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Recovery in schizophrenia: related factors in a group of patients followed up for 5 years in a private practice

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ABSTRACT

OBJECTIVE: The aim of this study was to determine recovery rates and related factors in schizophrenia outpatients treated by the same physician in a private practice.

METHODS: Seventy patients with schizophrenia and schizoaffective disorder who followed up for 5 years were examined retrospectively. Psychopathological status was evaluated by means of standardized symptomatic remission criteria, and the Clinical Global Impression-Severity. Functionality of the patients was evaluated using the Global Assessment of Functioning. Recovery required remission of positive and negative symptoms and adequate social/vocational functioning for at least 24 months.

RESULTS: In a 5-year period, 35.7% of the patients achieved recovery criteria. There were no demographic and clinical differences between patients with schizophrenia and schizoaffective disorder. Recovery was predicted by the onset of illness (OR 1.14, 95% CI 1.01–1.30, $p = .044$) and type of illness – schizoaffective disorder (OR 6.84, 95% CI 1.54–30.34, $p = .011$). More than half of the patients were taking intramuscular injection mostly depot antipsychotic drugs at any time of the treatment period.

CONCLUSIONS: These favourable findings might be interpreted as results of the treatment of the same physician, intramuscular injection applications, and regular or when needed meetings. Illness type of schizoaffective disorder and late onset of illness are predictive factors for recovery. Increased therapeutic alliance and treatment adherence might foster the recovery of schizophrenia.

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Introduction

Although schizophrenia seems to progress, by its nature, as a chronic disease involving disabilities, long-term follow-up studies have shown remissions in its symptoms in a considerable percentage of patients and functional recovery in a small percentage of them [1–3]. It is said in relation to the progression of the disease that there is recovery in roughly one-third of the cases, moderate recovery in another one-third of them, and no recovery in the remaining one-third. Recovery in schizophrenia has been used in various meanings where limits are not clear-cut and approaches differ from one another. While some publications consider disappearance or alleviation of symptoms and improvement in general functioning as signs of recovery, others use ability to work and socialization as the criteria without so much focusing on symptoms [4–7].

The efforts to make an operational definition of recovery in schizophrenia date back to the beginnings of 2000s [8]. The common point in the criteria proposed for disappearance or alleviation of symptoms that are considered as the prerequisite of recovery is that the symptoms that are agreed to be in the core

of schizophrenia may completely disappear or may prevail to the extent not to impair functioning or to be disregarded clinically. As the symptoms lose their clinical significance, the ability of patients to live independently, and to work and function socially has become the fundamental criterion of recovery [8]. Since the disease progresses with remissions and relapses, the presence of a time criterion has also been regarded important. It has been commonly agreed that the well-being that emerges at the clinical level accompanied by social and professional improvements should continue for at least a certain period of times [2,8–10]. The meaning of recovery has gone beyond the mere remission of symptoms and the sustaining of such remission for at least 6 months has been agreed as an objective time condition in the criteria that emerged from the expert consensus [11]. The remission in schizophrenia working group has agreed that the severity of core symptoms of schizophrenia, i.e. delusions, hallucinatory behaviour, unusual thought content, conceptual disorganization, mania/pos-turing, social withdrawal, blunted affect, and lack of spontaneity should remain mild or less for at least 6 months to qualify as a remission criterion.

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Symptomatic remission occurs in a substantial portion of patients with schizophrenia (33–70%) [10,12–19], but their functional recovery rate is low (4–20%) and only a small number of patients manage to sustain recovery for more than 2 years [7,10,12,14–16,20,21]. Recovery rate is higher in the first episode patients than in multiple episode patients. The first episode of the disease, its onset at advanced ages, sudden occurrence, early treatment, recovery from the first episode or attack in a short time (early response), female gender, being young, lack of a history of schizophrenia in the family, the presence of suicidal ideation and behaviour, good cognitive functioning, the presence of schizoaffective disorder, having a job, and good pre-morbid compliance have been reported to be the factors determining recovery [5,7,10,14,22–25]. After the recovery has been attained, it does not unfortunately continue at the same rate. Since the disease prevails with relapses and recurrences in many individuals; remissions and resulting recovery may be interrupted [17,26]. In its natural course, the disease can improve to a certain extent through routine treatment without any additional interventions. However, the nature of recovery also relates to factors outside treatment such as cognitive capacity, family support, social support, and employment. Alongside medical treatment, the importance of psychotherapies and rehabilitation is stressed in improving the quality and sustainability of recovery [27,28].

