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Case Management for Individuals with Severe Mental Illness: Outcomes of a 24-Month Practice

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SUMMARY

Objective: The aim of this study is to conduct a case management model on a group of individuals with severe mental illness (SMI) and to evaluate the outcomes during a 24-month follow up.

Method: A total of 34 patients diagnosed with schizophrenia or schizoaffective disorder with at least one exacerbation over the last year, poor treatment compliance, who were unemployed and unable to live independently and who gave consent to participate were included to the study. Case management was conducted by a medical professional in the house, schizophrenia association, hospital, and workplace of the patients by interviewing the patients, family members, and the employers of the patients, at intervals arranged according to the need of each patient. Patients were assessed at baseline stage, the sixth, 12th and the 24th month regarding functionality, clinical condition, treatment compliance and family burden.

Results: The study was completed in 24 months with 30 patients with a mean age was 36, mean education level of 11 years, and a mean illness duration of 13 years. The majority consisted of unmarried males living with their parents. During the follow up, every patient participated in the recommended rehabilitation programs with, improvement in treatment adherence and functionality. A significant decrement was detected in the number of hospitalizations when compared to the history before the start of the study. Family burden decreased. Ten patients got employed and 3 patients left work.

Conclusion: It can be concluded that case management hypothesized to be beneficial for people with SMI with positive outcomes on clinical recovery, improved social and vocational functionality and reduced incidences of hospital stay should be included as a routine psychosocial rehabilitation service.

Keywords: Severe mental illness, case management, functioning, hospitalization

INTRODUCTION

Integration of biopsychosocial treatment modalities should be practiced in cases of severe mental illness (SMI) with ongoing persistent symptoms, frequent hospitalizations and functional impairment (Klinberg et al. 2003, Liberman 2008). A large group of individuals with SMI, known to have been hospitalized within a year of their discharge, fail to claim their own rights and cannot adequately benefit from community-based services (Kreyenbuhl et al. 2009). Community-based service models have been developed to help these individuals for sustaining their connection with institutions, increasing access to community services, reducing incidences of relapse and symptomatology to improve functionality, shortening hospital stay and enhancing the life quality of the care givers as well as the patients. Although such community-based models vary depending on the health policies of countries, the main goal of these services is to ensure the continuity of the treatments given to individuals with SMI. The commonly used community-based service models include community mental healthcare centers, day clinics, assertive community and intensive case management (World Health Organization 2010). The primary working process in all community-based service models comprises determining, evaluating, and planning for the medical needs of patients and their families, ensuring that these needs are met and maintaining the care by

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using the existing resources while improving the quality and cost effectiveness of such resources (Gaebel et al. 2012).

A case management model is usually used in community-based services to enable access to treatment and rehabilitation services, to ensure the facilities are comprehensive and continuous, to do individual-specific planning and to assume responsibility for the patient. The ultimate aim in case management is to operate comprehensive mental health services that will achieve personal goals to render the most suitable social functioning together with a good life quality consistent with the needs of the individuals (Liberman 2008).

The difficulties individuals encountered with changing needs and expectations have led in time to the development of different case management models. Case management practices first started as coordinated work with services that directed patients to other facilities, which subsequently developed into more intensive treatment models with assertive interventions (Burns 2008). The case management models are generally classified based on the frequency of contact with the patient, accessibility, patient-personnel ratio, diversity of services, the type of the service, and qualifications of the case manager (Liberman 2008). Case management is usually classified under three basic models as the standard community care models (brokerage case management model and clinical case management model), rehabilitation-oriented community care models (strengths-based model and rehabilitation case management model), and intensive comprehensive care models (assertive community treatment and intensive case management) (Simpson et al. 2003). The common aspects of these models are the continuity of care and treatment and ensuring access to social services (Orwin et al. 1994).

