REVOLVING DOOR PHENOMENON AND RELATED FACTORS IN SCHIZOPHRENIA, BIPOLAR AFFECTIVE DISORDER AND OTHER PSYCHOTIC DISORDERS

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SUMMARY

Background: *Patients with chronic mental illness are frequently hospitalized and discharged from psychiatry wards. This situation is referred to as the "revolving door phenomenon" (RDP). In addition to factors related to the patient and the disease, limited number of beds leading to shortened hospital stay are among the reasons associated with frequent hospitalization. This study aims to compare patients with RDP and patients with single hospitalization in terms of clinical, sociodemographic, and treatment-oriented characteristics in order to evaluate the risk factors causing frequent hospitalization.*

Subjects and methods: *In this study, patients who were admitted and hospitalized between May 1, 2011 - May 1, 2016 were retrospectively evaluated from patient records. The RDP group consisted of 74 patients and the single-hospitalization group consisted of 59 patients who met inclusion criteria.*

Results: *The RDP group had significantly higher rates of male gender, ECT history, past suicide attempts, multiple drug treatment, clozapine use, legal incidents, and noncompliance to follow up following discharge compared to the single-hospitalization group (p<0.05).*

Conclusion: *This study demonstrates that Turkey also has RDP patients with characteristics and hospitalization patterns similar to patients in countries with different cultural, social, and economic conditions. It is important to identify and correct factors that cause frequent hospitalization as it will reduce the burden of the health system as well as provide benefit to the patient.*

Key words: *schizophrenia - revolving door phenomenon - recurrent hospitalization*

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INTRODUCTION

Diseases such as schizophrenia, schizoaffective disorder, all the remaining psychotic disorders, likewise bipolar affective disorder are often chronic and display frequent relapses and remissions. There is one group of patients with chronic mental diseases who are frequently hospitalized and discharged from psychiatric wards. This patient group with frequent hospitalizations is described as the "revolving door phenomenon" (RDP). RDP first emerged after the discharge of psychiatric patients from hospitals due to population-based approaches (Gastal et al. 2000). The phenomenon has various definitions according to different authors. While some authors define RDP as 3-4 hospitalizations within 5-10 years, others refer to the same number of hospitalizations within a shorter period, like 2 years (Lichtenberg et al. 2008, Oyffe et al. 2009, Kastrup 1987, Lewis & Joyce 1990). On the other hand, Botha and colleagues modified the RDP criteria proposed by Weiden and Glazer and created criteria such as three or more hospitalizations in 18 months or two or more hospitalizations in 12 months in the presence of clozapine use (Botha et al. 2010, Weiden & Glazer 1997).

While RDP has been associated with several factors, the leading factors are still controversial. Frequent hospitalization is found to be associated with severity, natural course, and chronicity of the disease (Gastal et al. 2000; Korkeila et al. 1998; Lay et al. 2006; Roick et al. 2004). In addition to disease-related factors, patient-related factors are also thought to be related to frequent hospitalizations, such as poor social support, low education level, and living alone (Lay et al. 2006; Gastal et al. 2000; Botha et al. 2010). Among this group of patients, the most significant variables for frequent hospitalizations were non-compliance to treatment (Goodpastor & Hare 1991, Weiden & Glazer 1997), tendencies to violence, suicidality (Di Lorenzo et al. 2016), and alcohol-substance abuse (Romer Thomsen et al. 2018, Weiden & Glazer 1997, Kim et al. 2011). According to many researchers, the presence and length of previous hospital stays were also significant predictors of recurrent hospitalizations (Gültekin et al. 2013a, Frick et al. 2013, Montgomery & Kirkpatrick 2002, Moss et al. 2014).

Different countries report similar causes for frequent hospitalizations. For example, one study conducted in Italy indicated that frequent hospitalizations were more prevalent among young, single, and unemployed people with poor social support (Morlino et al. 2011). Another study conducted in Germany found that low functionality, low education level and referral to a general practitioner after discharge were associated with frequent hospitalizations (Frick et al. 2013). One South

African study reported that factors such as the history of substance abuse, disease severity, and premature discharges were more prevalent among patients with frequent hospitalizations. The limited number of hospital beds, leading to shortened hospitalization time, and therefore discharge without complete recovery cause frequent hospitalizations (Botha et al. 2010).

