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Fatores preditores do fenômeno de reinternações de pacientes esquizofrênicos, com transtorno afetivo e psicose não orgânica

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Abstract

Objective
The aim of the study was to identify the variables that predict the revolving door phenomenon in psychiatric hospital at the moment of a second admission.
Methods
The sample consisted of 3,093 patients who have been followed during 5 to 24 years after their first hospital admission due to schizophrenia, and affective or psychotic disorders. Those who had had four or more admissions during the study period were considered as revolving door patients. Logistic regression analyses were used to assess the impact of gender, age, marital status, urban conditions, diagnosis, mean period of stay on the first admission, interval between the first and second admissions on the patterns of hospitalization.
Results
The variables with the highest predictive power for readmission were the interval between first and second admissions, and the length of stay in the first admission.
Conclusions
These data may help public health planners in providing optimal care to a small group of patients with more effective utilization of the available services.

Resumo

Objetivo
Identificar as variáveis preditoras do fenômeno de reinternações (recidividade) em hospital psiquiátrico no momento da segunda internação.
Métodos
A amostra consistiu em 3.093 pacientes com diagnósticos de esquizofrenia, transtorno afetivo e psicose não orgânica acompanhados durante um período de, no mínimo, 5 anos e, no máximo, 24 anos. Foram considerados pacientes recidivistas os que tiveram 4 ou mais internações no período do estudo. Foi utilizado o modelo de regressão logística para análise do impacto das variáveis sexo, idade, estado civil, cidade de residência, diagnóstico, tempo de permanência na primeira internação, tempo entre a primeira e a segunda internação, segundo o padrão de re-hospitalização.

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Resultados

As variáveis com maior poder de predição foram tempo entre a primeira e a segunda internação, tempo de permanência na primeira internação e diagnóstico de esquizofrenia.

Conclusões

Os resultados são importantes para o planejamento de saúde pública, com o intuito de promover melhores cuidados a um grupo de pacientes pequeno, mas com um alto impacto na utilização do serviço.

INTRODUCTION

Psychiatric care has advanced dramatically in this century, especially since World War II. This break through has been possible in part due to the introduction of modern antipsychotic medications and, more recently, to a movefrom institutional to community-based care. These have led to changesin the clinical course of psychiatric disorder.

Functional psychoses (schizophrenia, affective disorders, and non-organic psychoses) are no longer translated into long-term hospitalizations, but otherwise they are often managed with short-term admissions followed by appropriate aftercare. The old model of asylum care has been replaced and poses new challenges to service providers. One of them is the so-called "revolving door patient". The recidivist or revolving door patient is the one who is repeatedly admitted to the hospital. Different definitions have been used to describe this phenomenon, varying in the number of readmissions, and the interval period they occur. Most authors define as recidivists those patients with 3 to 4 admissions within a follow-up period of 5 to 10 years, although some require more admissions to fit in this definition.[8,11]

Recidivist patients are characteristically young men with schizophrenia or an affective disorder. Social conditions and the severity of the illness are associated with an increase in the number of readmissions.[8] Other factors associated with recurrence include: violent behaviors, criminality, alcohol abuse, drug addiction, non-compliance with the treatment, and lack of social support.[6,7]

Gastal[5] studied the admission patterns of 16,226 patients during a period of 62 years (from 1931 to 1993). Of these patients, 62.5% were admitted only once and 37.5% were readmitted. A total 34,950 admissions were documented during the study period, of which 18,724 (53.6%) were readmissions. In other words, although only one third of the patients were readmitted, half of all admissions were readmissions.

The revolving door phenomenon arises from the interaction of a wide range of features related to the underlying psychotic disease (e.g., disease severity , poor compliance with medication), adjuvant factors (substance abuse), availability of services (e.g., assertive community support groups). In addition, it is important to note that despite optimal medication and psychoeducational treatments, many patients with schizophrenia still relapse. It can be difficult to accurately identify all the factors that contribute to patterns of readmission, however clinicians and service planners need to further assess those patients who require repeated admissions. For example, could better treatment reduce the need for future readmissions? Should services allocate extra resources for those patients to reduce their need for inpatient stays? There is a need for new studies to better identify these patients so their care and treatment could be properly planned. The aim of this study was to try to identify variables that would allow to predict the pattern of recurrence at the moment of a second admission.

METHODS

Data for the study were collected from a name-linked psychiatric case registry of one of the oldest psychiatric hospital in the city of Pelotas, in Southern Brazil. Patients who were first admitted to the hospital between 1970 and 1989 were included. Data on readmissions between 1975 and 1994 were collected for each patient, resulting in a follow-up period of 5 to 24 years.