The studies assessing the recovery of patients with schizophrenia and schizoaffective disorder, which is mostly considered to belong to the same diagnostic group, generally use the criteria proposed by the remission in the schizophrenia working group [11] and by Liberman and associates [8]. As far as I know, there is no study in Turkey investigating recovery in schizophrenia by using these criteria in combination.

The purpose of this study is to find the rate of recovery in patients with schizophrenia monitored for at least 5 years without any additional intervention and the factors associated with recovery by using the remission and recovery criteria retrospectively in schizophrenia.

Methods

This natural retrospective trial was conducted in accordance with the principles of Good Clinical Practice and the Declaration of Helsinki. Kocaeli University Ethic Committee approved the study design. Outpatients who had schizophrenia or schizoaffective disorders according to DSM-IV [29] and had no other intellectual disability or accompanying neurological disease, who followed up for 5 years, were assessed by using the remission criteria for schizophrenia [11] during their routine treatments in terms of the core symptoms of schizophrenia. All the patients included in the study were patients who experienced

exacerbation of positive or negative symptoms and who needed urgent treatment. The patients were treated and assessed by the same psychiatrist at each visit, and the times and numbers of their visits were arranged to suit the patients' needs. As occasions required, weekly, monthly, two-monthly, or longer interval interviews were held. The medication chosen for the treatment was arranged according to the patient's subjective response and treatment algorithms [27]. All the patients were outpatients. During each interview, the schizophrenic symptoms as well as the other symptoms brought forward by the patient and their family members were inquired and scored according to Positive and Negative Syndrome Scale's (PANSS) rating [30]. The general clinical assessment was scored using the Clinical Global Impression – Severity (CGI-S) scale [31]. The general functioning level was scored using the Global Assessment of Functioning (GAF) [29], which is designed for the DSM-IV Axis 5. Patients who experienced symptomatic remission for at least 6 months were evaluated using the recovery criteria for the period following the first 2 years or more [8]. Besides scheduling of the treatment, the routine treatment involved educating the patients and their relatives about the illness including coping with illness symptoms, treatment compliance, drug side effects, stigmatization, and socialization. The data of 70 patients who were monitored between 2006 and 2016 and who completed the 5-year treatment period were assessed.

As recovery criteria, the criteria proposed by Liberman et al. [8] were used with minor modifications (Table 1). The criterion that considered peer relationships as “at least once a week” was applied as “at least once a month” in this study. Independent living was interpreted as the ability to continue to manage daily routines and self-care without receiving any surveillance or assistance even if they lived with their families because most of the patients were single and living with their families. The criterion about managing self-treatment without help as proposed for independent living had to be disregarded, as most of the patients had lived with their families from the outset and got used to their help in the treatment.

Table 1. Recovery criterion used in this study.

Domains	Definition
Symptomatic remission	The core symptoms of schizophrenia being mild and less at a level not to impair functioning.
Independent living	Being able to manage their own work and self-care without needing someone else's surveillance or assistance.
Work/education	Attending a full- or part-time work or education.
Social relationships	Meeting and having good time with friends or participating in some kind of social programme at least once a month or being married.

Source: Adapted from [8,11].