Contrary to the patient group with frequent hospitalizations, there is also a patient group with a relatively low number of hospitalizations despite long disease duration. Studies have reported that these patients have milder disease severity, treatment compliance and affective disorder diagnoses, although studies on this topic are not fully clear (Botha et al. 2010, Morlino et al. 2011).

Although some studies have researched the revolving door phenomenon in Turkey (Gültekin et al. 2013a,b, Aydın et al. 2014), we have not encountered a long-term study that compared RDP patients to single-hospitalization (SH) patients.

At this work, we wanted to investigate the revolving door phenomenon in a clinic with the opportunity of long-term follow-up with mainly a population of patients with social security in Turkey. This study aims to retrospectively evaluate the risk factors of frequent hospitalizations and compare the clinical, sociodemographic, and treatment-related characteristics of RDP patients to SH patients. In RDP patients, we hypothesized that more non-compliance with outpatient clinic follow-ups, involuntary hospitalization, a tendency to violence, multiple drug use, and more intense substance use, and also less hospital stay.

SUBJECT AND METHODS

The current study was a retrospective study conducted at the Gazi University School of Medicine Psychiatric Inpatient Clinic in Ankara. The clinic consists of two open services with a total of 31 beds, serving patients from Ankara and its surroundings. The patient records between May 1, 2011, and May 1, 2016 were evaluated until January 1, 2018. Patients between the ages of 18 and 65 who were hospitalized and diagnosed with schizophrenia, schizophreniform disorder, schizoaffective disorder, acute and temporary psychotic disorder, delusional disorder, non-organic psychotic disorder, or bipolar affective disorder according to ICD-10 diagnostic criteria were included in the study. Among all patients, a total of 1209 hospitalizations and 965 patients with these diagnoses were identified. The RDP criteria were determined according to the modified criteria of Botha et al (Botha et al. 2010):

- ≥ 3 hospitalizations in a 18-month period or,
- ≥ 2 hospitalizations in a 12-month period and treated with clozapine or,
- ≥ 2 hospitalizations in a 12-month period and a hospitalization period longer than 120 days.

The patients who received inpatient treatment only once during the current study period were included in the SH group. If there was not enough data in the patient file or the patient's diagnosis is uncertain, they were excluded from the study. A hundred and nine patients who met the RDP criteria were identified. Among these patients, 35 patients were excluded from the study due to inadequate data, for a total of 74 patients comprising the RDP group.

The screening identified 259 patients with single-hospitalization (SH). In this group, 200 patients were also excluded from the study due to inadequate data. A total of 59 patients met SH criteria.

Following the patient screening, a database consisting of sociodemographic characteristics (age, marital status, employment status, education level, place of residence), clinical data (history of substance use, psychiatric comorbidity, other medical diseases, family history of the psychiatric disease, age of onset, the total number of hospitalizations, the average length of stay in the hospital, type of hospital admission, compliance with follow up, reason for hospitalization, suicidal attempts, the tendency to violence, forensic events, disability pension, ICD-10 diagnoses), and treatment-related data (drugs used, ECT, depot drug use, side effects of drugs, chemical restraint) which may be related to the number of hospitalizations was formed. Suicide attempts were considered as "situations in which a person performs a life-threatening behavior with the intent of jeopardizing his or her life or to give the appearance of such intent" (da Graça Cantarelli et al. 2014). Judicial prosecution for the patient for committing a crime was considered as a forensic event. Side effects of drugs reported by the patient or their relatives or detected during the examination by the doctor were obtained from electronic patient records. Hospitalization without the consent of the patient, at the request of his/her family, was considered involuntary hospitalization, and the referral of the patient to hospitalization by the courts was considered as judicial hospitalization.

The study received ethics approval from the Gazi University School of Medicine Ethics Committee.

Categorical data were expressed as percentages and frequency; mean value ± standard deviations and median values (minimum-maximum) of continuous variables were calculated. For each sample group and comparison of variables, the χ^2 test was conducted for categorical data and the t-test for continuous data. Post-hoc analyses were applied in multiple groups. The logistic regression analysis was performed to evaluate prognostic factors predicting frequent hospitalization.

