



Original Article

The effect of community mental health center services on the frequency of hospital admission, severity of disease symptoms, functional recovery, and insight in patients with schizophrenia

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Abstract

Objectives: A community mental health center (CMHC) is a local, non-hospital facility established to provide psychosocial support, treatment, and follow-up to patients with mental health disorders in an environment that allows them to remain part of the community and take part in life and thereby reduce the number of hospitalizations. The aim of this study was to examine the effects of CMHC rehabilitation services related to the frequency of hospitalization, severity of disease symptoms, functional recovery, and insight in patients with schizophrenia.

Methods: Schizophrenia patients who were treated at a single CMHC for at least 1 year were included. The Positive and Negative Syndrome Scale (PANSS), the Functional Remission of General Schizophrenia Scale (FROGS), and the Schedule for Assessment of Insight (SAI) were administered when they first presented at the CMHC and at the end of the first year of attendance.

Results: A total of 47 patients (24 males, 23 females) with a mean age of 41.9±8.9 years (range: 33–51 years) were included in the study. The results indicated that the frequency of hospitalization of schizophrenia patients who received care at the CMHC decreased significantly ($p<0.05$). The mean PANSS positive symptom subscale, negative symptom subscale, general psychopathology subscale, and total score recorded after a year of CMHC participation were statistically significantly lower, and the mean SAI and FROGS scores were statistically significantly higher ($p<0.001$).

Conclusion: The study findings showed that rehabilitation services provided by the CMHC reduced the number of hospitalizations and had a significantly positive effect on the severity of disease symptoms, functional recovery, and insight.

Keywords: Community mental health center; functional improvement; hospitalization frequency; insight; schizophrenia; symptoms.

Schizophrenia is a psychiatric disorder that can affect thoughts, mood, and behavior. Precise prevalence estimates of schizophrenia are difficult to determine and vary greatly; however, a 1-year prevalence of 1% and lifetime prevalence of 1.5% have been reported.^[1,2] The disease usually appears at a relatively early age and is a lifelong condition characterized by continuous or relapsing episodes of psychosis, which typically leads to difficulties in interpersonal relations and adaptation to work and social life. Treatment costs create

a heavy burden on families and the community.^[3,4] Early diagnosis, regular drug therapy to control symptoms, and psychosocial treatment can help to improve social functioning and well-being, as well as decrease the rate of hospitalization.^[5–7]

The prevalence and multidimensional nature of mental disorders have led to various forms of intervention around the world. One alternative is a community-based mental health model. Community mental health centers (CMHCs) constitute the core of this model.^[8,9] CMHCs provide localized treatment

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What is presently known on this subject?

- The prevalence and multidimensional nature of mental disorders have prompted various forms of intervention. A community mental health center (CMHC) is a local, non-hospital facility established to ensure that individuals with severe mental disorders have access to psychosocial support in a setting that allows them to remain in and contribute to their community, rather than relying on hospitalization.

What does this article add to the existing knowledge?

- The results of this study indicated that the hospitalization rate of schizophrenia patients receiving CMHC treatment and rehabilitation services decreased and that the patients demonstrated a greater ability to function in society.

What are the implications for practice?

- Adequate support for CMHCs and use of good practices could provide a substantial benefit to society and schizophrenia patients.

and follow-up of individuals with mental disorders without disconnecting them from their environment.^[10,11]

CMHCs offer accessible locations and assistance with medication regulation and rehabilitation designed to help reintegrate individuals with mental illness into society.^[11,12] An integrated treatment approach is used that includes the patients and their families in the rehabilitation process. Patients can learn to cope with their disease and its symptoms, which is hoped to reduce the number of relapses and hospitalizations and promote quality of life.^[11–15]

Materials and Method

This retrospective, descriptive study was performed in a CMHC in Turkey with data collected between February 2011 and December 2017. The study population comprised 55 schizophrenia patients who were registered with a CMHC. The sample group included 47 patients who were followed up for schizophrenia at the center and who participated in rehabilitation programs. The patients were diagnosed with schizophrenia by the psychologist in charge in a clinical interview using the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria. The study inclusion criteria were a schizophrenia diagnosis, participation in rehabilitation services at the center, and consent for data to be used in the study. Patients who were followed up for diagnoses of a schizoaffective disorder, nonorganic psychotic disorder, or bipolar affective disorder were excluded.

All of the patients who met the inclusion criteria and their families were fully informed about the study objective and methods, and it was explained that participation was voluntary, and that the information would only be used for scientific purposes. The patients provided oral consent prior to data collection. The Non-Interventional Clinical Research Ethics Committee of Samsun Training and Research Hospital granted ethics approval for the study on January 7, 2019 (no: TUEK-1-2019-BADK/1-11).