Statistical analysis

The data were presented as descriptive analyses in terms of demographic and clinical characteristics, and recovery states (those recovered and those non-recovered). The continuous variables were compared with the *t* test (Mann–Whitney *U* test for non-normally distributed variables) and the categorical variables with the chi-square test. The variables that were found to be correlated at the level of $<.25$ with respect to recovery were included in a logistic regression analysis to reveal the independent predictors of recovery. Hosmer–Lemeshow goodness-of-fit statistics was used to assess model fit. A 5% type-I error level was used to infer statistical significance.

Results

The demographic and clinical characteristics of 70 patients are presented in Table 2. Most of the patients were male (63%), single or divorced (83%), and living with their families (83%). At the end of the 5-year period, the patients' level of education increased and 4 patients got married. As for the use of cigarettes, alcohol and cannabis, although the rate of using alcohol decreased, no significant change was observed. The number of hospitalizations declined significantly during the 5-year follow-up as compared to the previous situation. While body mass indexes of the patients significantly increased, there was a marked decrease in their clinical global impression scores and a marked increase in their GAF scores. Sixty-three per cent of the patients experienced symptomatic remission lasting for at least 6 months. The rate of recovery was 36% and the rate of recovery lasting more than 2 years was 24%. Intramuscular depot injectable antipsychotics were administered to 53% of the patients during their treatment period.

When the patients with schizophrenia and with schizoaffective disorder were compared to each other, no significant difference was found in terms of age, education, gender, smoking, alcohol consumption, cannabis use, suicide attempt, history of psychotic disorder in the family, previous hospitalizations, marital status, age of onset of illness, duration of illness, course of illness (first episode or episodic), comorbid obsessive compulsive disorder, job experience before the onset of illness, GAF, or CGI-S scores at baseline, whereas there were significant differences in terms of recovery rates.

During the treatment period, 25 of the patients satisfied the recovery criteria. From these criteria, independent living (alone or with their family), working (with protection, assistance or in competition), and social relationships were found at varying rates in both recovering and non-recovering patients. In a 5-year period, 61% of the patients were able to return to independent living, 56% of them to work and 44% to their social relationships for at least 2 years. Data of recovered versus non-recovered subjects are presented in Table 3.

The variables that were found to be correlated with recovery at the level of $<.25$ were included in a binary logistic regression analysis to reveal the predictors of recovery. Hosmer–Lemeshow goodness-of-fit statistics was .576, and Nagelkerke R^2 was .473. Results of the analysis are presented in Table 4.

Discussion

The results of the study are promising in the sense that it is possible to recover from schizophrenia. The 5-year natural follow-up has shown that patients can continue with their education, able to get married, and their hospitalization rate decreases if they were regularly monitored by the same physician and have enough family support. Unfortunately, the patients' body mass indexes increased. The increased body mass indexes

Table 2. Socio-demographic and clinical characteristics of the patients at baseline and 5-year later ($n = 70$; schizophrenia = 48, schizoaffective disorder = 22).

	Baseline	5 year later	<i>p</i> Value
Education years (mean, SD, range)	11.5 \pm 2.8 (5–17)	12.1 \pm 2.8 (5–17)	<.001
Married	12	16	<.001
Num. of hosp. (mean, SD, range)	0.9 \pm 1.2 (0–5)	0.3 \pm 0.7 (0–4)	<.001
Body Mass Index (mean, SD, range)	26.2 \pm 5.8 (17–42)	28.7 \pm 5.4 (18–45)	<.001
Daily smoking (mean, SD, range)	16.1 \pm 18.4 (0–60)	15.9 \pm 18.4 (0–60)	.610
CGI-S (mean, SD, range)	5.4 \pm 0.8 (4–7)	3.4 \pm 1.5 (1–7)	<.001
GAF (mean, SD, range)	46.2 \pm 8.0 (30–65)	68.4 \pm 14.8 (30–85)	<.001
Num. of meeting (mean, SD, range)		16 \pm 7.5 (6–48)	
Remission (number, %)		44 (62.9)	
Recovery (number, %)		25 (35.7)	
Independent living (number, %)		43 (61.4)	
Work/study (number, %)		37 (55.7)	
Friendship (number, %)		31 (44.3)	
Recovery > 2-year (number, %)		17 (24.3)	
Intramuscular application			
None		33 (47.1)	
Less than half of the time		22 (31.4)	
More than half of the time		15 (21.4)	

Note: CGI-S, Clinical Global Impression – Severity and GAF, Global Assessment of Functioning.

