

BRIEF REPORT

Occupational therapy for inpatients with chronic schizophrenia: A pilot randomized controlled trial

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Abstract

Aim: People with schizophrenia tend to experience difficulties in social and cognitive function, self-care, residual negative symptoms, high rates of unemployment, and social exclusion. Occupational therapy has contributed to the treatment and rehabilitation of people with severe mental health problems. Therefore, this study investigated the effects of occupational therapy on symptoms of patients with schizophrenia.

Methods: This survey was an experimental study in which positive and negative symptoms of patients with schizophrenia were assessed with a scale for the assessment of positive and negative symptoms (SANS, SAPS, respectively). The study was conducted in Sina Hospital, Shahrekord, Iran. The samples consisted of patients with schizophrenia who were divided randomly into intervention and usual treatment groups (30 patients in each group). The occupational therapy was performed in the intervention group for 18 h/week for 6 months. SANS and SAPS were assessed at the beginning and after 6 months of treatment.

Results: The groups were homogeneous in demographic variables, SANS and SAPS scores at baseline. The occupational therapy group showed significant improvement in the total score for the SANS and SAPS at 6 months ($P < 0.001$), but the control group did not show any significant improvement.

Conclusion: The results of this study indicated that occupational therapy combined with medications can improve the symptoms of schizophrenia.

Key words: chronic schizophrenia, negative symptoms, occupational therapy, positive symptoms.

INTRODUCTION

Schizophrenia is a serious psychiatric illness generally attributed to long-term treatment, with acute exacerbations not uncommon throughout the illnesses trajectory (Chen *et al.*, 2009). People with schizophrenia tend to experience difficulties in social function and self-care (Wykes *et al.*, 2007), high rates of unemployment, and social exclusion due to cognitive impairment and schizophrenia symptoms (International First Episode Vocational Recovery (IFEVR) Group, 2010). In this regard, cognitive deficits and negative symptoms such as avolition, and lack of energy lead to long-term disability

(Andreasen & Olsen, 1982). Poor social skills are closely related to repetitive recurrences of the disease and re-hospitalization, and have been reported as important factors affecting prognosis (Granhölm *et al.*, 2005).

Schizophrenia can diminish motivation, initiative, mood, and emotional expression; these constitute the category of “negative” symptoms. This may lead sufferers to become slower to talk and act, and increasingly indifferent to social contact and emotional interaction. Over time, patients may lose contact with their friends and family, be unable to continue working, and become withdrawn and isolated. At its most extreme, individuals lose the ability to look after themselves.

There are multiple features of schizophrenia, including disability in everyday functioning (social functioning, everyday living skills, productive activities, and independence in living), cognitive impairments, various comorbidities (substance abuse, medical illness, and medication side-effects), and other symptoms such as

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depression and anxiety that are not part of the formal diagnostic criteria for this illness (Carpenter & Koenig, 2008).

There is no conclusive evidence that any specific therapeutic intervention improves social functioning and negative symptoms for people with schizophrenia. Programs using behavioral therapy techniques to reward target behaviors with tokens may have beneficial effects on negative symptoms but have been limited to long-stay ward environments (McMonagle & Sultana, 2000).

Occupational therapy has contributed to the treatment and rehabilitation of people with severe mental health problems since it emerged at the beginning of the 20th century in the USA (Duncan, 2006) and became formally established with training standards in 1920 (Haworth, 1933). This therapy draws on the emerging discipline of occupational science, which asserts that engagement in meaningful and satisfying occupations contributes to health and well-being, social inclusion, and improves functioning and self-respect (Wilcock, 2005). In most psychiatric and day hospitals, the prevailing psychosocial treatment is occupational therapy in which expressive art, crafts, and recreational activities are the media through which therapists build self-esteem and productivity (Allen, 1988).

There has been only little evidence that occupational therapy is effective for people with schizophrenia (Cook & Howe, 2003; Mairs & Bradshaw, 2004; Oka *et al.*, 2004). A study of occupational therapy plus supported employment for people with schizophrenia in a Japanese psychiatric hospital showed progress in social functioning, and reduced time in hospital and risk of hospitalization (Oka *et al.*, 2004). A Brazilian controlled trial investigating group, and individual occupational therapy as an adjunct to administration of clozapine for treatment-resistant schizophrenia, indicated that the experimental group significantly improved in comparison with usual care. A weakness of this study was the lack of a control group (Green, Wehling, & Talsky, 1987). However, there have been few empirical evaluations of the efficacy of this approach. Therefore, the aim of the present study was to determine the effect of occupational therapy as an established mental health intervention in people with schizophrenia.

