

The Effect of Lieberman Community Return Program on Reducing Positive and Negative Symptoms and Improving Social Skills in Patients with Schizophrenia

Maryam Emami, Gholamreza Kheirabadi, Mona Fallahi

Department of Psychiatry, Isfahan University of Medical Sciences, Isfahan, Iran

Abstract

Background: The aim of this study was to investigate the effect of Lieberman community return program on reducing positive and negative symptoms and improving social skills in people with schizophrenia.

Materials and Methods: In this clinical trial study, 58 patients with schizophrenia were randomly allocated into two groups of 29. The first group received 16 sessions of Lieberman community return training and the second group received routine care as a control group. All patients were evaluated before intervention and 1 and 3 months after intervention using the Matson Social Skills Questionnaire and Negative and Positive Symptoms Assessment Scale and compared between the two groups.

Results: Evaluation of negative symptoms showed that the dimensions of affective flattening, avolition, anhedonia–asociality, attention, and alergia in the intervention group decreased significantly over time ($P < 0.05$), but no significant difference was seen in the control group. The mean score of positive symptoms such as hallucinations, delusion, inappropriate affect, and formal thinking disorder in the intervention group were decreased significantly ($P < 0.05$), but no significant difference was seen in the control group. Appropriate social skills and overall skill score were increased significantly in the intervention group over time ($P < 0.05$).

Conclusion: Lieberman community return program is likely to reduce the symptoms of schizophrenia and increase patients' social skills.

Keywords: Lieberman community return program, positive and negative symptoms, schizophrenia, social skills

Address for correspondence: Dr. Mona Fallahi, Department of Psychiatry, Khorshid Hospital, Isfahan, Iran.

E-mail: m.fallahi.1354@gmail.com

Submitted: 31-Jan-2021; **Revised:** 03-Nov-2021; **Accepted:** 16-Nov-2021; **Published:** 28-Jun-2023

INTRODUCTION

Schizophrenia is a psychiatric disorder characterized by impaired thought processes and poor emotional responsiveness.^[1] It is the most severe of all psychiatric illnesses and usually presents as hallucinations, strange delusions, or disturbed speech and thinking, and is associated with significant social, occupational, or interpersonal dysfunction. The onset of symptoms usually occurs during adolescence. The worldwide lifetime prevalence of this disease has been reported to be 0.3% to 0.7%.^[2]

Diagnosis is based on observation of the patient's reported behavior and experiences. Genetics, neurobiological

environment, and psychological and social processes seem to be important factors in the development of this disorder. Although medication is currently the mainstay of treatment, psychotherapy and occupational and social rehabilitation are also important in treatment. In severe cases where there is a risk to the patient and others, compulsory hospitalization may be required.^[3]

Schizophrenia is often described in terms of positive symptoms (impaired perception, thinking, and behavior) and negative symptoms (absence).^[4] Positive symptoms are those that most people do not normally experience but are present

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Emami M, Kheirabadi G, Fallahi M. The effect of Lieberman community return program on reducing positive and negative symptoms and improving social skills in patients with schizophrenia. *Adv Biomed Res* 2023;12:146.

Access this article online

Quick Response Code:



Website:
www.advbiores.net

DOI:
10.4103/abr.abr_21_21

in patients with schizophrenia. These symptoms including delusion, thought, speech and behavioral disorders, tactile, auditory, visual, olfactory, and taste hallucination and these symptoms are usually attributed to schizophrenia.^[5,6]

Negative symptoms are a lack of natural emotional responses or other thought processes and are less responsive to medication.^[7] They usually include emotional monotony or lack of emotion and feeling, lack of expression (alogia), inability to experience happiness (anhedonia), unwillingness to form relationships (social indifference), and lack of motivation (lack of will). Research shows that negative symptoms have the greatest effect on positive symptoms over the poor quality of life, functional disability, and the burden of responsibility placed on others.^[8] In people with negative symptoms, the response to the drug is often limited.^[9]

In terms of treatment, in addition to drug therapy that includes first- and second-generation antipsychotics, a number of psychosocial interventions may be useful in the treatment of schizophrenia, including family therapy,^[10] positive communication therapy, employment, and cognitive reconstruction.^[11] Cognitive behavioral therapy skills training, credit economic interventions, and psychosocial interventions for substance use and weight control,^[8] family therapy or training that addresses the entire family system to an individual may reduce recurrence and hospitalization.^[12]

An important approach to improving the quality of life of people with schizophrenia is social skills training. Social skills are an individual's ability to communicate with others in society. These skills are based on social norms and determine what behaviors are acceptable in society and what behavior is expected of the individual in each situation.^[13] These processes enable the individual to behave in a way that others consider adequate.^[14]

The Lieberman community return program is the result of decades of effort and experience by Professor Lieberman *et al.* The goal of the program is to introduce participants to the skills and information that helped them move from hospitals or controlled accommodation to a more independent life in the community. In addition, they will be able to benefit from long-term comprehensive psychosocial rehabilitation services.

Due to its simplicity and practicality, it seems that this program can improve social performance and reduce the positive and negative symptoms of schizophrenia. Therefore, this study aims to determine the effect of Lieberman community return program on the positive and negative symptoms of schizophrenia and improved patient's social skills.

MATERIALS AND METHODS

This study is a randomized controlled clinical trial that was approved by the Ethics Committee of Isfahan University of Medical Sciences (code: IR.MUI.MED.REC.1397.080) and conducted in 2017–2018 in the Khorshid Hospital of Isfahan. The target population of the study was patients with schizophrenia who underwent care and treatment programs in this center.

