

Effect of Adjunct Psychosocial Skills Training on Social Functioning of Schizophrenia Patients Who Get Occupational Therapy in a Community Mental Health Center: A Comparative Study

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ABSTRACT

Introduction: Antipsychotic drugs are effective in relieving symptoms in the treatment of schizophrenia, but decreased social functioning is resistant to drugs. In this study, the effect of adjunct Psychosocial Skills Training (PSST) on social functioning for schizophrenia patients who receive service in the community mental health center (CMHC) was investigated.

Method: Schizophrenia patients who received routine case management and occupational therapy in CMHC (n=22), patients receiving PSST in addition to CMHC service (n=21) and patients who were followed up in the Psychotic Disorders Outpatient Clinic as control group (n=21), three groups were formed. In the initial evaluations of the participants, the sociodemographic data form was filled. Social functioning and severity of clinical symptoms were evaluated at the beginning and end of three-month follow-up period with the Social Functionality Scale

(SFS), Personal and Social Performance Scale (PSP), Positive and Negative Syndrome Scale (PANSS).

Results: At the end of the follow-up period, there was a significant decrease in PANSS total scores, a significant increase in PSP and SFS total scores in the last test evaluations of the study groups. There was not any statistically significant change in the control group. The decrease in PANSS total score in PSST group is significantly higher than CMHC group. There was no significant difference between PSP and SFS scores between intervention groups.

Conclusion: The psychiatric rehabilitation in CMHC has a positive effect on the social functioning and clinical symptoms of schizophrenic patients. Adjunct PSST to routine service seems to help relieving clinical symptoms.

Keywords: Schizophrenia, social functioning, psychosocial skills training, community mental health center

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INTRODUCTION

Schizophrenia, affecting more than 21 million people worldwide; is a severe mental disorder that causes disorders in emotions, thoughts and behaviors (1, 2). Due to the illness, patients can not develop the competencies of adult life such as working, establishing relationships, living independently or their existing capacities get damaged (3). This condition is defined as impaired social functioning, which is a diagnostic feature of schizophrenia. As it is well known the antipsychotic drugs are first treatment choice in schizophrenia. Impaired social functioning is resistant to the antipsychotic drugs, though (4, 5). Social functioning of the schizophrenia patients improves with psychosocial treatments (6). Therefore, the combination of the biological and the psychosocial treatments is required in the ideal management of the schizophrenia treatment (7). It is thought that the integrative biopsychosocial treatment will decrease morbidity and mortality in the schizophrenia (8). In developed countries the integrative treatments are targeted, a transition was made from the hospital-based model to the community-based model in mental health services, and community mental health

centers (CMHC) were established. Thus, psychosocial treatments and rehabilitation services for severe mental illnesses such as schizophrenia are becoming more and more prevalent (9).

In CMHCs, to provide appropriate services to each patient's subjective needs with limited funding, evidence-based psychosocial treatments are important for both the service providers and the institutions that provide resources. New interventions such as family therapies, social skills training, cognitive behavioral therapy for drug-resistant psychotic symptoms, case management models, and supported employment services have been designed and their effect was proven (10).

Our study was performed in İzmir Katip Çelebi University Atatürk Training and Research Hospital (IKCU ATRH) CMHC, which has been operating since 2015. Patients diagnosed with psychotic disorders or mood disorders are treated at the center. Routine services are conceptualized as case management, occupational therapy, medical treatments, psychiatric interviews.

The case management is a group of services carried out in order to provide biopsychosocial well-being by evaluating the patients in an integrated manner (11). Case managers are mental health employees who conduct treatment planning and follow-up of the patient and determine patients' personal needs, provide continuity, direct them to other professionals when necessary, and establish a one-to-one relationship with the patient (12). The case manager takes responsibility in the fields of psychiatric treatment, occupational rehabilitation, residence, general medical treatment, social insurance, and social connections. They work in interaction with the patient, family, hospital, workplaces and other organizations, making service planning tailored to the needs of each patient (11).

Psychosocial Skill Training (PSST) covers different skill areas required in social interaction. It uses verbal and nonverbal components of social behavior, role-playing method, corrective and supportive feedback (7). Symptom Management, Medication Management and Recreation for Leisure modules of UCLA Social and Independent Living Skills training were sourced (13–15). In this study, the instructor's handbook prepared by Yıldız was based on the implementation of the PSST group sessions (16). The skill areas targeted in the application of PSST are: developing communication skills and problem solving skills, learning to deal with attention and memory problems, understanding psychosis and schizophrenia, understanding antipsychotic drug treatment and its side effects, evaluating the treatment, learning to deal with persistent symptoms, recognizing and monitoring warning signs, avoiding alcohol and drugs, keeping away from the search for useless treatment, understanding how to deal with stress, increasing self-confidence, evaluating time and developing daily activities, making friendship, and participating in social activities.