METHODS

Study population and treatment regimens

This prospective, randomized controlled trial study was conducted in a long-term psychiatric hospital,

Shahrekord, Iran. The study population was 76 inpatients with chronic schizophrenia of which 60 participants were identified according to the diagnosis based on their medical records and through a structured clinical interview.

Sixteen patients had functional disability so were excluded from the study. Data was collected on all patients who were admitted between January 2006 and January 2007. There was no dropout from the study. After ethical approval from the Shahrekord Medical University of Sciences Research Ethics Committee, the researcher informed close relatives of the eligible subjects of this study and written consent was obtained from them. Data were obtained anonymously. Patients were allocated randomly to intervention and usual treatment groups. Inclusion criteria were adults with a diagnosis of schizophrenia for any duration, and patients with physical, sensorial, or neurological disabilities, or substance abuse were excluded.

Interventions

The occupational intervention was provided by two experienced occupational therapists, who had received extensive training in the intervention. Sixty inpatients with chronic schizophrenia participated in this study through a randomization procedure that assigned half to occupational therapy (OT group) and half to routine care. A total of 30 patients in the OT group were assigned to receive 6 months of treatment, at 3 h/day and 6 days/week in addition to routine medication such as risperidone and biperidine. Subsequently, occupational therapy was led by two experienced occupational therapists and comprised expressive, artistic, and recreational activities (Allen, 1988; Green *et al.*, 1987). Patients in the OT group were encouraged by the therapists to individualize their interests and abilities through arts and crafts and discussion of feelings. In the OT group, patients selected activities themselves, and performed individual activities and developed a common activity, as a whole, enabling richer and more varied exchanges between themselves and between them and the therapist. From a group or individual event, the occupational therapist was able to make an interpretation which was not traditionally communicated but translated to the patient/group by means of an intervention (Buchain 2003). The schedule specified an individualized and client-centered approach and comprised stages of the occupational therapy process.

The intervention schedule is summarized below:

- 1 Engages with the client, establishing the client's preferences on how to work together and the client's history, interests, and concerns regarding occupation.
- 2 Assesses the client's competency in performing the client's routines, roles, and occupations in daily life, including self-care, productivity, and leisure.
- 3 Identifies the client's strengths and the barriers that impact on occupational performance, including the client's social and physical environments.
- 4 Collaboratively sets and prioritizes goals concerning occupation and plans an individually tailored program of therapeutic activities (these are selected and adapted using detailed activity and environmental analysis, grading, and sequencing).
- 5 Engages the client in planned activities, teaching specific skills such as arts and crafts, and encouraging the client to initiate actions, use support, participate in group work, work alongside the therapist, or develop routines and balance of activities as planned.
- 6 Reviews with the client the meaning and impact of the client's chosen activities, encouraging the client to develop strategies that use occupations to improve well-being and alleviate psychotic symptoms.
- 7 Collaboratively continues assessing, reviewing outcomes, updating goals, and modifying actions in order that the client achieves her or his desired occupations (Cook, Chambers & Coleman, 2009).

All clients in the usual treatment group received routine nursing care such as therapeutic communication and medication such as risperidone and biperidine.

Measurements

At baseline and after 6 months, patients in both groups in face-to-face interviews were assessed by the following psychometrics instruments: Andreasen's scale for assessment of positive symptoms (SAPS); and Andreasen's scale for assessment of negative symptoms (SANS). These scales were developed specially for this purpose, and have been extensively used in research settings. The SANS contains 24 items that are summarized in global ratings such as flattened affect, avolition apathy, anhedonia/asociality, and attention, and the SAPS comprises 35 items that are summarized in four global ratings such as hallucinations, delusions, bizarre behavior, and positive formal thought disorder. Taken together, these two scales provide a comprehensive assessment of the symptoms of schizophrenia (Andreasen, 1989). The scales are rated on a 0–5 spectrum (0 = not present, 5 = severe). In the case of the

SANS items, the mean, minimum, and maximum correlation coefficients were, respectively, 0.826, 0.539, and 0.958, and for the SAPS items 0.828, 0.314, and 1.000 (Emsley, 2001). Good to excellent reliability on these two scales between the two raters (M. J. C. and V. P.) was obtained through computing dual ratings in a subset of patients, as reported elsewhere (Peralta Martín, Cuesta Zorita & de León, 1991). Ratings were conducted by a cooperating psychiatrist.