RESULTS

Sociodemographic data of the patients are presented in Table 1. The RDP group had significantly higher rates of male gender compared to the SH group (χ^2=11.181, p<0.01). There was no statistically significant difference between the two groups according to age, marital status,

Table 1. Sociodemographic characteristics of the groups

	Single hospitalization N (59) N (%)	Revolving door phenomenon N (73) N (%)	Total N	*P*
Gender				*<0.001*
Female	34 (57.6)	21 (28.8)	55 (41.7%)	
Male	25 (42.4)	52 (71.2)	77 (58.3%)	
Marital status				0.166
Married	23 (39)	21 (28.8)	44 (33.3%)	
Single	28 (47.5)	34 (46.6)	62 (47%)	
Divorced	7 (11.9)	18 (24.7)	25 (18.9%)	
Widowed	1 (1.7)	0	1 (0.8%)	
Education level				0.150
Illiterate	2 (3.6)	1 (1.4)	3 (2.4%)	
Literate	3 (5.5)	0	3 (2.4%)	
Primary	11 (20)	10 (13.9)	21 (16.5%)	
Middle school	7 (12.7)	11 (15.3)	18 (14.2%)	
High school	12 (21.8)	27 (37.5)	39 (30.7%)	
Graduate	20 (36.4)	23 (31.9)	43 (33.9%)	
Employment				0.520
Unemployed	33 (55.9)	40 (54.8)	73 (55.3%)	
Employed	10 (16.9)	14 (19.2)	24 (18.2%)	
Retired	10 (16.9)	16 (21.9)	26 (19.7%)	
Student	6 (10.2)	3 (4.1)	9 (6.8%)	
Residence				0.108
Urban	56 (96.6)	65 (89)	121 (92.4)	
Rural	2 (3.4)	8 (11)	10 (7.6%)	
Living companions				0.385
Family	56 (94.9)	68 (93.2)	124 (93.9%)	
Alone	2 (3.4)	1 (1.4)	3 (2.3%)	
Nursing home	0	3 (4.1)	3 (2.3%)	
Homeless	0	0	0	
With friends	1 (1.7)	1 (1.4)	2 (1.5%)	
Family history of mental diseases	8 (27.6)	29 (48.3)	37 (41.6%)	0.063
History of substance use	6 (10.2)	14 (19.2)	20 (15.2%)	0.151
Psychiatric comorbidity	12 (20.3)	24 (32.9)	36 (27.3%)	0.108
Other medical diseases	27 (45.8)	30 (41.7)	57 (43.5%)	0.638
Age (mean ± SD) (years)	40.46±13.64	41.80±11.32	41.20	0.543

employment status, education level, and place of residence (p>0.05). While there was no significant difference between the groups, most of the patients in the RDP group were single (47%), unemployed (55.3%), and living with their families (93.9%). The mean age of the patients was 40.46 years in the SH group, and 41.80 in the RDP group. Also, there was no statistically significant difference between the two groups for family history of psychiatric diseases, history of substance use, psychiatric comorbidity, and other medical diseases. The most common physical diseases in the RDP group were chronic obstructive pulmonary disease, atherosclerotic heart diseases, dysrhythmias, and endocrinopathies, while the most in the SH group were neurological diseases and endocrinopathies. The most common psychiatric comorbidities were obsessive-compulsive disorder and substance use disorder in the RDP group, while mental retardation in the SH group.

The clinical characteristics of the groups are presented in Table 2. The mean number of hospitalizations of the RDP group was 6.18±3.084, and the hospitalization period was mean 32.13±16.74 days. The most common reason for hospitalization in both groups was the relapse of the disease (SH: 42.4; RDP: 43.8). It was found that in both groups, a majority of hospitalizations were voluntary (SH: 67.8%; RDP: 58.9%), and discharges were with partial remission. According to institutes that they followed up at, post-hoc analysis showed that SH patients were mostly followed up at University outpatient clinic (79.2%) and most of the RDP patients were followed up at other centers (46.6%), and this difference was found to be statistically significant between the groups (p<0.01). In terms of compliance following discharge, the RDP group had significantly less regular follow-up compared to the SH group (χ^2=21.106 p<0.01). The most prevalent disease among both groups was