In this study, we aimed to investigate the effect of the application of PSST in addition to the routine case management and occupational therapy performed at İKCU ATRH CMHC, on the social functioning of patients with schizophrenia.

METHOD

For this study, the ethics committee approval was received from İzmir Kâtip Çelebi University ATRH Ethics Committee with the decision number 285 and dated 02.11.2016.

Patients diagnosed with schizophrenia and bipolar disorder are registered in İKCU ATRH CMHC where the study is conducted, and each patient routinely gets case management and occupational therapy. Patients visit CMHC at least once a week and participate in half-day events. Patients diagnosed with schizophrenia are invited face-to-face or via telephone according to their registration at the center, and those who consented are included in the group. When the group process is completed, new groups are created by inviting patients who have not previously participated in PSST.

Data were collected between November 2016 and December 2017 for the study. Three groups were created. The control group consisted of patients who were regularly followed up by the clinician at the hospital's psychotic disorders outpatient clinic for half an hour once a month. Group 1 included patients who were registered to CMHC within the hospital in the last three months and received routine case management and occupational therapy services. Group 2 is composed of patients who are currently registered with CMHC and have been invited to PSST and agreed to participate. Preparation and termination sessions were held in addition to the 16 skill areas specified in PSST. In groups varying participant numbers between 9 and 11, the total 18 sessions were completed between 10 weeks and 18 weeks, with one or two sessions per week depending on the pace of the group and mandatory intervals such as public holidays. Final measurements of the Group 1 and control group

were taken three months later. During the study, working order of the clinics was not interfered, and random assignments were not possible. Consequently, 31 patients were included in the control group, 32 patients in Group 1, and 37 patients in Group 2.

Verbal and written consent was obtained from the participants. At the end of the study, patients and their relatives in the control group were informed about CMHC and PSST, and patients and their relatives in Group 1 were informed about PSST.

Following conditions were sought for patients included in the study: volunteering to participate in the study, being between the ages of 18 and 65, meeting the diagnostic criteria for schizophrenia according to DSM-5, not having additional psychiatric diagnoses like dementia or mental retardation, not actively using alcohol or substances, not being in a recurrence period within the last three months or during tests. For participants of Group 1, registering CMHC at least three months ago required. For participants of Group 2, attending at least 15 of 18 PSST sessions needed.

Measures

Sociodemographic Data Form

With this form, we aimed to determine the socio-demographic data of the participants such as age, gender, marital status, educational status and with whom they live; as attachment the clinical data such as the year of illness and hospitalization history.

Positive and Negative Syndrome Scale (PANSS)

It is a semi-structured interview scale used to evaluate positive symptoms, negative symptoms and general psychopathology in schizophrenia and other psychotic disorders, to measure the severity of symptoms in these defined areas (17). It is applied by the interviewer who has experience about psychopathology, the symptoms in the last week are taken into consideration. Evaluation is done after the interview is completed. Turkish validity and reliability study was conducted (18).

Personal and Social Performance Scale (PSP)

PSP provides an easy and fast measurement of social functioning in patients with severe mental disorders such as schizophrenia, bipolar disorder, obsessive compulsive disorder (19). It has been found useful in detecting changes in time in patients with schizophrenia (20). PSP is applied by the interviewer who is sufficiently knowledgeable about psychopathology. Total performance evaluated with four dimensions: socially useful activities, personal and social relationships, self-care, disturbing and aggressive behaviors. Turkish validity and reliability study was conducted (21).

Social Functionality Scale (SFS)

SFS evaluates the social role functions and social behaviors of the patient in terms of quantity (22). Its scope was formed by utilizing psychosocial intervention programs and the disability assessment scale. It consists of seven domains: social engagement, interpersonal behavior, prosocial activities, recreation, independence-competence, independence-performance, and employment and occupation. Turkish validity and reliability study of the scale was conducted (23). There are two parts of the scale; in first part the assessment is made by the patients (P-SFS), in second part it is made by patient's relative (R-SFS).