The effectiveness of case management has been demonstrated in various studies (Mueser et al. 1998, Issakidis et al. 1999, Burns et al. 1999, UK700 Group 1999, Burns et al. 2001). It is known that case management practices achieve decreased need for hospitalization, diminished symptom severity, improved social functioning and quality of life of patients and their caregivers (Chamberlin and Rapp 1991, Solomon 1992, Marshall et al. 1995, Martin et al. 2005). The factors influencing the effectiveness of case management include the clinical conditions of patients, qualifications and specialty of the case manager, patient-personnel ratios, and health system policies (Ivezić et al. 2010).

Public mental healthcare services are carried out with different case management models depending on the health policies of countries. The Mental Health Policy of the Republic of Turkey published in 2006 by the Ministry of Health, mentions that the mental health system should be community based and that conducting community-based rehabilitation projects is necessary. In this context, the Ministry of Health decided to launch the Community Mental Health Centers (CMHCs). After the pilot works carried out in the CMHCs, the related directive was issued and put into practice in February 2011 (Ministry of Health 2011). The directive on CMHCs numbered 7364 and dated 16/02/2011 includes some requirements such as treating patients in their living environments/homes, providing individual consultancy, and delivering home care service to the patients who are unable to leave their homes (Ministry of Health 2011). Although these requirements are within the scope of the case management model, the directive itself does not mention the concept of case management. Investigations on the CMHCs showed that medical services and social support therapies such as the social skills training, psychoeducation, group therapies, and occupational activities were being provided within the scope of case management only to the patients who happened to consult these centers and that their number s were disproportionally less than the total number of registered patients. Various studies have shown that hospitalization incidences tend to decrease, and improvements are observed in the patient insight, treatment compliance, quality of life, and functionality after receiving service from CMHCs (Ensari et al. 2013, Aydın et al. 2014, Gül et al. 2014, Arslan et al. 2015, Aydın 2016, Söğütlü et al. 2017, Özdemir et al. 2017). However, to the best of our knowledge, there are not any studies concerning the structured and institutionalized case management service provided in CMHCs.

The present study aimed at discussing the achievements as well as the structure of a hybrid model integrating the features of clinical case management, rehabilitation-oriented case management and intensive case management models in providing service to a group of patients with schizophrenia and schizoaffective disorder who needed case management service while being followed up in a university hospital. The intentions in forming this model were conducting of interviews between the visiting case manager and the patients at home, hospital or in the community center environments, devising plans in line with personal capabilities and goals, and providing comprehensive and continuous services to enhance clinical recovery and social-occupational functioning.

METHOD

Sample

The study included patients followed up at Kocaeli University Medical School Mental Health and Diseases Division, diagnosed on the criteria of DSM-5 (American Psychiatric Association (APA) 2013) with schizophrenia and schizoaffective disorder, having a history of at least one episode of flare up or relapse, poor treatment compliance, unemployed, living with caregivers and being unable to live independently. Of the 39 patients who were proposed the

case management service, 34 followed up at inpatient and outpatient clinics between February 2016 and June 2016 and meeting the inclusion criteria were enrolled in the study. Written informed consent of the patients and the caregivers were obtained after explaining the purpose and the methods of the study. Kocaeli University Non-Invasive Clinical Research Ethics Committee gave the approval numbered and dated KU GOKAEK 2016/298 for the study.

Assessment Tools

The patients were assessed using a Demographic and Clinical Characteristics Data Form, prepared by the researchers and including information on the patient's age, education, marital status, occupation, age at the onset of illness, duration of illness, number and duration of hospitalizations in the past 24 months; and also on the Clinical Global Impression-Severity (CGI-S), the Global Assessment of Functioning (GAF), the Social Functioning Assessment Scale (SFAS) and the Medication Adherence Rating (MAR) form with the items (1) voluntarily and regularly, (2) regularly with help, (3) irregularly with persuasion, (4) forcefully or intramuscularly, (5) never takes. The caregiving family members of the patient were assessed using the Zarit Caregiver Burden Scale (ZCBS). The cited psychometric scales were used during the first interview and were repeated at the end of the 6th, 12th and the 24th months. The GAF and the CGI-S were completed by the psychiatry specialist who monitored the patients, the SFAS by the patients, the ZCBS by the caregivers and the MAR by the case manager.