Table 2. Clinical features of the groups

	Single hospitalization N (59) N (%)	Revolving door phenomenon N (73) N (%)	Total N	P
Reason for last hospitalization				0.191
Relapse	25 (42.4)	32 (43.8)	57 (43.2%)	
Suicide attempt	0	3 (4.1)	3 (2.3%)	
Violent tendency	1 (1.7)	0	1 (0.8%)	
Social reasons	3 (5.1)	2 (2.7)	5 (3.8%)	
Substance use	1 (1.7)	1 (1.4)	2 (1.5%)	
Drug side effects	0	0	0	
Diagnostic evaluation	2 (3.4)	0	2 (1.5%)	
Non-compliance to treatment	0	4 (5.5)	4 (3%)	
Multiple reasons	27 (45.8)	31 (42.5)	58 (43.9%)	
Type of admission				0.564
Voluntary	40 (67.8)	43 (58.9)	83 (62.9%)	
Involuntary	18 (30.5)	28 (38.4)	46 (34.8%)	
Judicial	1 (1.7)	2 (2.7)	3 (2.3%)	
Outpatient follow-up				*<0.001*
University outpatient clinic	47 (79.7)	33 (45.2)	80 (60.6%)	
Other centers	3 (5.1)	14 (19.2)	17 (12.9%)	
Multiple centers	9 (15.3)	6 (8.2)	15 (11.4%)	
Discharge				0.312
As is	3 (5.1)	7 (9.6)	10 (7.6%)	
Partial remission	56 (94.9)	63 (86.3)	119 (90.2%)	
Referral to upper center	0	2 (2.7)	2 (1.5%)	
Referral to different department	0	1 (1.4)	1 (0.8%)	
ECT history	2 (3.4)	23 (31.5)	25 (18.9)	*<0.001*
Treatment regimen				*<0.005*
Monotherapy	29 (49.2)	18 (24.7)	47 (35.6%)	
Polypharmacy	30 (50.8)	55 (75.3)	85 (64.4%)	
Clozapine use	8 (13.6)	56 (76.7)	64 (48.5)	*<0.001*
Benzodiazepine abuse	1 (1.7)	5 (6.9)	6 (4.6)	0.153
Compliance following discharge	38 (64.4)	18 (24.7)	56 (42.4)	*<0.001*
History of suicide attempts	7 (11.9)	31 (42.5)	38 (28.8)	*<0.001*
Final diagnosis				*<0.001*
Schizophrenia	21 (35.6)	46 (63)	67 (50.8%)	
Acute and transient psychotic disorder	1 (1.7)	0	1 (0.8%)	
Nonorganic psychosis	8 (13.6)	0	8 (6.1%)	
Delusional disorder	4 (6.8)	0	4 (3%)	
Bipolar Affective Disorder	21 (35.6)	16 (21.9)	37 (28%)	
Schizoaffective Disorder	4 (6.8)	11 (15.1)	15 (11.4%)	
Change in diagnosis	23 (39)	29 (39.7)	52 (39.4)	0.931
Violent tendencies	19 (32.2)	35 (47.9)	54 (40.9)	0.067
Forensic events	4 (6.8)	14 (19.2)	18 (13.6)	*<0.005*
Disability pension	10 (16.9)	20 (27.4)	30 (22.7)	0.154
Agitation that requires chemical restraint	35 (59.3)	37 (51.4)	72 (55)	0.364
Drug side effects	56 (94.9)	63 (86.3)	119 (90.2)	0.099
Age of disease onset (mean ± SD) (years)	27.55 (10.12)	24.11 (6.99)	25.63	*<0.005*
Number of hospitalizations (mean ± SD)	1	6.18 (3.084)	3.86	*<0.005*
Mean hospitalization duration (mean ± SD) (days)	29.12 (13.57)	32.13 (16.74)	30.78	0.256
Mean disease duration (mean ± SD) (years)	13.03 (9.96)	17.73 (9.46)	15.65	*<0.01*