Statistical Analysis

The data was analyzed with IBM SPSS Statistics 22.0 package program. Chi-square analysis was used to test whether the sociodemographic and clinical variables differ between groups, and one-way analysis of variance was used to examine whether pretest measurements differ between

groups at the end of follow-up. In order to compare the effectiveness of the interventions applied in the study, two-way repeated measurements were made with ANOVA, and post hoc Bonferroni correction was applied to determine which groups differ. Statistically significant p value was accepted as 0.05.

RESULTS

100 patients were initially included in the study. During the follow-up period, a patient from control group was admitted to the hospital due to worsening of the symptoms of the disease and five patients from control group did not join the appointments. All six patients were excluded from the study. In Group 1, one patient was admitted to the hospital due to worsening of the symptoms, additionally six of them were excluded from the study because they did not want to come to the center and do not want to answer questions. Twelve patients from Group 2 were excluded from the study because they did not attend PSST training at least fifteen sessions.

Data clearing was performed before starting the analysis of the study. Then, normality, linearity and variance homogeneity counts were checked for ANOVA. Accordingly, blank data, incorrectly entered data were tested, and outliers were checked. Three participants from Group 1, three participants from Group 2 and four participants from control group were found to have extreme values in the data set and these participants were excluded from the study. As a result, analyzes were performed with the data of 21 patients from Group 1, 22 patients from Group 2 and 21 patients from the control group.

The sociodemographic and clinical characteristics of the groups are shown in Table 1. In order to determine whether there is a difference between groups, chi-square test for categorical variables and one-way analysis of variance for numerical variables were performed. There was no statistically significant difference.

One-way analysis of variance was performed to evaluate the pre-test measurements of the groups. As a result of the analysis, PANSS total scores (F (2,61) = 1,721, p= 0,18), PSP scores (F (2,61) = 1,861, p= 0,16), P-SFS scores (F (2, 61) = 2,218, p= 0,11) and R-SFS scores (F (2,61) = 1,664, p= 0,19) did not show a statistically significant difference between the groups.

In order to see the effect of applied intervention programs on the dependent variables of the study, repeated measure ANOVA was applied to the measurements from all groups (3 (CMHC, PSST, control group) × 2 (pretest, posttest)). Pretest and posttest scores are shown in Table 2.

PANSS: According to the result of the variance analysis for repeated measurements, the interaction effect between the pretest-posttest and the groups was found to be significant in terms of PANSS total scores (F (1.62) = 20.2238, p <0.05, η² = 0.12). Post Hoc analysis using Bonferroni correction was applied to understand between which groups differentiation is. There was no significant difference between the pretest and posttest measurements of the control group at the level of p <0.05, and that there was a statistically significant difference between the pretest and post-test PANSS scores of the intervention groups, post-test scores decreased (p <0.05). PANSS scores of the PSST group decreased more than the CMHC group statistically significantly (p = 0.01). In addition to PANSS total score, Positive Syndrome Scale (PSS), Negative Syndrome Scale (NSS) and General Psychopathology Scale (GPS) were examined.

PSS: According to the result of the variance analysis for repeated measurements, the effect of interaction between the pretest-posttest and groups was not significant in terms of PSS scores (F(1.62)=1.229, p=0.30, η²=0.03). But, the main effect of time was found to be statistically significant (F(1.62)=9.517, p<0.01, η²=0.13). That is to say, groups did not differ from each other in terms of the pretest and posttest change of PSS scores. Paired sample t test analyzes were conducted to determine the

Table 1. Sociodemographic and clinical data by groups

	Group 1 (CMHC)	Group 2 (PSST)	Control Group	Statistical evaluation between groups
Age (mean, SD)	43.23±9.345	35.62±12.808	38.95±8.225	F(2.61)=2.954, p=0.06
Sex (women n, %)	10.%45.5	6.%28.6	6.%28.6	χ ² =1.824, p=0.40
Civil status (single n, %)	16.%72.7	19.%90.5	20.%95.2	χ ² (2)=5.038, p=0.08
Years of education (mean, SD)	8.23±4.023	10.81±3.371	8.48±4.445	F(2.61)=2.729, p=0.07
With whom the patient lives (with family n, %)	20.%90.9	21.%100	20.%95.2	χ ² =1.988, p=0.37
Age of onset (mean, SD)	26.22±7.164	23.57±8.488	20.95±6.636	F(2.61)=2.683, p=0.07
Years of treatment (mean, SD)	17.00±8.474	12.05±11.151	18.00±7.861	F(2.61)=2.498, p=0.09
Number of hospitalization (mean, SD)	1.95±2.104	1.67±2.517	2.81±1.632	F(2.61)=1.663, p=0.19

SD: standart deviation, n: number, %: percentage.