Study Location and Design

The Pelitkoy Community Mental Health Center, which is a unit of the Samsun Mental Health and Diseases Hospital, began

operations in February 2011. Some 18–25 patients are admitted daily in accordance with the government “Guideline for Community Mental Health Centers.”^[10] Each patient participates in CMHC services for at least 4 hours. Each patient has a case manager who prepares an individual care plan with the physician in charge. The care plan includes a follow-up schedule and regulation of medication therapy, individual consulting, psychoeducation, training in social skills and daily life activities, as well as activities (e.g., music, theater/drama, handicrafts, sports).

Progress toward achieving the targets in the care plan is monitored and reviewed based on team supervision. The patients and their families are included in the treatment and rehabilitation process. Informative meetings about social rights and responsibilities are held for the patients and their families, as well as useful training and education for family members. Interinstitutional cooperation is used to support the patients with social, economic, housing, and occupational needs. Public awareness events are also held to reduce stigma and inform the broader community about mental health.

The services provided include the administration of long-acting injectable antipsychotics, supplying a weekly pill organizer box to assist with daily medication use, creating a medication card for each patient, and rational drug use training held in the first week of each month.

The weight, blood pressure, and waist circumference values of the patients are measured in the first week of every month and patients are referred to an internal diseases outpatient clinic for a general control visit once a year.

The CMHC also conducts home/workplace visits. A traveling team visits every patient regularly to assess the patient environment and provide realistic suggestions and solutions as needed.

Rehabilitation Program

Psychoeducation about mental illness, treatment methods, effects and side effects of drugs, recognition of disease symptoms, coping with crisis, and creating a personal crisis plan is provided in regular sessions to help patients manage their illness and to improve treatment adherence and efficacy. Social skills training includes instruction on communication, assertiveness, social life, friendship and flirtation, and coping skills for drug and alcohol use. Daily life activity sessions include discussion of subjects such as personal hygiene (use of bathroom) and dressing, public transportation, nutrition, phone use, shopping, cooking, house cleaning, and money management.^[16–20]

Data Collection

A sociodemographic data form and the Positive and Negative Syndrome Scale (PANSS), the Functional Remission of General Schizophrenia Scale (FROGS), and the Schedule for Assessment of Insight (SAI) were the sources of the study data. The scales were administered and evaluated by a psychologist working at the CMHC.

The data were collected from patient files of patients who received rehabilitation services and were followed up at the CMHC between February 2011 and December 2017.

Personal Information Form: The personal information form requested the participants' age, gender, educational status, marital status, age of disease onset, number of hospitalizations before and after attending the CMHC, diagnosis during the last hospitalization, and the length of hospital stay.

Positive and Negative Syndrome Scale: The PANSS is a semi-structured scale developed to identify the presence of the positive and negative symptoms and general psychopathology. The scale consists of 30 items that are psychopathological measurements of positive, negative, and general schizophrenia symptoms. The positive and negative symptom subscales each include 7 items, and the remaining 16 items make up the general psychopathology subscale. Each item is scored 1-7; the minimum total score is 30.^[21] A lower score is associated with fewer symptoms of schizophrenia. A validity and reliability study of a Turkish version of the scale was conducted by Kostakoğlu et al.^[22]

Functional Remission of General Schizophrenia Scale: The FROGS is a 5-point Likert-type scale consisting of 19 items assessing improvements in functioning independent from the symptoms of the disease. The scale is administered in a semi-structured interview and used to evaluate the capacity for reintegration. A high score signifies greater functioning.^[23] Emiroğlu et al.^[24] conducted a validity study of a Turkish version of the scale.

Schedule for Assessment of Insight: The assessment of patient insight is important to a comprehensive evaluation. The level of insight has implications from diagnosis through treatment and follow-up. The SAI is a semi-structured scale that uses 8 questions to quantitatively assess patient insight. A high score indicates greater awareness and appropriate perspective. A validity and reliability study of a Turkish version of the scale was performed by Arslan et al.^[25,26]

Data Analysis

The study data were analyzed using SPSS Statistics for Windows, Version 17.0 software (SPSS Inc., Chicago, IL, USA). Normal distribution of the PANSS, SAI, and FROGS scores was assessed with a one-sample Kolmogorov Smirnov Z-test. A paired t-test was used in pretest and posttest comparison of dependent samples, a Wilcoxon t-test was used in non-normally distributed groups and a chi-squared independence test was used to determine relationships between variables. $P < 0.05$ was considered significant.

Results

The sociodemographic characteristics of the patients are provided in Table 1. In the study group, 42.6% of the patients were in the age range of 35–44 years, 51.1% were male, 44.7% were

a high school graduate, 80.9% were single, and 51.1% had disease onset at age 16–21 years.