Table 3. Characteristics of drugs and side effects

	Single hospitalization N (%)	Revolving door phenomenon N (%)	Total N	*P*
Drugs				
Typical Antipsychotics	6 (10.2)	5 (6.8)	11 (8.3%)	0.493
Atypical Antipsychotics	29 (49.2)	52 (71.2)	81 (61.4%)	*<0.005*
Mood stabilizers	16 (27.1)	27 (37)	43 (32.6%)	0.229
Depot Antipsychotics	6 (10.2)	14 (19.2)	20 (15.2%)	0.151
Antidepressants	3 (5.1)	9 (12.3)	12 (9.1%)	0.150
Benzodiazepines	2 (3.4)	5 (6.8)	7 (5.3%)	0.378
Drug side effects				
Extrapyramidal symptoms	38 (67.9)	43 (68.3)	81 (68.1%)	0.963
Increased prolactin associated side effects	16 (28.6)	8 (12.7)	24 (20.2%)	*<0.005*
Metabolic side effects	24 (42.9)	15 (23.8)	39 (32.8%)	*<0.005*
Neuroleptic malignant syndrome	0	1 (1.6)	1 (0.8%)	0.344
Intoxication	1 (1.8)	1 (1.6)	2 (1.7%)	0.942
Hematologic side effects	2 (3.6)	3 (4.8)	5 (4.2%)	0.747
Cardiovascular side effects	0	4 (6.3)	4 (3.4%)	0.055
Neurological side effects	4 (7.1)	9 (14.3)	13 (10.9%)	0.212
Other side effects	35 (62.5)	29 (46)	64 (53.8%)	0.072

Table 4. Multiple regression analysis of prognostic factors

	p	CI 95%	OR
ECT	0.144	0.584-40.237	4.849
Treatment regimen	0.002	2.282-44.392	10.064
Clozapine use	0.000	12.427-360.466	66.929
Compliance to follow ups	0.005	1.788-25.631	6.770
Suicide attempts	0.001	3.585-102.920	19.210
Forensic events	0.104	0.673-68.849	6.806
Gender	0.361	0.481-7.439	1.893

schizophrenia (SH: 35.6%; RDP: 63%), followed by bipolar affective disorder. The mean age of onset was 27.55 in the SH group and 24.11 in the RDP group. It can be said that both groups had onset of disease in their twenties, although disease began earlier in the RDP group. When both groups were compared in terms of the mean duration of disease, there was a significantly longer duration in the RDP group (SH: 13.03; RDP: 17.73, p<0.01).

According to clinical history, the RDP group had significantly higher rates of ECT history, suicidal attempts, multiple drug treatment regimens, history of clozapine use, and forensic events compared to the SH group (p<0.01). There was no significant difference between the two groups in terms of disability pension, violent tendencies, side effects of the drug, and chemical restraint for agitated behaviors at admission (p>0.05).

According to characteristics of drug treatments, while there was no significant difference between the two groups according to side effects of drugs; when side effects were examined under subdimensions, the SH patients had higher rates of elevated prolactin level

associated side effects like amenorrhea, loss of sexual desire and metabolic side effects like weight gain, hyperglycemia (p<0.01). In patients with combined antipsychotic use, the prevalence of atypical antipsychotic use was significantly higher in the RDP group (p<0.05). Data related to drug use and side effects are presented in Table 3.

Multiple regression analysis revealed that a history of ECT, suicide attempts, multiple drug use in the treatment regimen, clozapine use, and compliance to follow up after discharge had prognostic value in predicting frequent hospitalizations. Male gender did not yield statistical significance in predicting frequent hospitalizations. The data is presented in Table 4.

DISCUSSION

The results of this study indicate that Turkey also has RDP patients with characteristics and hospitalization patterns similar to patients in countries with different cultural, social, and economic conditions (Morlino et al. 2011, Frick et al. 2013, Botha et al. 2010). Non-compliance with follow-up, male gender, multiple drug

regimen, suicide attempts, and presence of forensic events were found to be more prevalent in the RDP group than in patients with single hospitalization, as consistent with other studies (Morlino et al. 2011, Botha et al. 2010, Gastal et al. 2000). However, in terms of the tendency to violence, depot antipsychotic use, unemployment, and lack of family support, which were reported to be more prevalent in patients with frequent hospitalizations (Di Lorenzo et al. 2016, Botha et al. 2010, Weiden & Glazer 1997, Morlino et al. 2011, Goodpastor & Hare 1991, Haywood et al. 1995), our study found no significant difference between RDP and SH patients.