Global Assessment of Functioning (GAF) Scale (DSM–IV, Axis V): This codes on a 0-100 scale, high scores indicating lower severity, considering the effect of the disorder on the mental, social and occupational functioning level of the individual at the time of assessment and is completed by the clinician (American Psychiatric Association 1994).

Clinical Global Impression-Severity (CGI-S): The CGI-S, used for general evaluation of mental disorders, consists of 3 sections on the severity of illness, global improvement, and efficacy index. In this study, we used only the severity of illness measure. The clinician gives a score ranging from 1 (not at all ill) to 7 (among the most extremely ill patients). Higher scores indicate severity of the clinical condition (Guy 1976).

Social Functioning Assessment Scale (SFAS): Developed by Yıldız et al. (2018) to rate social functioning in individuals with schizophrenia, the 3-point Likert-type scale consists of 19 items that can be completed either by the patient, a relative, or the clinician. It has the 4 subscales on self-care, interpersonal relationships and recreation, independent living, and employment status. The Cronbach alpha coefficient of SFAS is 0.83. Increasing scores indicate a higher level of social functioning. The participating patients took part in scale development by filling in the data on the scale form which were used for the purposes of the study.

Zarit Caregiver Burden Scale (ZCBS): Validity and reliability of the 19- item Turkish language version of the scale, originally developed by Zarit et al. (1980), was tested in the relatives of patients with schizophrenia by Özlü et al. (2009). It has an internal consistency coefficient of 0.83 and assesses the burden on caregivers. Increasing scores indicate higher severity of burden.

Procedure

The case manager of the study was a nurse specialized in psychiatry with 5 years of experience in the psychiatry clinic of Kocaeli University Medical School and was concurrently a postgraduate student at the Department of Psychosocial Rehabilitation. The professional status and the responsibilities of the case manager is given in Table 1. The patients and their families were assessed together using a Psychosocial Rehabilitation Assessment (PRA) form developed by the Psychosocial Rehabilitation Unit of the Department of Psychiatry at Kocaeli University. In the interviews; social functioning, self-care, participation in activities, independent living skills, employment, romantic relationships, stigmatizing experiences, clinical conditions, and the goals and capabilities of the patients were discussed. Patients' clinical condition was assessed by exploring the disease, its severity, treatment compliance, alcohol and substance use,

Table 1. Professional Status and Responsibilities of the Case Manager

Proficiency	• Research Assistant at the Department of Psychosocial Rehabilitation • MS in Psychiatric Nursing/ Mental Health Nursing • 5-year experience in psychiatry service
Skills	• Psychosocial Skill Training (PSST) Trainor/ Instructor • Psychiatric treatment nurse • Working experience (in collaboration) with non-governmental organizations
Accessibility	• Week days (between 09.00-18.00) • 7/24 reach by phone
Communication with patients	• Face to face interviews with the patients at places like hospitals, home, workplaces, Schizophrenia Association, or cafes etc. • Phone calls/phone consultation if necessary
Practices	• Individual counseling (to the patient and the caregivers) • Group therapy (PSST) for patients and caregivers/ families • Home visits • Supported employment executive • Psychiatric treatment nurse • Working in cooperation with psychiatrists • Receiving supervision and consultancy from a psychiatry specialist.

other mental problems, comorbid medical disorders, and drug side effects. Evaluation of patients' goals and capabilities included their short- and long-term targets, skills, resources, and treatment and rehabilitation facilities. After completing these assessments, a rehabilitation plan was prepared with each patient in line with his/her short- and long-term goals. During the first month, regular weekly individual meetings were held with the patients. These meetings were arranged in the hospital, at home, in accessible hospitality premises such as cafes or the premises of the schizophrenia association. The patients were assessed monthly on the PRA form, followed by a meeting arranged with a psychiatry specialist for consultation and supervision.

Psychosocial Skills Training (PSST): The patients who are thought to benefit from group training, and agreed to take part in, were included in this training. PSST is a skill training program prepared in line with the principles of social skills training, psychoeducation, family education, group psychotherapy, and aims at increasing the independent and social living skills of patients with schizophrenia (Yıldız 2011).

