently discharged against medical advice than non revolving-door patients (96 [52.5%] vs 7 [7.1%]; $\chi^2 = 56.5$; $P = 0.001$). This may be related to the voluntary status of their admission.

Regression analysis

The 3 significant variables – history of physical violence, discharge against medical advice, and the interval between the first and second hospitalization were entered into logistic regression to predict revolving-door status.

All 3 variables were found to predict revolving-door status. The model predicted 81.5% of variance (Table 4).

DISCUSSION

Revolving-door patients were not hospitalized for longer time periods, did not have more days of hospitalization, and did not have more involuntarily admissions. The main difference between revolving-door and non revolving-door patients was that revolving-door patients showed greater self management of the hospitalization process, ie, had shorter intervals between voluntary re-admissions and a tendency to leave hospital against medical advice. Even though the statistical power of the analyses was high, no other factors were found to be related to revolving-door status.

It is difficult to draw unequivocal conclusions on factors influencing the revolving-door status because there are no universally accepted criteria for the definition of the phenomenon, and various findings in the literature may be related to different definitions (24-26). Also, different systems for referral of patients might account for the broad spectrum of reasons for re-hospitalization of psychiatric patients.

Although there are various definitions of the revolving-door patient, the term generally refers to the patient who is frequently admitted for psychiatric hospitalization. The emphasis on deinstitutionalization has brought with it the risk that many previously chronically hospitalized patients, now treated in the community, will require frequent re-hospitalizations (27).

The deinstitutionalization process has confronted psychiatry with the challenge of maintaining patients in the community. This problem is reflected in the ever-increasing rates of readmission to psychiatric hospitals (28). The estimated readmission rate for frequent users of psychiatric inpatient services is approximately 40% to 50% within 1 year of hospital discharge. Attempts to determine predictors of readmission have identified multiple vari-

ables (eg, insufficient social welfare services, attributes of mental illness, lack of adherence to treatment, involuntary first hospitalization, alcohol and drug abuse, number of prior hospitalization, and self harm) (8-15), but results were not consistent and comparison among these studies is difficult because of different methodologies used.

The rate of re-hospitalization among psychiatric patients (37.8% in our study) was roughly 3 times higher than among patients with physical ailments, such as community acquired pneumonia (12%). In a study that evaluated causes and risk factors for re-hospitalization of patients with pneumonia, the authors concluded that careful monitoring of clinical stability of patients during and following hospital discharge may decrease the frequency of re-hospitalization (29). Thus, compliance with follow-up care is an important factor in reducing the rate of readmission in all types of hospitalization.

One consistent predictor of frequent re-hospitalization is a history of psychiatric hospital admissions. It seems that patients who had a pattern of seeking inpatient services in the past tend to repeat this treatment-seeking behavior (30).

It is possible that revolving-door patients became accustomed to hospital or felt comfortable during their initial hospitalization, which provided temporary relief in a difficult situation. Readmission has then become a way of life or an adjustment to a life situation. These patients may have developed "hospitalphilia," since refractoriness to treatment and non-adherence to medication do not explain their frequent admissions (31). Following the longer initial hospitalization, the revolving-door patient typically has a shorter interval between recurrent hospitalizations, which also last shorter and which usually end with discharge against medical advice. Though the number of their cumulative hospital days may be smaller than that of non-revolving-door patients, their rapid readmissions often create the impression they are "always present." "Hospitalphilia" is in this case expressed through repeated and frequent admissions, rather than extended duration of hospitalizations. Thus, the revolving-door patient seems to prefer shorter, more frequent hospitalizations that begin on their own initiative. Though they have a history of aggression, which may influence the physician's decision concerning admission, their admissions are generally not related to current aggression. While hospitalized, the revolving-door patient reveals no marked demographic or clinical differences from non-revolving-door patients and is less

violent, perhaps so as not to antagonize the staff, which would otherwise interfere with his or her self-determined hospitalization schedule.

In a retrospective study that explored the interrelationship among aftercare, length of hospital stay, and re-hospitalization within 6 months of discharge in a sample of 1481 psychiatric inpatients, Thompson et al (32) found a possibility of racial disparities in referral to aftercare and a complex relationship between referral and re-hospitalization. In our study, referral was not considered a factor in re-hospitalization because the decision on re-admission is made by the on-call physician in the emergency department. Racial disparities with regard to referral to aftercare were also not an issue in our study, because all discharged patients from our facility were referred to the hospital's outpatient clinics and had the option to receive aftercare by the physicians who treated them in hospital. Thus, our findings reflect individual-level indicators which affect the revolving-door phenomenon, such as lack of compliance or diligence in attending follow-up visits, rather than system level barriers to psychiatric care, which may influence the phenomenon in other countries.

Revolving-door patients had fewer reports of current physical violence and a non-significant tendency toward a longer duration of the first hospitalization. They also tended to leave hospital against medical advice more frequently. The interval between the first and second hospitalization was longer in the non-revolving-door group. We found no differences between the groups according to sex, marital status, age, religion and ethnicity, diagnoses, use of illegal drugs and alcohol, and previous suicide attempts.

A limitation of the study is the fact that the results might not always be applicable in other countries because of different admission practices. However our findings focus on patient-based characteristics or behaviors rather than on administrative factors, and may provide better understanding of universal patient related reasons for this phenomenon.

In conclusion, by determining the timing and duration of his or her hospitalizations, the revolving-door patient may be expressing the desire to treat his or her mental disorder. Closer follow-up care and concerted efforts to maintain discharged patients in ambulatory care, together with recognition of this putative behavior pattern, may contribute to a better understanding of the revolving-door phenomenon, and reduction in the rate of re-hospitalization.

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