In our study, most RDP patients were male, single, unemployed despite education level above high school, and living with their families. However, there was no difference between the groups in terms of variables other than gender. In Turkey, there are no protective workplaces for vulnerable groups such as psychiatric patients and these individuals have difficulty in finding jobs (Kayıhan & Köse 2018, Bilge et al. 2016). Therefore, unlike other studies, unemployment may not differ between groups. Similarly, unlike existing studies, patients' living environment does not differ between groups. This finding may be due to the stronger family relationships in Turkey than in other countries. On the other hand, in Turkey, people often live with their parents until they get married, unlike Western societies. The high level of education in both groups is a striking finding, which may be related to the existence of compulsory education for at least 8 years in Turkey. Therefore, these findings suggest that the disease-related variables were more effective in the case of frequent hospitalizations.

The substance use history did not make any difference between the groups. When looking at other studies, substance abuse was more reported in the RDP group (Botha et al. 2010, Kim et al. 2011). On the other hand, among these patients, 13 (17.81%) patients in the RDP group and 2 (3.39%) patients in the SH group only met the criteria for alcohol or substance addiction according to ICD-10. Alcohol and substance addiction rates were lower in both groups compared to similar studies (Botha et al. 2010, Romer Thomsen et al. 2018). This may be related to the relatively low rates of comorbid substance use of psychotic patients in Turkey or the fact that marijuana and other substance usage are not questioned enough or are kept secret. Substance screening tests are not routinely performed on psychotic patients in Turkey.

When disease-related factors are examined, it was observed that the RDP group did not comply with follow-up after discharge and multiple drug use was also more prevalent among these patients. In addition to using more than one drug, the usage of atypical antipsychotics was also more prevalent among RDP patients. This finding may be related to the fact that atypical antipsychotics are generally more preferred in treatment.

In the studies conducted, conflicting results were found about the effectiveness of different antipsychotics on hospitalization frequency. While atypical antipsychotics were found to be superior in the study conducted by Conley et al., in a research conducted by Gültekin et al. with 292 patients, no difference was found between the patients with recurrent hospitalizations and single hospitalization (Conley et al. 2003; Gültekin et al. 2013b). In another study with 1-year follow-up, a decrease in the frequency of hospitalizations was observed only in patients using clozapine among treatments of typical, atypical antipsychotics and clozapine (Valevski et al. 2012). In our study, although both clozapine and other atypical antipsychotics were used more in the RDP group, the high frequency of hospitalization may be related to non-compliance with treatment or the refractory clinical course. However, in our study, non-compliance with treatment or disease severity could not be directly evaluated. Because in the retrospective study design, it was thought that the inter-rater validity among the physicians who scored the scales to evaluate the disease severity or treatment compliance would not be consistent. Besides, outpatient rehabilitation after discharge and lack of a regular follow-up system may also play a role in Turkey.

In addition, the literature also reports that depot antipsychotic use reduced the frequency of hospitalizations (Gutwinski et al. 2007, Novick et al. 2010, Botha et al. 2010). In our study, no difference was found between the groups in terms of depot antipsychotic use. In Turkey, since the atypical depot antipsychotics did not take place in the market mainly in the range of 2011-2016, typical depot antipsychotics may have been preferred more, and the extrapyramidal side effects that occur with these drugs may have limited their use.

Since multiple drug use is one of the factors that disrupt patient compliance, simplifying drug treatments as much as possible may be helpful in both reducing side effects, and improving impaired quality of life (Kane 2005, Centorrino et al. 2004, Längle et al. 2012). In our study, it was found that polypharmacy was used more in the treatment regimens in the RDP group, but side effects such as hyperglycemia, weight gain, loss of sexual desire, and amenorrhea were more frequently reported in the SH patients. Whereas, patients in the RDP group received significantly more atypical antipsychotic treatments than SH patients. Maybe, patients with more intense negative symptoms and more deterioration may have been included in the RDP group, and these patients may not have reported side effects, most of which were subjective, or their families may not be aware of them. Besides, as these patients are considered as chronic cases, physicians' interest in side effects may have decreased. On the other hand, it is difficult to make a definite interpretation because all the drug treatments that patients have taken in the past were not known.