Table 2. Average values and standard deviations of pretest and posttest measures of intervention groups and control group.

Scale	Group 1 (CMHC)		Group 2 (PSST)		Control Group		Statistical evaluation between groups
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	
PANSS	51.04±7.24	40.68±6.42	56.95±12.25	50.19±8.81	52.76±12.00	51.66±12.47	F(1.62)=20.238, p<0.05, η ² =0.12
PSS	9.86±2.51	8.23±1.90	10.76±3.64	10.43±2.76	11.76±4.90	10.14±2.72	F(1.62)=1.229, p=.30, η ² =0.03
NSS	17.91±3.32	13.27±4.13	19.14±5.83	15.14±4.99	16.76±3.40	15.52±4.29	F(1.62)=2.713, p=.07, η ² =0.08
GPS	23.27±4.35	19.18±3.47	27.05±5.55	24.62±4.82	24.24±6.19	26.00±7.83	F(1.62)=6.447, p<0.05, η ² =0.17
PSP	58.00±7.66	67.95±7.66	51.2±10.47	64.76±9.41	52.62±16.70	54.05±17.29	F(1.62)=3.579, p<0.05, η ² =0.10
P-SFS	98.40±28.19	109.13±29.96	93.57±27.68	107.42±24.40	82.28±20.21	84.52±23.05	F(1.62)=3.584, p<0.05, η ² =0.10
R-SFS	90.50±27.99	98.63±28.16	97.95±29.69	107.20±27.77	84.00±21.94	82.28±27.41	F(1.62)=2.199, p=.12, η ² =0.07

origin of significant difference in the main effect. According to the results of the analysis, in control group there was no statistically significant difference between the PSS pretest and posttest measurements ($p>0.05$). In the CMHC group, there was a statistically significant difference at the $p<0.05$ level between PSS pretest and posttest measurements, PSS scores decreased in the posttest ($t=3.072$, $p=0.006$). There was no statistically significant difference between PSS pretest and posttest measurements in the PSST group ($p>0.05$).

NSS: According to the result of the variance analysis for repeated measurements, the effect of interaction between the pretest-posttest and the groups was not significant in terms of NSS total scores ($F(1.62)=2.713$, $p=0.07$, $\eta^2=0.08$). However, the main effect of time was found to be statistically significant ($F(1.62)=27.084$, $p<0.01$, $\eta^2=0.31$). In other words, three groups did not differ from each other in terms of the change of NSS scores they received from the pretest and posttest. Paired sample t test was conducted to determine the origin of the significant difference in the main effect. According to the analysis, there was no statistically significant difference between the NSS pretest and posttest measurements in control group ($p>0.05$). In CMHC group, there was a statistically significant difference between the NSS pretest and posttest measurements at the level of $p<0.05$ and negative syndrome scores decreased in the posttest ($t=4.357$, $p<0.001$). It was observed that there was a statistically significant difference between the NSS pretest and posttest measurements in the PSST group at $p<0.05$ level and negative syndrome scores decreased over time ($t=3.711$, $p<0.01$).

GPS: According to the result of the variance analysis for repetitive measurements, the interaction effect between the pretest-posttest and groups was found in terms of GPS scores ($F(1.62)=6.447$, $p<0.05$, $\eta^2=0.17$). Post Hoc analysis using Bonferroni correction was applied to understand between which groups differentiation is. The changes within each group were examined. It was observed that there was no statistically significant difference between the pretest and posttest measurements of the control group. There was a statistically significant difference between the pretest and posttest GPS scores of the intervention groups at the level of $p<0.05$ and the posttest scores decreased. Intervention groups were compared, GPS scores of CMHC group were not statistically different from the GPS scores of PSST group ($p>0.05$).

PSP: Result of the variance analysis for repeated measurements showed, the interaction effect between the pretest-posttest and the groups was found statistically significant in terms of PSP total scores ($F(1.62)=3.579$, $p<0.05$, $\eta^2=0.10$). Post Hoc analysis using Bonferroni correction was applied to understand between which groups differentiation is. Alteration within each group was examined. There was no statistically significant difference between the pretest and posttest measurements of the control group. Whereas the intervention groups have a statistically significant difference between the pretest and posttest PSP measurements at the level of $p<0.05$ and the posttest scores increased. Intervention groups were compared, it was observed that the PSP total scores of the PSST group were not statistically different from the PSP total scores of the CMHC group ($p=0.27$).