Psychiatric treatment nurse: Among the responsibilities of the nurse was providing information to the patients and their caregivers about the medications and the assistance for adherence to treatment, coping with drug side effects and managing comorbid medical conditions; monitoring the patients given intramuscular injection and assisting the physicians in arranging the drug therapies of their patients.

Home visits: Regular visits were made to the homes of the patients who were socially isolated due to their illness or refused to attend psychiatry appointments at the hospital after having been discharged, to provide information about the illness, compliance with the pharmacotherapy and for family education.

Supported employment: The patients who were able to work were assisted by planning for employment based on capabilities; supporting the eligible patients during preparation for the Public Personnel Selection Examination for Disabled persons (PPSE-D) and assisting those who had achieved the right passing grade to choose suitable jobs. Interviews were held with heads of personnel departments to ensure initial placement into positions compatible with the capabilities of the patients. Interviews were held with the patients, the chiefs of their work units and other staff members of the place of employment. Patients wishing employment in the private sector were assisted for CV preparation, labor agency interviews and reviewing of vacancy announcements. The patients were accompanied when going for their first job interviews; and, when placed in a job, visits were made to their workplaces which included consultative talks with their immediate superiors who were given access to the case manager.

Statistical Analysis

The data were analyzed using the Statistical Packages for the Social Sciences (SPSS) 21. The means and standard deviations of the demographic and clinical data were calculated. The relationships between repeated measurements were explored using the non-parametric the Friedman test and the Wilcoxon Signed Ranks test. The Spearman test was used for correlation analysis. A $p < 0.05$ was considered statistically significant.

RESULTS

Within the first 6 months of the study 4 patients dropped out of the service with reasons which included not seeing the need for case management by one patient after having started attending CMHC regularly, not needing the case management by the families of two patients and refusal of treatment altogether by one patient. Hence, a total of thirty patients, 24 diagnosed with schizophrenia and 6 with schizoaffective disorder, were monitored by the same case manager throughout the 24- month program. Mean age and the level of education of the adherent patients were, respectively, 36 and 11 years. The sociodemographic characteristics of the patients indicated 76% majority of males, and .80% majority singles all of whom were unemployed (Table 2). Mean duration of illness was 13 years, the total number of hospitalizations was

Table 2. Sociodemographic Characteristics of the Patients - 24 Diagnosed Schizophrenia and 6 Diagnosed with Schizoaffective Disorder

Age (mean ± SD)		35.5±8.7
Education year (mean ± SD)		11.3±2.6
Gender / Male (number, %)		23 (76.7)
Marital status / Single (number, %)		24 (80.0)
Income per capita* (mean ± SD)		998.3±606.3
Age of onset (mean ± SD)		22.5±6.0
Duration of illness/year (mean ± SD)		13.0±6.9
Total number of hospitalizations (mean ± SD)		3.0±1.8
Number of hospitalizations in the last 2 years (mean ± SD)		1.3±1.0
Living with (number, %)	Parents	22 (73.3)
	Spouse-children	6 (20.0)
	Alone	2 (6.7)
Current employment status (number, %)	Not working	25 (83.3)
	Retired due to disability	5 (16.7)
Having social insurance (number, %)		30 (100)

*Per capita income in the household = The total monthly income of the patient and the people he/she lived with divided by the number of people in the home.

3, and number of hospitalizations in the last two years before starting the study was 1.3.