The rate of hospitalization of the study patients before and after CMHC participation is presented in Table 2. Before attending the CMHC, 10.6% of the patients had never been hospitalized, 14.9% had been hospitalized once, 27.7% had been hospitalized twice, 17.0% had been hospitalized 3 times, and 29.8% had been hospitalized ≥ 4 times. After receiving CMHC services, the rate indicated that 83.0% had not been hospitalized during the previous year, 6.4% were hospitalized once, 8.5% were hospitalized twice, and 2.1% were hospitalized 3 times. None of the patients who were followed up at the CMHC were hospitalized ≥ 4 times. Chi-squared analysis revealed a significant 59.7% dependency (difference) between the number of patient hospitalizations before and after attending the CMHC ($p < 0.05$). The results indicated that the number of hospitalizations decreased with participation in CMHC treatment and rehabilitation services.

The comparison of mean PANSS, SAI, and FROGS scores recorded before and after CMHC attendance is provided in Table 3. The initial mean score for the PANSS positive symptom subscale was 15.9 ± 6.0 , the mean negative symptom subscale score was 15.3 ± 6.3 , the mean general psychopathology subscale score was 31.7 ± 7.1 , and the mean total scale score was 63.0 ± 13.7 . After CMHC participation, the mean was 11.6 ± 4.9 , 11.7 ± 4.8 , 24.4 ± 6.0 , and 47.7 ± 12.7 , respectively, demonstrat-

Table 1. Distribution of the patients according to demographic characteristics

Characteristics	Number	%
Age		
25–34	11	23.4
35–44	20	42.6
≥ 45	16	34.0
Age of disease onset (years)		
10–15	11	23.4
16–21	24	51.1
22–27	8	17.0
≥ 28	4	8.5
Educational status		
Primary school	16	34.0
Secondary school	8	17.0
High school	21	44.7
University	2	4.3
Gender		
Male	24	51.1
Female	23	48.9
Marital status		
Single	38	80.9
Widowed	9	19.1
Married	0	0.0
Total	47	100.0

Table 2. Distribution of hospitalization rate before and after CMHC participation

Hospitalizations	Before CMHC		After CMHC		χ^2	p
	Number	%	Number	%		
None	5	10.6	39	83.0	52.082	<0.001
1	7	14.9	3	6.4		
2	13	27.7	4	8.5		
3	8	17.0	1	2.1		
≥4	14	29.8	0	0.0		
Toplam	47	100.0	47	100.0		

CMHC: Community mental health center.

Table 3. Comparison of mean PANSS, SAI, and FROGS scores before and after attending the CMHC

	Before CMHC (n=47)	After CMHC (n=47)	p
PANSS			
Positive symptoms	15.9±6.0	11.6±4.9	<0.001 ^b
Negative symptoms	15.3±6.3	11.7±4.8	<0.001 ^a
General psychopathology	31.7±7.1	24.4±6.0	<0.001 ^a
Total	63.0±13.7	47.7±12.7	<0.001 ^a
SAI	10.1±4.1	12.2±3.9	<0.001 ^a
FROGS	56.3±11.5	64.7±11.9	<0.001 ^a

Descriptive values were expressed as mean±SD (FEM). ^aPaired t-test; ^bWilcoxon signed-rank test. CMHC: Community mental health center; PANSS: Positive and Negative Syndrome Scale; SAI: Schedule for Assessment of Insight; FROGS: Functional Remission of General Schizophrenia Scale.

ing a statistically significant difference ($p < 0.001$). The mean initial total SAI score of the patients was 10.1 ± 4.1 , while it was 12.2 ± 3.9 after receiving CMHC services, indicating a significant improvement ($p < 0.001$). The mean total FROGS score was 56.3 ± 11.5 before attending the CMHC and 64.7 ± 11.9 one year later, which was also a statistically significant change ($p < 0.001$).

Discussion

This study evaluated the sociodemographic data, hospitalization rate, severity of disease symptoms and functioning, and the insight level of the schizophrenia patients who participated in rehabilitation services provided at a CMHC.

Most of the patients were in the age group of 35–44 years, male, and single. These findings are similar to those seen in several studies.^[27–30] The mean age of disease onset in the patients was 16–21 years.^[30,31] This is also consistent with earlier research of schizophrenia. In contrast to some studies, however, the educational status data indicated that 45% were high-school graduates.^[27–31] This may reflect the overall high education level of the region.