Statistical analysis

The statistical analyses were performed using the Statistical Package for Social Sciences ver. 11 (SPSS, Chicago, IL, USA). Data has normal distribution, so baseline comparative in patients and controls was done using the independent samples Student's *t*-test. The paired samples Student's *t*-test was used to examine for differences between baseline and follow-up assessments. The sociodemographic data were analyzed using the independent samples Student's *t*-test and the χ^2 -test. Baseline characteristics and outcome data were summarized as number of subjects (%) for categorical data and mean (standard deviation) for continuous data.

Statistical tests were performed at the 0.05, two-tailed significance level for all data analyzed.

RESULTS

Patient characteristics

The sample consisted of 60 subjects, 23 (71.87%) and 23 (71.87%) male, and seven (28.13%) and seven (28.13%) female, in the intervention and usual treatment groups, respectively. The patients' mean age was 38.67 ± 8.63 years, mean education 6 ± 5.5 years, and mean duration of illness and hospitalization 15.92 ± 8.8 and 6.88 ± 4.31 years, respectively. There were no significant group differences in sex, age, education level, or age at onset of illness ($P > 0.05$) (Table 1).

Positive and negative symptoms

The findings of this study showed that the mean scores of positive and negative symptoms overall in the OT group were, respectively, 96.93 ± 31.78 and 69 ± 21.74 , and in the treatment as usual group 97.51 ± 35.42 and 71.23 ± 19.4 ; therefore, the positive symptoms score of patients with schizophrenia was higher than negative symptoms at baseline ($t = 16.01$,

Table 1 Baseline characteristics of people with schizophrenia who were randomized to occupational therapy or treatment as usual

Characteristic	Occupational therapy group, mean \pm SD	Treatment as usual group, mean \pm SD
Mean age, years	37.68 (8.7)	39.73 (4.9)
Education	3.2 (2.8)	3.3 (2.0)
Duration of schizophrenia, years	14.93 (3.4)	14.56 (3.2)
Lifetime hospitalizations, years	7.93 (1.6)	5.7 (3.7)

Differences are not statistically significant between groups. SD, standard deviation.

Table 2 Comparison of SANS and SAPS means scores in the OT group and treatment as usual group at baseline

	OT group		Treatment as usual		
	Symptom	Mean \pm SD	Mean \pm SD	Z	P-value
SANS	Blunting of affect [†]	18.8 (7.4)	20 (7.07)	0.71	0.47
	Alogia	14.75 (5.31)	15 (5.35)	0.41	0.67
	Apathy	11.64 (4.11)	11.73 (4.7)	0.39	0.69
	Anhedonia	20.77 (6.18)	21.02 (6.36)	0.03	0.96
SAPS	Hallucinations	20.06 (9.15)	20.18 (8.41)	0.79	0.93
	Delusions	33.03 (13.42)	32.24 (14.77)	0.04	0.96
	Bizarre behavior	13.81 (4.95)	14.75 (5.34)	0.71	0.47
	Thought disorder	25.84 (9.2)	26.87 (10.18)	0.25	0.83

[†]Mann–Whitney test did not show statistically significant differences between groups at baseline. OT, occupational therapy; SANS, Andreasen's scale for assessment of negative symptoms; SAPS, Andreasen's scale for assessment of positive symptoms; SD, standard deviation.

Table 3 Comparison means scores SANS and SAPS in the OT group and treatment as usual group after 6 months

	OT group		Treatment as usual		
	Symptom	Mean \pm SD	Mean \pm SD	Z	P-value
SANS	Blunting of affect [†]	11.2 (8.42)	29.8 (3.37)	6.21	<0.001
	Alogia	7.96 (5.97)	20.69 (3.06)	5.91	<0.001
	Apathy	5.68 (4.44)	17.61 (1.96)	6.34	<0.001
	Anhedonia	9.41 (7.9)	32.73 (1.75)	6.37	<0.001
SAPS	Hallucinations	6.89 (7.31)	29.93 (3.6)	6.54	<0.001
	Delusions	18.75 (13.49)	56.92 (4.49)	6.36	<0.001
	Bizarre behavior	7.17 (5.26)	22.33 (2.32)	6.54	<0.001
	Thought disorder	12.67 (9.1)	39.9 (3.6)	6.54	<0.001

[†]Mann–Whitney test showed statistically significant differences between groups after 6 months. OT, occupational therapy; SANS, Andreasen's scale for assessment of negative symptoms; SAPS, Andreasen's scale for assessment of positive symptoms; SD, standard deviation.