During 1970 to 1989, 10,449 patients were admitted for the first time to the psychiatric hospital. Of these, 7,475 had a diagnosis of schizophrenia, affective disorder or psychotic disorder (non-organic or non-specified), according to ICD-9 criteria. Four thousand three hundred and eighty two of these were excluded from the study, including patients who were admitted only once during the study period (n = 4,119); those who had not been discharged by the time they showed a clinical recovery (n = 777); those belonging to the upper social class (n = 179); and those whose initial period of stay was greater

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than 365 days (n = 15). The final sample consisted of 3,093 patients. The hospitalization pattern was determined by the number of admissions, with recidivist patients being defined as those who had had four or more admissions. The predictor variables were: gender, race, age group, marital status, locale of admission, and length of time between the first and second admissions.

The remaining patients were divided into two groups: low service use versus high service use. Low service use patients had either two or three admissions, while high service use patients had four or more admissions during the study period. To discriminate between these two groups, each predictor variable was assessed using the chi-squared test and odds ratios. For time variables and age, linear trend test and Spearman's correlation analysis were used. Stepwise logistic regression analysis was used to determine the predictive value of the variables. The initial model of regression included the predictor variables plus the year of the patient's admission. This last variable was included to control for the effect of the length of follow-up on the chance of being a recidivist patient.

RESULTS

The general characteristics of the sample are shown in Table 1. Thirty-eight percent of all patients were male and recurrence was associated with male gender (c^2=4.55; df=1; p<0.05; odds ratio=0.85). The average age was 35 years old (sd=13; range: 13 to 77), and younger patients (13-35 years) were more likely to be recidivist than older ones (56 to 77 years) (linear trend test=12.4; df=1; p<0.001). Regarding marital status, single patients were more likely to have a recidivist readmission pattern than married patients (c^2=8.45; df=1; p<0.01; odds ratio=0.80). Patients with schizophrenia had a higher recurrence rate than patients with affective disorders and other forms of psychosis (c^2=50.68; df=2; p<0.001). There were no associations between race, place of origin, occupation, economic activity or social status and the hospitalization pattern.

The average length of stay during the first hospitalization was 50 days (sd=26, range: 2-363 days). Patients who stayed for a longer period in the hospital during their first admission (>41 days) were more likely to be recidivists (linear trend test=61.74; df=1; p<0.001). Spearman's correlation showed a positive correlation between time spent in hospital during the first admission and the subsequent hospitalization pattern (r=0.14).

The average interval between the first and the second admission was 824 days (sd=1,139, range: 1-8,306 days). Patients readmitted before 2 years (730 days)

tended to show a recidivist pattern when compared to those with a readmission interval greater than 2 years (linear trend test=67,71; df =1, p<0.001). The Spearman's correlation coefficient revealed a negative correlation between the time for the first readmission and hospitalization pattern (r=-0.15).

To evaluate the factors which influence more on the subsequent hospitalization pattern, a stepwise logistic regression analysis was performed. The variables included in the initial analysis model were: gender, age group, marital status, race, locale of admission, diagnosis, length of stay during the first admission, length of time between the first and second admissions and year of admission. The results of the analysis showed that the variables age, diagnosis, length of stay during the first admission, length of time between the first and second admissions and the year of the admission had a significant influence on the recidivist pattern.

These results revealed that patients who had an interval between the first and second admissions of 1 to 360 days, a length of stay greater than 60 days in the first admission, who had schizophrenia and age of 13 to 35 had a high risk of subsequently showing a recidivist readmission pattern (Table 2). Using stepwise logistic regression, gender, race, place of origin, occupation, economic activity, and social status variables were removed from the model because their odds ratio was not significant.

DISCUSSION

The results show that there are "revolving door" patients in Brazil, and their characteristics and patterns of readmission are similar to those patients from countries with very different cultural and social and economic conditions. The main findings in the study are consistent with similar reports in the literature; the recidivist tends to have schizophrenia,[8,11,15] be younger,[8,11,15] stay longer in the hospital,[10,15] live closer to a health service,[8,11] and have shorter intervals between admissions.[1]

The revolving door phenomenon was first described in the 1960s in association with the process of reinstitutionalization of psychiatric patients. Several factors are thought to contribute to their frequent admissions. The first relates to the natural history and severity of the underlying psychiatric disease, which suggests that revolving door patients are those patients with chronic or more serious psychiatric conditions who would hitherto have remained hospitalized as long-stay patients.[2,3,10] The second explanation is associated with social factors such as social and eco-

nomic status, cultural background, lack of social and family support and deficiencies in the health system, which are believed to increase the risk of readmission.[13] The results of the present study give support to the first explanation, the longer the stay on the first admission and the shorter the interval between first and second admissions, the more likely the patient is to be readmitted. A longer length of initial stay suggests a more serious psychiatric disorder. The fact that patients with schizophrenia, rather than other chronic psychiatric disorders have tendency to recurrence[6,8,9,11,13,14] also supports the psychopathological explanation of the revolving door phenomenon. However, social and economic factors could also contribute to an increase in the length of initial stay because the patient may have been admitted at a later stage in a more deteriorated clinical condition and go over a more difficult recovery phase.[4]