Table 3. Comparison of the socio-demographic and clinical characteristics of the patients, who fulfilled the criteria for recovery and non-recovery.

Baseline characteristics	Recovered (n = 25)	Non-recovered (n = 42)	Statistics	p Value
Gender (M)	13	31	$\chi^2(1) = 1.963$	.161
Age at baseline	31 ± 11.1	30 ± 9.1	$t(68) = .555$	.581
Education years	11 ± 3.5	12 ± 2.3	$t(36) = -.723$	.474
Married	7	5	$\chi^2(1) = 3.227$	.072
Age of onset	25 ± 7.3	21 ± 4.4	$t(34) = 2.891$	.016
Job at onset	12	12	$\chi^2(1) = 3.246$	.072
Duration of ill. (years)	6 ± 6.7	8 ± 6.9	$t(68) = -1.444$	.153
Number of hospitaliz.	0.6 ± 1.1	1 ± 1.3	$t(68) = -1.793$	.077
Family history of sch ^a	8	17	$\chi^2(1) = .234$	.629
OCD Comorbidity	1	10	<i>Fisher's Exact Test</i>	.083
Alcohol use	4	5	<i>Fisher's Exact Test</i>	.712
Cannabis use	4	2	<i>Fisher's Exact Test</i>	.177
Suicide attempt	4	8	<i>Fisher's Exact Test</i>	1.000
Diagnosis (SCH)	12	36	$\chi^2(1) = 7.636$	.006
First episode	12	10	$\chi^2(1) = 4.955$	.026
GAF at baseline	47 ± 7.8	46 ± 8.2	$t(68) = .609$	.544
CGI-S at baseline	5 ± 0.7	5 ± 0.9	$t(68) = -.693$	.491

Note: OCD, Obsessive Compulsive Disorder; GAF, Global Assessment of Functioning; and CGI-S, Clinical Global Impression – Severity.

^aSchizophrenia in first and second degree of relatives.

p < 0.05 are considered significant

of this group of patients, who smoke heavily, demonstrate the danger of metabolic syndrome once more, although not assessed in this study.

The rate of experiencing at least one remission that lasts 6 months within a period of 5 years (63%) is compatible with other studies. This rate was found to be 45% in outpatients ($n = 481$) in the Czech Republic [20]. In a study where Shennach-Wolff et al. [14] observed 262 patients, they found that 48% of the patients experienced symptomatic remission. They reported that 20% of the patients experienced functional recovery, whereas the percentage of those experiencing both functional and symptomatic recovery was 13%. Lasser et al. [32] also reported 48% symptomatic remission in a period of 1 year. In the 36-month follow-up study of Lambert et al. [24] where they assessed 392 patients who received treatment for the first time, the remission rate was 60.3% and the functional remission rate 45.2%. The percentage of the patients experiencing both types of remission was found to be 28.1%. Symptomatic remission and functional remission are not synonymous. It is known that unfortunately symptomatic remission does not stay at the same rate in long-term follow-ups with occurring relapses and recurrences [17,26]. Eberhard et al. [26] found in their 5-year natural follow-up study with chronic

patients that the rate of remission increased in time and turned out to be in the interval of 55–60%. Uçok et al. [17] found in their study where they monitored 93 first episode patients (for 5 years on the average) that remission was 59.5% in the first 24 months and 71.5% of the remitted patients experienced relapses and 57% of these had remissions again. The disease progresses with remissions and recurrences by its nature even during regular follow-ups. The remission rate of 63% in this study occurred in a period of 5-year and this patient group includes also the first episode patients at a certain rate.