$P < 0.001$ and $t = 13.56$, $P < 0.001$ respectively). Results also indicated the effectiveness of occupational therapy in subscales of negative symptoms such as thought, apathy, attention, avolition, anhedonia, and total score. In positive symptoms, this intervention was effective in hallucinations, bizarre behavior, delusion, thought disorders, and total score. In the control group after 6 months, all subscales and overall score of SANS and SAPS had deteriorated. Student's t -test results also revealed significant difference between both groups in all dimensions after 6 months (Tables 2,3).

DISCUSSION

The OT group showed clinically significant improvement in positive and negative symptoms but the treatment as a usual group did not show any clinically significant improvement. There was significant difference between both groups on overall scores. The OT group showed clinically significant improvement in negative subscales, particularly for avolition, apathy, social isolation, and anhedonia, and the clinically significant improvement in overall negative scores.

The present study's findings restate the reports of Cook and Howe (2003), Mairs and Bradshaw (2004), and Oka *et al.* (2004) that suggested evidence that occupational therapy is effective for people with schizophrenia.

Buchain, Vizotto, Neto, and Elkis (2003) in their study on treatment-resistant patients with schizophrenia showed that occupational therapy combined with appropriate drugs will help patients and improve their daily activities, especially their interpersonal communication. Suresh Kumar (2008) found significant improvement in positive symptoms, negative symptoms, thought disturbance, and paranoid ideation due to vocational therapy in people with schizophrenia.

Negative symptoms in patients with schizophrenia are the main obstacles of rehabilitation. Using appropriate medications to reduce symptoms, psychosocial treatments, and community-based treatments play a key role in treatment of patients with schizophrenia (Eklund, Hansson, & Bejerholm, 2001).

Deficits in everyday living skills and social skills are associated with the pervasive disability seen in schizophrenia. Cognitive impairments are determinants of these skill deficits and it is known that positive and negative symptoms add to the influence of cognitive impairments for prediction of real-world outcomes. The positive symptoms of hallucinatory behavior and suspiciousness also predicted real-world residential outcomes. Real-world disability is the product of a complex array of ability deficits and symptoms, indicating that interventions will need to be carefully targeted. (Leifker, Bowie & Harvey, 2009).

Occupational therapy is a triadic relationship (therapist–patient–activity) that creates conditions for developing an environment in which subjects experience learning and the possibility of applying their resources, and in which a pathological space can be transformed into one of creative and structured development, thus enabling patients to deal differently with their limitations and to improve their social interaction (Buchain *et al.*, 2003; Liberman *et al.*, 1993; Torres, Mendez, Merino & Moran, 2002). This study also verified that occupational therapy is a therapeutic method which provides medium- and long-term results due to its nature which establishes a dynamic between the therapist–patient–activity elements.

The published work indicates that prolonged duration of untreated psychosis predicts a worse functional and clinical outcome (Jeppesen *et al.*, 2008; Perkins, 2006) so patients with schizophrenia have a severe impairment of functioning (Buchain *et al.*, 2003). Thus,

it is possible that the use of occupational therapy as a complementary treatment enables an improvement of the patients' functions.

Occupational rehabilitation utilizes work for the improvement of symptoms, interpersonal relationships, and cognitive functioning. It brings forth significant changes in patients' overall functioning level (i.e. living, learning, and work-related conditions). Vocational rehabilitation has been shown to improve employment rates for individuals with schizophrenia (Cook & Razzano, 2000). Thus, vocational rehabilitation is a central issue in the rehabilitation of patients with chronic schizophrenia.

Although the results of this study were not intended to be generalizable, the findings merit further studies. However, its conclusions are limited by the sample's size that indicates the need for further similar studies with greater samples to allow the replication of the findings of this study.

CONCLUSION

The findings of the study support the hypothesis that occupational therapy is associated with clinical improvement in patients with schizophrenia. In addition, occupational therapy seems to have a direct relationship with improvements in psychological symptoms. Further investigation is needed to determine whether occupational therapy produces favorable outcomes in patients with schizophrenia. Finally, long-term follow up is essential to determine whether occupational therapy can significantly improve outcomes over time and to investigate the cost–benefit of providing for persons with schizophrenia.

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