In the study, variables such as social and economic status and social class did not show any relationship with recurrence. It was expected that recurrence would be associated with social problems and unemployment. However, several studies have shown that recurrence is more related to characteristics of the patient's family rather than his or her own social class.[12] Family environment, high levels of expressed emotion and the burden of coping with a mentally ill family member, in association with inadequate aftercare services, are linked to recurrence.[12]

The limitations of the study are mainly related to the hospital's case registry and the exclusion criteria adopted, even though these criteria were similar to those used in other studies.[13] Future studies will assess the entire group using alternate analyses such as survival curves. It will be also possible to include

Table 1 - Association between rehospitalization and demographic, social and economic and time interval variables, Pelotas 1970 to 1989 admission period and 1970 to 1990 follow up period. (n = 3,091).

Variables	Recidivist N	Recidivist %	Non recidivist N	Non recidivist %	c^2	df	P
Gender:							
Male	478	40	688	36			
Female	715	60	1,210	64	4.55	1	< 0.05
Race:							
White	1,071	90	1,729	92			
Non-white	114	10	154	8	1.89	1	ns
Marital Status:							
Single	555	47	785	42			
Married	614	53	1,080	58	8.45	1	< 0.01
Place of origin:							
Pelotas	745	62	1,194	63			
Other towns	448	38	703	37	0.08	1	ns
Occupation:							
Skilled	574	48	959	51			
Not skilled	619	52	939	49	1.71	1	ns
Economic activity:							
Formal	574	48	959	51			
Informal	619	52	939	49	1.71	1	ns
Social status:							
Under working class	974	83	1,519	81			
Working class	205	17	352	19	0.99	1	ns
Diagnosis:							
Schizophrenia	623	52	745	39			
Affective disorders	230	19	491	26			
Psychosis	340	29	662	35	50.68	2	< 0.001
Linear trend test							
Age (years):							
13-35	693	58	1,012	53			
36-55	426	36	698	37			
56-77	74	6	187	10	12.36	1	< 0.001
Length of 1st admission (days):							
1-40	382	32	869	46			
41-60	473	40	658	35			
61-365	338	28	371	20	61.74	1	< 0.001
Interval between 1st and 2nd admission (days):							
1-365	688	58	841	44			
366-730	216	18	337	18			
731- +	289	24	720	38	67.71	1	< 0.001

Hospitalization pattern*

* Hospitalization pattern for 5 to 24 years follow-up admissions: recidivist - 4 or more admissions; no recidivist - 2 or 3 admission.

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Table 2 - Logistic regression analysis for predictors of recidivist pattern of hospitalization, Pelotas 1970 to 1989 admission period and 1970 to 1990 follow-up period. (n=3,086)

Variables	Coefficient	SE	COEF/SE	EXP(COEF)	Lower BND	Upper BND
Age (years):						
12-35	0.498	0.157	3.17	1.65	1.21	2.24
36-55	0.479	0.159	3.01	1.62	1.18	2.21
Diagnosis:						
Schizophrenia	0.415	0.093	4.45	1.51	1.26	1.82
Affective disorder	-0.037	0.111	-0.33	0.96	0.77	1.20
Mean stay 1st admission (days):						
61-365	0.580	0.106	5.49	1.79	1.45	2.20
41-60	0.443	0.093	4.89	1.56	1.30	1.86
Interval between 1st and 2nd admission (days):						
1-365	0.792	0.091	8.70	2.21	1.85	2.64
366-730	0.498	0.116	4.30	1.65	1.31	2.07
Admission year	-0.027	0.007	-3.42	0.97	0.96	0.99
Constant	0.257	0.655	0.392	1.29	0.36	4.67

Initial model: dependent variable - recidivist (4 or more admission); independent variables – gender, race, age, place of origin, occupation, economic activity, social status, diagnosis, length of 1st admission, interval between 1st and 2nd admissions and admission year. After 7 steps there were removed the variables gender, race, marital status, place of origin, occupation, economic activity, and social status, resulting in the model presented in the table.
SE - Standard error
BND (lower, upper) - bond

data from another recently opened hospital in Pelotas, thus providing more comprehensive regional data.[5] Ideally, one should check death and emigration records to account for subjects that have either died or left the region, something that was not possible in this study. Despite these limitations, this is a useful study and it provides much supportive evidence to the growing international literature on psychiatric recurrence.[8,10,11]

In conclusion, the results have provided a profile of patients likely to require repeated admissions to psychiatric hospitals. They are a small group and represent a high spenditure to the public health services.

Service providers need to be aware of the needs of those patients who have their first admission at an age less than 35, with a diagnosis of schizophrenia, a length of stay for their first hospital admission of more than 61 days, and an interval between first and second admissions of less than one year. More intensive programs of inpatient and community-based care should be allocated to these patients and their caregivers.

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