During the 24-month follow-up period, an average of 42 individual interviews were held with each patient. Five patients were visited at their homes for a total of 31 times. The case manager ensured that all patients came regularly to the hospital for their psychiatric appointments at the outpatient clinic. PSST was provided to a group of 12 patients in two 50-minute sessions once a week for a period of 5 months. As a result of the planning and guidance provided based on the capabilities of the patients, 10 out of the 13 patients who joined the work support practice were placed in jobs. Among those who prepared for and eventually passed the PPSE-D state examination for employing the disabled in the civil service, 5 patients began working as civil servants and have been continuing to work for the 1 year since. Also, 4 of the other 5 patients took jobs in the private sector as regular staff and the remaining 1 patient as disabled staff. Two of the 4 patients have continued to work as ordinary/regular staff in the private sector through the one year up to now. The other 2 were made redundant due to reduction of workforce and unsatisfactory performance. The patient employed as disabled staff in the private sector left the job having found it burdensome. A total of 89 workplaces were visited for the patients who were placed in jobs during the program.

Table 3. Services Provided to the 30 Patients Who Completed the 24-Month Study Protocol

	Number of Patients	Total Number of Interviews	Mean ± SD
Individual interviews	30	1267	41.7 ± 6.4
Home visits	5	31	6.2 ±2.4
Psychosocial skills training	12		
Family education	29		
Supported employment	13		
Job placement	10		
Work place visits	10	89	8.9 ± 5.8
Pursuing the job	7		

Information about the illness was provided to 29 caregivers of the patients at individual interviews while 1 caregiver living outside the city had to be contacted by tele-communication. Group training was conducted with the relatives of 12 patients who participated in the PSST every 2 weeks in single sessions of 50 minutes. All families were provided the telephone number of the case manager to enable contacting her as and when needed. The list of services provided to the patients and their families during the 2-year study period is presented in Table 3.

Clinical Outcomes

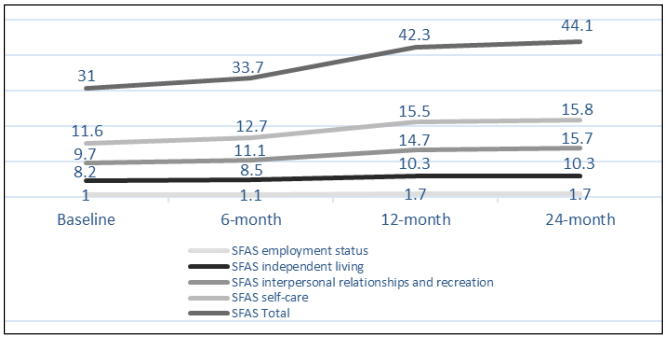
The patients included in the study had moderate to severe illnesses on the bases of the scores calculated on the psychometric scales used, with the mean CGI and GAF scores being, respectively 5 and 47 at the initial assessment. A distinct decrease was observed in the incidences of hospitalization and significant changes were found in the mean psychometric scores of the patients obtained at the baseline stage and after 24 months (Table 4).

Significant increases were found in all subscale scores of the SFAS during the 24-month follow-up. A significant difference was found on the self-care scores when compared between the baseline stage and the 6th month (p=0.002), and between the 6th and the12th month (p=0.001) assessments. However, there was not a significant difference between the 12th and the 24th month assessments (p=0.153). The interpersonal relationship and recreation scores showed significant increases in all assessment intervals (p=0.001, p=0.001, and p=0.002, respectively). Significant changes were not found in the independent living scores between the baseline stage and the 6th month assessments (p=0.088), and the 12th and the 24th month assessments (p=1.000), but there was a significant increase between the 6th and the 12th month assessments (p=0.006). Similarly, significant increase in the employment scores was found only between the 6th and the 12th month assessments (p=0.002); the differences between the baseline stage and the 6th month, and between the 12th and the 24th month assessments being insignificant (p=0.083 and p=1.000, respectively). Significant changes also

Table 4. Psychometric Scale Scores at the Baseline Stage, the 6th, 12th and the 24th Month Assessments (n=30)

	Baseline	6thmonth	12thmonth	24thmonth	Statistics
	M±SD	M±SD	M±SD	M±SD	p
Hospitalization rate	1.33±1.06	NA	NA	0.23±0.56	0.000*
CGI-S	5.0±0.9	4.2±1.1	3.1±0.7	3.1±0.8	0.000**
GAF	47.0±5.3	51.8±3.8	59.3±5.5	61.1±6.2	0.000**
SFAS	31.0±8.9	33.8±8.2	42.3±7.1	44.1±6.5	0.000**
ZCBS	45.4±15.0	NA	39.8±13.4	37.0±13.0	0.000**