In the study, voluntary hospitalization was higher in both groups, and there was no difference in terms of hospitalization type. Unlike other studies, there are very few hospitalizations for judicial reasons, since our inpatient clinic is not a closed service, the courts mostly direct judicial hospitalizations to different units. In some studies, it has been reported that voluntary hospitalization is more common in patients with recurrent hospitalizations, and this is used by patients as a social support mechanism (Oyffe et al. 2009, Di Lorenzo et al. 2016).

According to institutes where the patients were followed up, the RDP group had significantly higher rates of follow up at institutes other than the University outpatient clinic (p<0.01). While patients who were followed up at external clinics did not imply they had irregular follow up, a majority of patients with single hospitalization were followed up at a single clinic, which may provide insight into the patient's compliance to treatment. On the other hand, disease severity-resistance status may cause patients/relatives to seek further treatment, which may be why they applied to more than one clinic.

In our study, the final diagnosis was schizophrenia in 63%, followed by bipolar affective disorder in 21.9%, and schizoaffective disorder in 15.3% of RDP patients. Schizophrenia was generally reported as the most common diagnosis for cause of frequent hospitalizations (Gastal et al. 2000, Clemmensen et al. 2012, Haywood et al. 1995, Goodpastor & Hare 1991). There was no difference between the groups in terms of a specific diagnosis, and there was no difference in diagnosis change in the follow-up.

The mean hospitalization time was 29.12 in SH patients and 32.13 in RDP patients (p>0.01). While there was no significant difference between the groups according to hospitalization duration, it could be said that this mean time period is relatively short for patients with chronic mental diseases. In recent years, due to the transition from hospital-based healthcare services to community-based healthcare services and the reduced number of beds, the length of hospitalization of patients has been shortened, and patients often have to be discharged early before full recovery. Some researchers indicate that early discharge causes recurrent hospitalizations (Botha et al. 2010). According to 2017 Turkish data, the total number of psychiatric ward beds were 7115, the total number of hospitalizations in one year was 9,493,097, and the number of CMHC was 163 (Public Hospitals Statistics Report 2017). Considering the Turkish population of 80 million people, it can be observed that the number of beds in comparison with the number of psychiatric admissions is insufficient, which also leads to the early discharge of patients. By providing an area outside the home or hospital through CMHCs to treat chronic mental diseases, it is aimed to provide a rehabilitation period outside the hospital following acute treatment and regain patients into society. Although this treatment approach has been successful in some countries, the fact that the number of beds was reduced before attaining a sufficient number of CMHCs in Turkey leads to a shortened hospital stay and increased drug-oriented treatments for the relief of acute symptoms, and therefore, inadequate benefit from long-term rehabilitation services. Although the number of CMHC is insufficient, it is seen that regional successes have been achieved in decreasing the frequency of hospitalizations in studies (Aydın et al. 2014). Lack of a Gazi University affiliated CMHC unit may have caused RDP by increasing the hospitalization frequency of some patients.

The main limitation of this study is the high number of patients who could not be included in the study due to the limited data. Since a large number of patients were excluded from the study, some data could not be compared, and some did not reach a level of significance regardless of comparison. In general, more valid results can be obtained by improving the registration systems, such as forming a database where the data of the patients can be accessed throughout the entire country. Another limitation is that there are no scale evaluations with inter-rater validity in the study. Disease severity, which is one of the most important variables associated with recurrent hospitalizations, could not be evaluated for this reason. Other limitations are that antipsychotic equivalent doses cannot be compared, other social variables that may affect hospitalization processes have not been evaluated, and some variables are only evaluated based on statements. However, although the number of studies conducted in our country on this subject is few, retrospective evaluation of this 5-year period, and including a control group of patients with single hospitalization were among the strengths of the study. Another strength of the study is the stricter criteria in the RDP inclusion. Thus, it was aimed to investigate patients who cause more burden on the health system and have more frequent relapses.

CONCLUSION

Despite the difficulties in conducting a study on this subject, identifying the factors that cause frequent hospitalizations with prospectively designed studies will not only benefit the patient but also decrease the health system burden. Future studies in this area should focus on longitudinal follow-up, with tools to more directly assess disease severity and treatment non-compliance. In addition, home visits to evaluate the social environment of the patients will allow a more holistic approach to evaluating hospitalization frequency. It is thought that outpatient follow-up at CMHCs after inpatient treatment is important in preventing the revolving door phenomenon. Therefore it is necessary to further improvement of the CMHCs in Turkey.

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