When patients are evaluated in terms of recovery criteria, we see that not only have they met each criterion at varying rates but have also recovered considerably (36%) by meeting the entire criteria. While 61% of the patients returned to independent living, 56% of them to their work and 44% to friend relationships, the percentage of the patients who satisfied all these three criteria and were at the same time in a state of uninterrupted remission was only 36%. These rates are close to the rates presented in the 3-year follow-up study of Lambert et al. [24]. These researchers found independent living being at 72%, working at 63%, and social relationships at 85%. They found the ratio of patients who satisfied all three criteria and

Table 4. Predictors of recovery, logistic regression analyses.

Variables	B	SE	Wald	df	Sig.	Exp(B)	95% CI for Exp(B)
OCD at baseline ^a	1.565	1.250	1.567	1	.211	4.782	0.413–55.419
Married	1.231	0.969	1.614	1	.204	3.424	0.513–22.869
Schizoaffective Disorder	1.923	0.760	6.409	1	.011	6.844	1.544–30.340
Onset of illness	0.129	0.064	4.072	1	.044	1.137	1.004–1.289
Duration of illness	–0.024	0.073	0.104	1	.747	0.977	0.846–1.127
Job at onset	1.018	0.778	1.716	1	.190	2.769	0.603–12.709
First episode	1.299	1.041	1.559	1	.212	3.666	0.477–28.180
Number of hospitaliz.	–0.063	0.305	0.042	1	.837	0.939	0.517–1.708
Constant	–6.482	2.182	8.822	1	.003	0.002	

^aReference category.

were considered by them as having achieved functional remission as 45%. They found the percentage of patients who simultaneously had symptomatic and functional remission and were considered as having recovered as 24%. The fact that non-recovering patients also meet the recovery criteria to a certain extent highlights the necessity of rehabilitation in increasing and maintaining the recovery rate. In the study of Shennach-Wolff et al. [14] where they examined 262 patients without using the time criterion, they found that 48% of the patients experienced symptomatic remission and 20% functional remission, but the percentage of the patients who experienced both simultaneously turned out to be 13%. Priklyl et al. [20] assessed the functional recovery rate of patients using the Personal and Social Performance (PSP) scale, accepting 71 points and more as recovery and found the functional remission to be 26% at the end. However, the percentage of the patients who experienced both functional and symptomatic remission was 19%. In the Schizophrenia Outpatients Health Outcomes (SOHO) study made by Novick et al. [16], the rate of long-lasting (24 months) symptomatic remission was found to be 33% and the recovery rate 4%. The authors linked this low rate to the fact that it was a 3-year follow-up study and commented that the rate could have gone up a little if the follow-up period had been longer. Novick et al. [33] found in their previous study that the rate of symptomatic remission lasting 6 months was 70%. In the 15-year follow-up study made by Harrow et al. [3], well-being (remission of main symptoms, adequate working and social functioning, and no further hospitalization) lasting over a year at any time was found at a rate of 41%. The study has demonstrated that recovery can occur in later years and a good proportion of the recovered patients (60%) may experience recurrences. The authors stressed that rehabilitation is necessary to sustain recovery.

Similar to the results of this study, other studies also emphasize that symptomatic remission cannot be equivalent to functional remission and functional remission can occur without any symptomatic remission at least in some areas. Remission in both dimensions for a certain period occurs in just a few patients. This holds true in the first months when response to treatment is obtained [14] as well as in future years. It is also a known fact that the patients who roughly satisfy the remission criteria cannot escape from the effect of the number of symptoms that adversely impact their quality of life and satisfaction [25,34]. When a group of patients who were assessed to have recovered due to symptomatic remission accompanied by functional remission (the percentage of them being 24%) was evaluated in terms of their quality of life (subjective well-being scale under neuroleptic therapy), the percentage was seen to go down to 17% [24].