* The Wilcoxon Signed Ranks Test, ** The Friedman test, NA: Not assessed
CGI-S: The Clinical Global Impression-Severity, GAF: The Global Assessment of Functioning, SFAS: The Social Functioning Assessment Scale, ZCBS: The Zarit Caregiver Burden Scale



Graph 1. Changes in the Total and Subscale Scores of SFAS During the 24-Month Follow-up of the Participants

Table 5. Statistical Results on the Compliance with the Recommended Medication Use Before and After the Study

	Baseline	24thmonth	Statistics*
Voluntarily and Regularly (number, %)	2 (6.7)	17 (56.7)	0.000
Regularly with help (number, %)	11 (36.7)	12 (40.0)	
Irregularly with persuasion (number, %)	14 (46.7)	1 (3.3)	
Forcefully or intramuscularly (number, %)	1 (3.3)	-	
Never takes (number, %)	2 (6.7)	-	

*The Wilcoxon Signed Ranks Test

occurred mostly between the 6th and the 12th months on the subscale scores of the SFAS. The changes in the mean total and subscale scores of SFAS are shown in Graph 1.

A high level of correlation was found between the first (r_s=0.684, p<0.01) and the last (r_s=0.735, p<0.01) assessment scores of the SFAS and GAF scales, which were used to assess the social functionality of the patients.

Treatment Adherence

Analysis for the treatment compliance showed that the incidence of voluntarily using medication on a regular basis increased from 6.7% in the first assessment to 56.7% at the end of the 24th month. Treatment adherence by the patients increased significantly compared to the period before the 24-month follow-up (Table 5).

DISCUSSION

This study showed that the hybrid model of clinical, rehabilitation-oriented and intensive case management resulted in significant improvements in clinical recovery and social functionality of patients with schizophrenia and schizoaffective disorder during the 24-month follow-up period. The case management service was rendered in this study through cooperation and coordination with patients, their families, the treating physicians, workplace settings, and the social institutions. The interviews were held not only at the hospital but also at home, at nongovernmental organizations, in social environments, and at workplaces. Accessibility was ensured not just during working hours but whenever needed by providing the patients and their families the contact coordinates of the case manager. An average of 2 face-to-face interviews per month was held with the patients during the 24 months of follow up. This interview frequency is consistent with the mean frequency of 2-4, reported in the meta-analyses made on case management (McCrone et al. 2000, Knapp et al. 2002). Long term rehabilitation works performed by the same case manager who established a trust relationship with the patients by considering their goals and capabilities appear to have made a significant contribution to the treatment of individuals with SMI.

One of the main targets of case management practice is to reduce the incidence of hospitalization. When compared to the period of 24 months before the follow up, hospital admissions of the patients dropped significantly during the 24-month follow up period (p<0.001). Similar results were shown in other studies conducted on case management (Ziguras and Stuart 2000, Burns et al. 2007, Killaspyet al. 2009). Administration of assertive community treatment in combination with an intensive case management model is reported to be more effective on decreasing the need for hospital treatment (Burns et al. 2001, Killaspy et al. 2009). Inclusion of intensive case management features in the model planned for our study may have been effective in reducing the number of hospitalizations.

Significant improvements were found in the clinical recovery and social functionality of the patients. The increase in the clinical recovery scores was probably due to increased compliance with the given treatment and improved skill of coping with the illness as a result of the individual counselling and advisory meetings and the psychoeducation provided during group training. Enabling the patients to reach the case manager as and when needed and frequent communication with the patients and their families may have also contributed to the improvement in the clinical condition of the patients. This result of our study is consistent with those of other studies made on case management (Mueseret al. 1998, Ziguras and Stuart 2000, O'Brien et al. 2012, Gelkopfet al. 2016). Although there are no other studies conducted in this area in our country, the studies made on the services provided by the CMHCs can be considered to be within the scope of clinical case management. These studies have demonstrated that the services provided to patients with schizophrenia improve quality of life, general and social functioning and reduce disability (Ensari et al. 2013, Aydın et al. 2014, Gül et al. 2014, Arslan et al. 2015, Aydın 2016, Söğütlü et al. 2017).