P-SFS: According to the result of variance analysis for repeated measurements in terms of P-SFS total scores, the interaction effect between the pretest-posttest and groups was statistically significant ($F(1.62)=3.584$, $p<0.05$, $\eta^2=0.10$). Post Hoc analysis using Bonferroni correction was applied to understand between which groups differentiate. There was no significant difference between the pretest and posttest measurements of the control group at $p<0.05$ level. On the other hand there was a statistically significant difference between the pretest and posttest P-SFS measurements of the intervention groups and the posttest

scores increased. When the intervention methods were compared, it was observed that the P-SFS scores of the PSST group did not create a statistically significant difference compared to the P-SFS scores of the CMHC group ($p=0.08$).

R-SFS: According to the result of variance analysis for repeated measurements in terms of R-SFS total scores, the interaction effect between the pretest-posttest and groups was not significant ($F(1.62)=2.199$, $p=0.12$, $\eta^2=0.07$). These results showed that the change in the pretest and posttest scores of the CMHC, PSST and control groups did not differ statistically significantly from each other. However, the main effect of time was found to be statistically significant ($F(1.62)=4.987$, $p<0.02$, $\eta^2=0.08$). To determine where the significant differentiation of the main effect is caused by, paired sample t-test was applied. Results did not show a significant difference between the R-SFS pretest and posttest measurements in the control group and their scores decreased ($p>0.05$). In PSST group, there was a statistically significant difference at the level of $p<0.05$ between the R-SFS pretest and posttest measurements, and the social functionality scores increased in the posttest ($t=2.829$, $p=0.01$). In the CMHC group, the difference between R-SFS pretest and posttest measurements was statistically significant at the level of $p<0.05$ and social functionality scores increased in the posttest ($t=2.237$, $p=0.03$).

DISCUSSION

In our study, there was no statistically significant difference between pretest and posttest measurements of the control group for all measures. In analyses of intervention groups, a statistically significant decrease was determined in PANSS scores at the end of follow up. Additionally there was a statistically significant increase in PSP, P-SFS and R-SFS scores of intervention groups. While there was no difference in terms of PSP, P-SFS and R-SFS scores between Group 1 and Group 2; PANSS total scores decreased more in Group 2, which received PSST.

Clinical Symptoms

PANSS total score of Group 1 significantly decreased at the end of follow-up. Correlatively Chatterjee et al. indicated a significant decrease in PANSS scores of schizophrenia patients who regularly apply to CMHC (24). There was a significant decrease in PANSS total score of Group 2 at the end of follow-up. Similarly, in their controlled follow-up study, Söğütü et al. determined significant decreases in PANSS total scores in the follow-up of the schizophrenia patients participating in PSST (25). Our study additionally indicates that, the decrease in the PANSS total scores of patients who went on CMHC follow-up together with PSST group was higher than PANSS total scores of patients who applied to CMHC only. The reason may be that, PSST provides the education needed by patients with schizophrenia in a standard and organized manner. In addition, the therapeutic effect of being included in the group, strengthened compliance with drug therapy, strengthening interpersonal communication with methods such as role playing, increased cognitive functionality which is the predictor of social functioning can be effective (26).

Social Functioning

For both of the intervention groups, there was a decrease in the severity of clinical symptoms compared to the control group, and an increase in the social functioning levels evaluated by the clinician, patient and patient's relative. However, as in the study hypothesis, there was no significant difference between the intervention groups.

It has been shown in several studies in Turkey and the world, PSST increases social functioning of patients with schizophrenia. A controlled study, evaluating schizophrenia patients who were followed up for 8 months after PSST application, indicated the quality of life scale, SFS and Global Assessment of Functioning scores increased, and PANNS

total score decreased significantly (27). In a study conducted in a mental health hospital in Turkey, researchers determined SFS scores of the schizophrenia patients increased significantly after 1 year follow-up, after a rehabilitation program including PSST was applied (28). As a result of the rehabilitation program consisting of multidimensional psychosocial interventions with a content similar to the PSST used in our study, in a day hospital and rehabilitation center in Turkey researchers determined a significant decrease in PANSS values and a significant increase in SFS total scores. The effects of the program continued in the evaluation made after 3 years (29). Patients who were included in a rehabilitation program including PSST in a CMHC in Turkey showed a significant reduction in Brief Psychiatric Rating Scale scores (30).