When patients resume living independently, this should not be interpreted in a way that they made a transition to a completely independent life. Considering that most of the patients (83%) live with their families, independent life then means that they are able to manage their own daily routines and self-care although they are still with their families. This rate is not much lower among the patients who do not meet the recovery criteria compared to those who have recovered. It can be said that a considerable percentage of patients can make a transition to independent living with the help of routine treatments. Accepting having friend relationships at least once a month as a criterion decreases the recovery rate considerably compared to independent living. It is also possible to encounter a patient with schizophrenia who made a transition to independent living in a way to manage his/her works alone and even have job declines from having relationships with their family and people from outside. Having overcome schizophrenia should mean more than mere remission of symptoms or going to work. Unfortunately, friend relationships established at least once a month among patients has been the least encountered (44%) recovery criterion. This rate is quite low among non-recovering patients. Had the criterion of meeting friends at least once a month been taken as at least once a week as proposed by Liberman et al. [8], the recovery rate would have been even lower. In fact, in a study taking friendly relationships at least once a week [10], it was found that only 13.7% of the patients met the recovery criteria. As for employment, a considerable number of patients seem to return to their jobs. Patients working part-time or at protected workplaces often find a job under the administration of an associate or relative. The unemployment rate is close to 20% in Turkey and protected workplaces for patients with schizophrenia are not available yet. Although patients have the possibility of being assigned to a job legally through the handicapped employment quota system, employers are unwilling to recruit mentally handicapped persons due to stigmatization. Despite all these circumstances, it should be considered an important success for patients to make a transition to working environment to some extent.

Another problem is to decide to what extent the patients who are considered to have recovered by meeting certain criteria for independent living, employment, and social relationships have really recovered. They may be working on, managing their daily routines, and spending some time with their friends, but when they are questioned about their quality of life and subjective well-being, there seems to be things that are still missing. Karow et al. [34] have found in their study that patients who are considered to have remitted symptomatically and are experiencing functional recovery still have deficiencies in terms of subjective life satisfaction. It is known that

full recovery in schizophrenia, meaning complete regaining of functioning and maintaining living without becoming ill again for years, is not a realistic expectation.

In the 5-year treatment period, recovery was seen mostly in the first episode patients, patients with advanced age of illness onset, and patients with schizoaffective disorder. In this study, the factors predicting recovery were found to be the type of illness – schizoaffective disorder (OR = 6.84) and age of illness onset (OR = 1.14). It has been found in the study of Robinson et al. with first episode patients [10] that schizoaffective disorder is a predictive diagnosis in recovery. Shennach-Wolff et al. [14] found in their study that advanced age of onset was more favourable than early age in terms of entering in remission. The results of this study are also compatible with the results of the study where Pinna et al. [35] compared schizoaffective disorder and schizophrenia in terms of recovery. Patients with schizoaffective disorder were found to be significantly superior to patients with schizophrenia in terms of both remission and recovery. While the rate of meeting remission criteria was found to be 43.5% in schizophrenia patients, it was 54.5% in patients with schizoaffective disorder. When the patients experiencing functional remission (>70) who were also assessed with PSP at the same time (25.8% in schizoaffective disorder and 13% in schizophrenia) were considered together, the rates of recovery were again in favour of schizoaffective disorder (22.7% and 6.5%, respectively). Although schizoaffective disorder produces better outcomes compared to schizophrenia, no obvious difference has been found between the two diseases in terms of demographic and clinical characteristics [35].

While 36% of the patients satisfied the recovery criteria, this rate tended to decrease in the following period. In a period of 5 years, the rate of recovery lasting for more than 2 years was 24%. Longer periods of patient follow-ups will further clarify the prognosis. By its nature, schizophrenia is a chronic disease with fluctuating prognosis. Although the patients who experienced remission can continue to be on medical treatment, relapses may still be seen in 25% of them [13].