Reassessment after a year of receiving CMHC services showed that 83% of the patients had not been hospitalized during that period ($p < 0.05$). Other studies have demonstrated a high

rate of hospitalization for patients with psychotic disorders in Turkey.^[32,33] Among the reasons are noncompliance with medication therapy and insufficient social support. The rates of re-hospitalization and admission to the emergency department for patients who have good medication compliance have significantly decreased.^[5,34–36] Follow-up regarding medication use is one of the most important services provided by CMHCs, and includes monitoring the timing and dosage, as well as side effects of the drugs.^[10] It has been established that psychosocial therapy alongside medication therapy considerably increases functioning.^[37] Erşan^[38] observed that the annual hospitalization rate of CMHC patients decreased by 55%. Another study that assessed the role of nurses at CMHCs noted that the centers were effective at decreasing the rate of hospitalizations.^[39] Providing regular psychosocial support and using an integrated approach for patients has been seen to contribute to an improvement in clinical symptoms and to decrease the length of hospital stays and the number of hospitalizations.^[40,41] The results of our study were similar. Rehabilitation services and medication follow-up at CMHCs increased compliance with therapy and contributed to reduced hospitalization.

The effect of CMHC services on the severity of disease symptoms was also assessed, and the mean total PANSS score, positive symptom subscale, negative symptom subscale, and the mean general psychopathology subscale scores of the pa-

tients after a year of CMHC services were statistically significantly lower ($p < 0.001$). Psychosocial approaches, particularly the addition of family members and patient psychoeducation to somatic therapies, have been seen to increase the quality of life, efficacy of treatment, social adaptation, and treatment cooperation. Moreover, the rate of relapse has been reported to decrease.^[42] Another study also demonstrated a significant difference between initial and final PANSS scores in schizophrenia patients following community-based rehabilitation.^[43] Söğütlü et al.^[44] investigated the effects of psychosocial skills training at a CMHC and found that there was a significant decrease in the PANSS negative symptoms subscale, general psychopathology subscale, and the mean total score with no significant decrease in the positive symptom subscale score. The services provided by CMHCs were also seen to be beneficial in another study performed in Turkey, which also noted a significant decrease in all of the PANSS subscale scores.^[41] Similarly, we observed a significant decrease in all of the PANSS subscale scores after a year of participating at a CMHC. These results strongly suggest that CMHC services have a positive effect on the severity of the disease symptoms.

When the effect of CMHC services on patient functioning was assessed, it was determined that the mean total FROGS score after receiving CMHC services was statistically significantly higher than the initial score ($p < 0.001$). Other research has noted that patients who are frequently hospitalized often have severe social problems and that medication therapy alone does not ensure a complete recovery.^[12,45] The psychosocial integration services provided by CMHCs, such as social cognitive skills training, have led to greater social functionality.^[44,46–48] Psychosocial skills training has also positively affected the quality of life of schizophrenia patients.^[15,43,49] Integrated approaches have been found to contribute to improvement in mental function, enjoyment of life, and interpersonal relations.^[41,50] Group training sessions for the relatives of schizophrenia patients have been seen to decrease the rate of relapse and improve the rate of regular work.^[51] In our study, the mean FROGS score of the patients after attending the CMHC increased. This result, consistent with the findings of other studies, suggests that patient social functioning is positively affected by the services provided by CMHCs.

The mean total SAI score of the patients after a year of CMHC services was statistically significantly higher than the initial score ($p < 0.001$). Training can improve patient ability to recognize symptoms, coping skills, and quality of life.^[52] Integrated therapy approaches and psychosocial skills training adds to insight about the disease and helps them reintegrate into society.^[41,44,53] Social cognitive skills training programs conducted by CMHCs for patients and family members can strengthen insight.^[11,41,47] The results of our study were consistent with the findings of previous studies. Patients had a higher mean total SAI score after participation in CMHC rehabilitation services, demonstrating that their awareness and perspective of the disease had improved.

Limitations

This study was performed with a relatively small number of patients and the retrospective design also limits interpretation of our results.

Conclusion

Assessment of the findings indicates that CMHC services had an important effect on schizophrenia patients. The number of hospitalizations decreased in patients who regularly attended the CMHC and their functional improvement and insight increased. Pharmacological therapy accompanied by multi-dimensional treatment (e.g., psychoeducation, occupational therapy, family and individual consulting, home visits, psychosocial skills training) at a CMHC resulted in improved mental function and social adaptation. These programs appear to provide substantial benefits to the patients and society.

Though our results are encouraging, it is important that larger samples be studied in prospective research with long-term follow-up to better assess the effects of CMHC rehabilitation services. Moreover, it would be valuable to compare CMHC patients with those who have never received healthcare services and to more closely examine the effect of home visits. Nonetheless, it appears that appropriate support of CMHCs and the widespread use of good practices could substantially ease the burden of schizophrenia for patients and the community.

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