In addition to the Symptom Management, Medication Management and Recreation for Leisure Modules of UCLA Social and Independent Living Skills training, which are used to constitute PSST in our study, Kang et al. incorporated in Basic Conversations Skills Module to the training. Community based Tai chi and PPST applied to schizophrenia patients. There was a significant decrease in PANSS scores and an increase in social domain of the World Health Organization Quality of Life Scale-Brief version (13–15, 31, 32). In a randomized controlled 9-month follow-up study in China, a significant reduction in PANSS total scores and a significant increase in social functionality measured by Global Assessment of Functioning after community-based comprehensive intervention involving psychoeducation and a six-module social skills training for schizophrenia patients (33). In a study from Australia, an eight week PSST constituted by simplifying the Basic Conversations Skills module of UCLA Social and Independent Living Skills training, built into routine case management, an increase in the social functioning of schizophrenia patients was detected at the end of eight weeks (34, 32).

Prestigious clinical guidelines such as NICE and SIGN do not recommend routine application of social skill training in treatment of schizophrenia, and state that it may be beneficial for schizophrenic patients with anxiety in social situations (35, 36). On the other hand, Turner et al. indicated in their meta-analysis studies, social skill training was effective in reducing negative symptoms and general pathology (37). Although PSST has a greater effect on negative symptoms than CBT's effect on positive symptoms; CBT is present in current guidelines such as NICE and SIGN, and that social skill training is not routinely recommended (37).

It has been shown in many studies that CMHCs positively affect the social functionality of schizophrenia patients. Ozdemir et al. conducted a cross-sectional evaluation of schizophrenia patients who were followed up at the CMHC, and schizophrenia patients who were followed up in the outpatient clinic. The severity of clinical symptoms decreased and functionality scores were significantly high in patients participating in psychosocial rehabilitation at CMHC (38). In another study, a significant increase was observed in the PSP scores of patients with psychotic disorder or other psychiatric diagnoses, who received occupational therapy (39). Na et al. indicated a significant decrease in PANSS scores and a significant increase in SFS scores for first episode psychosis patients followed up during one year in CMHC (40).

According to systematic review and metaanalysis by Asher et al., community-based psychosocial treatments in low income and middle income countries have been shown to reduce symptom severity and increase functionality in patients with schizophrenia. Even with psychoeducation alone, there has been an increase in functioning. Positive results obtained with psychosocial treatments are probably related to decreasing symptoms, increasing social skills, increasing self-confidence and caregiver support, decreased self-stigmatization and discrimination, as well as increased feeling of empowerment (41).

Limitations of Study

The measures applied to participants by clinicians who were non-blinded to interventions. It is not known how neutral the patients and their relatives responded to SFS. The predictors of social functionality have not been evaluated except for the baseline sociodemographic data and the severity of clinical symptoms.

Our total number of participants is 64. The small sample size may lead to type II error (42). It could be beneficial to have a larger sample size in preventing the Type II error and evaluating the effectiveness analysis.

Performing case management applications in a wide range makes comparison between studies difficult (43). On the other hand, the service provided in case management, is provided according to the personal needs, it is difficult to construct a clear definition. Even though it is not specific to the study, conceptualization of practices in CMHC follow-up has been a specific challenge to the study area.

Considering that rehabilitation services in other areas of medicine and psychiatry have a slower effect comparing to drug treatments, and learning process of schizophrenia patients may be more difficult than healthy individuals due to the disease itself and due to drug treatments, prolonging the follow-up period may provide better results.

Strengths of Study

In previous studies, the effectiveness of case management, CMHC and PSST applications were evaluated. However, there is no study examining the effect of inclusion of PSST in the CMHC follow-up process. Our study is the first in this context. It contributes to the development of evidence-based content in the field of psychiatric rehabilitation. Evaluation of social functioning was made comprehensively, by taking into account the patient's and relatives' notifications and the clinical opinion.

CONCLUSION

The distinct result obtained from the study is that the social functioning of schizophrenia patients, who received psychosocial treatment, improved and their clinical symptoms diminished. Applying PSST in CMHCs that aim to provide the most appropriate and effective service with limited resources is particularly beneficial in reducing the severity of clinical symptoms. If tested with larger samples and randomized controlled trials, its contribution to social functioning is thought to be statistically detectable.

The variability of implementations between CMHCs is an important challenge for research. Developing a scale to evaluate CMHC implementations, which is suitable for the culture and working conditions, can be beneficial for multicentre researches and evaluating the studies conducted in different centers.

Ethics Committee Approval: Ethics committee approval was received for this study from İzmir Kâtip Çelebi University Atatürk Training and Research Hospital with the decision number 285 and dated 02.11.2016.

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