The patients were interviewed 16 times on the average in a period of 5 years. This means an average of 3 interviews within a year. With respect to an infrequent interview interval, the remission and recovery rates can be interpreted as being optimistic. While the intervals of initial interviews were generally narrower, the intervals were extended on purpose when there were remissions or recoveries, because the patients paid for their examination charges by themselves. Depot injectable antipsychotic drugs were administered to 21% of the patients in more than a half of the period and to 31% of them in less than a half of the period. This practice

was important to secure adherence to treatment. It can be said that this practice contributed to the remission and recovery rates. It was shown in the study of Lasser et al. [32] that the administration of long-acting depot medication enabled 85% of the patients who experienced symptomatic remission and 21% of those who had no symptomatic remission from the patients who had received regular oral therapy previously to meet the criteria for remission lasting for 6 months. The 3-year follow-up study of Novick et al. [16] has demonstrated that adherence to treatment is an important factor for functional recovery. Considering the frequent use of depot injectable therapy, the patients having been monitored by the same clinician on a regular basis, and cooperation with the families, it becomes understandable why the recovery rate turned out to be higher than those of other studies. The positive effect of the decrease in the severity of positive and negative symptoms through treatment on functional recovery is known from the CATIE study [36]. Occurrence of considerable remission and recovery also in recurrent episode patients demonstrates the positive impact of effective treatment and follow-up on disease prognosis.

Patients having been relieved from the effect of disease symptoms are interpreted as remission from the viewpoint of the core symptoms of schizophrenia, but even the patients who meet the remission criteria are known to be under the influence of the symptoms not yet overcome completely. A typical example of this is shown in the study of Pinna et al. [35]. The remission rate in terms of core symptoms is 43.5% in schizophrenia and 54.5% in schizoaffective disorder, but when the condition that all the PANSS items get mild and less scores is fulfilled, then the rates become 15.2% and 28.8%, respectively. This means that even if the core symptoms decline to a mild and less severity level and become sufficiently low for the remission criteria, it is possible that other symptoms such as depression, anxiety, and cognitive dysfunctions that can affect life satisfaction may continue to exert their effect and patients may remain under the influence of a number of symptoms in clinical terms even if they made some improvements. This situation highlights the need both to inquire what recovery is in real terms and to be more cautious with respect to remission criteria. It may be that subjective recovery criteria should be incorporated in the objective recovery criteria as proposed by Lambert et al. [37]. Is a patient considered as having recovered getting satisfaction from life, does he/she have hopes for the future, is his/her self-confidence adequate, can he/she use social resources in equal amounts as other people? All components reflecting the content of recovery should be included in the recovery criteria. Through this kind of measurement, it will be revealed more clearly as to what percentage of patients have recovered and the

scope of treatment and rehabilitation works will be better evaluated.

In conclusion, the goal of treatment in schizophrenia should be to sustain the remission achieved. It is known that even a cross-sectional remission is associated with less frequent use of medical/psychiatric services as well as with independent living and better functioning in a long-term follow-up [38,39]. A considerable symptomatic remission and recovery can be achieved even with routine treatment and regular follow-up alone. To be able to consolidate the components of recovery and sustain recovery, treatment opportunities compatible with personal needs should be made available.

Limitations of the study

Cognitive functioning, social cognition, and premorbid functioning, which could be predictive for recovery, have not been dealt with. The patients have not been assessed with respect to all clinical symptoms. Since monitoring of the patients was not in regular intervals (monthly), it was not possible to say exactly when any remission had started. Therefore, it was not possible to say if an early improvement had any predictive effect on recovery. As the functioning of patients before the study has not been assessed, its predictive effect on recovery could not be interpreted. Since the patients were assessed by the same physician who treated them, this does not rule out the possibility of bias with respect to the assessment results. The small sample size of this study is also an important limitation. Nevertheless, this study observed a natural progress, not some kind of an intervention and the assessments were incorporated with the information obtained from patients' relatives. A superior side of this retrospective study is that it was made in a natural follow-up setting. All the patients were those who presented for treatment following an exacerbation or a relapse.

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No potential conflict of interest was reported by the authors.

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