Psychosocial skills training given to patients with schizophrenia is known to improve treatment compliance, reduce relapses, and enhance clinical and social functioning (Yıldız et al. 2004, Xia et al. 2011). In our study, the plans made in line with the goals and capabilities of the patients, the encouragements given to them about what they could achieve and working in cooperation with their families may have contributed to the improvement seen in social functionality. The interviews which were held in social environments at times and creating peer support during group training may have also been effective in the observed recovery.

One of the functions of case management is to decide on goals with the patient in line with his/her talents in the process of planning rehabilitation services. Studies on this subject have shown that setting goals with patients, focusing on what they can do, and supporting them with positive feedback contribute to the recovery process (Weingarten 2005, Slade 2009, Corrigan 2011). It was found that among the patients with schizophrenia, a sizable group had reportedly stated that they were willing to work and needed support systems to enhance their ability to work, to provide them with job training and help them in the process of recruitment (Haro et al. 2011, Zaprutko et al. 2015). One of the critical ways of normalizing the lives of patients is to integrate them into the workplace atmosphere after determining their preferences and strengths (Beigi et al. 2015). Appropriate occupational rehabilitation opportunities that suit personal needs and the stage of the illness can increase the chances of employment for everyone with a mental illness. While individuals with schizophrenia have a low possibility of being employed when they look for jobs on their own or with the help of a traditional rehabilitation consultancy, their chances of having and sustaining a job increase under a supported job placement service (Liberman 2008). Disabled people are known to stay longer in their jobs when the support provided to them continues after being placed in a job (Boardman et al. 2013). The supported employment used in our study enabled one-third of the patients to get jobs, and with an ongoing support, 70% of these were able to continue working at least for a year.

In our study, most of the patients were single and lived with their family of origin. The family members spent most of their time with the patients and were involved in the illness and treatment process at all times. In this respect, it is important to include families or caregivers in the treatment process as persons receiving and/or providing treatment. Psychosocial skills training provided to families and allowing them to have access to the case manager when needed resulted in reduced incidences of illness exacerbation and re-hospitalization and made a positive contribution to patient compliance with the treatment (Nasr and Kausar 2009, Duman and Bademli 2013). The burden on the families of the patients in our study was observed to decrease. The personal and group trainings with family members, the cooperation established between families and the treatment team, accessibility of the case manager and the clinical and functional improvements of the patients must have played a role in reducing the family burden.

The benefits of providing psychiatric and social services in an integrated and holistic manner are well known. Each service rendered separately proves to be less effective and leads to loss of time and resources when compared to being rendered with an integrative approach (Liberman 2008). The ability of case management to make generally dispersed services accessible to patients with SMI and to establish cooperation between patients, their families and treatment teams can make major contributions to the recovery of patients, reduction of family burden and to the healthcare economy.

Our study has demonstrated that a case manager specialized in this field can make a substantial contribution to the clinical recovery of individuals with SMI, improve their social functioning, create opportunities for them to find jobs and continue working, and reduce family burden by using the existing facilities. It seems that the recovery of individuals with SMI will be accelerated through case management services to be rendered by specialized persons in the CMHCs, which have assumed in recent years the duty of providing community-based mental health services in our country.

Limitations of the Study

The results of the study may need to be evaluated within the framework of some limitations considering that it was the first comprehensive case management study conducted in Turkey. Assessment of the clinical and functional performances of the patients by the same clinician may have produced bias. However, the extent of such bias may have been reduced by using self-report scales completed by the patients and their relatives. It may not be acceptable to generalize the results as the study was conducted in a single center. Replicating and repeating this type of study in a multicenter setting and also with case managers from different professional disciplines would be beneficial. Finally, this study needs to be compared with controlled studies in having an open follow-up design.

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