Inclusion criteria included patients with schizophrenia, patient consent to study, age 18–60 years, ability to read and write, and no mental retardation and exclusion criteria patients withdrew from the study and did not attend more than three sessions of the Lieberman return to the community program.

The required sample size was calculated using the sample size estimation formula to compare the two means and considering the 95% confidence level, 80% power, the standard deviation of the social skill score which was considered about 1, and the minimum significant difference between the two. The group that was considered equal to 0.8 was estimated to have 32 patients in each group. The sampling method was convenient.

64 patients with schizophrenia were selected based on inclusion criteria and according to the time of the refer to Khorshid Hospital and randomly allocated into two groups of 32. Allocation of patients between the two groups was done by Random Allocation Software (RAS). In this software, the total sample sizes and the number of groups are entered into the software. The output of the software includes a list that randomly distributes the number of patients into two groups. Patients were divided into two groups according to the time of referral and according to the list until the sample size reached the required number in each group.

The first group was trained by the Lieberman community return program and the second group which received routine services considered a control group. Both groups were treated with antipsychotic drugs and residential center training programs. The groups were tested before and 1 and 3 months after the study using the Matson Social Skills Scale and the Positive and Negative Symptoms Assessment Scale. Social skills scores and positive and negative symptoms were compared within each group and between the two groups. This questionnaire was validated by Matson *et al.*^[15]

Matson's scale is a 56-question scale. The answers to the questions are set on a 5-point Likert scale and the score for each question is from 1 (never or never) to 5 (always). It has acceptable discriminant validity and reliability. The sum of the scores indicates the patient's social skills. Research has shown that the Matson Social Skills Scale has acceptable stability and validity.

The Anderson Positive and Negative Symptoms Questionnaire is a measure and evaluation of positive and negative symptoms in schizophrenia patients. The Positive Symptoms Assessment Scale (SAPS) has symptoms such as hallucinations, delusions, bizarre behaviors, and inappropriate affect and formal thought disorder. The question option is from no to suspicious with a score of 1–0, mild to moderate with a score of 3–2, and severe to very severe with a score of 5–4. It is more intense and vice versa. The Negative Symptoms Assessment Scale (SANS) has symptoms such as affective flattening, alogia, avolition, anhedonia–asociality, and inattention with the same scale as the positive symptom criteria. This score was validated by Fimian *et al.*^[16]

The Lieberman community return program includes a 16-session Lieberman training program conducted in the intervention group. Training sessions were held three times a week. The titles of the training sessions included Session 1 (introduction of Lieberman community return program).

Session 2 (signs of debilitating mental disorders), Session 3 (determining readiness for discharge), Session 4 (planning to return to the community), Session 5 (communicating with the community), Session 6 (coping with stress in the community), Session 7 (planning a daily schedule), Session 8 (making an appointment and doing it), Session 9 (How medication prevents relapse).

Session 10 (Evaluation of the effects of prescription drugs), Session 11 (solving drug problems), Session 12 (solving problems of drug side effects), Session 13 (identifying warning signs of recurrence), Session 14 (maintaining warning signs), Session 15 (Advance the emergency plan), and the Session 16 (take your plan to the community).^[16]

At the beginning of each session, the general purpose of the program is discussed, and the participants are asked questions about the previous session. An instructional CD is displayed in each session, and questions are asked about its instructional content. In this program, there are an instructor's guidebook and a workbook for patients that control extracurricular assignments in each session. Each session is attended by a trainer (Master of Clinical Psychology) to present the text of the program.

All patients were tested before and after the intervention using the Matson Social Skills Questionnaire and the Positive and Negative Symptoms Assessment Scale. At the end of the intervention, changes in social skills scores and positive and negative symptoms were compared within each group and between the two groups. (It is noteworthy that the classes and evaluation of the patients took place before the corona pandemic).

The obtained data were entered into the SPSS statistical software version 24 (manufactured by IBM company, USA) and analyzed by Chi-square, *t*-test, T-paired, and repeated-measures ANOVA.

RESULTS

In this study, 64 patients with schizophrenia in two groups of 32 intervention and control were included in the study. During the study, six people (three people from each group) were excluded from the study due to incomplete training sessions and the lack of subsequent referrals [Figure 1].

The two groups did not have significant differences in terms of age, sex, and education [Table 1].

Evaluation of negative symptoms showed that the negative symptoms included: affective flattening, avolition, anhedonia–asociality, attention, and alolia were significantly decreased in the intervention group ($P < 0.05$), but no statistically changes in the control group were seen ($P > 0.05$) [Table 2].

Table 1: Distribution of demographic characteristics in the two groups

Variables	Treatment (<i>n</i> =29), <i>n</i> (%)	Control (<i>n</i> =29), <i>n</i> (%)	<i>P</i>
Mean of age (years)	40.17±8.39	40.86±8.66	0.759
Sex (male)	9 (31)	10 (34)	0.780
Marriage status (single)	24 (82)	21 (72)	0.604
Education			
Primary	21 (72)	17 (58)	0.568
Diploma	0	9 (31)	
Associate's degree	6 (20)	1 (3)	
Bachelor's degree	2 (6)	2 (6)	

According to paired *t*-test, all negative symptoms were statistically different between the two groups at 3 months after intervention (except alolia).

According to the findings of the study, the appropriate social skills score and the total score of skills and relationships with peers in the intervention group increased significantly over time ($P < 0.05$), but the score of aggression and impulsive behaviors in this group did not change significantly over time ($P > 0.05$). Furthermore, the score of supremacy and high confidence in the experimental group decreased significantly over time ($P < 0.05$), while this score did not change significantly in the control group ($P > 0.05$). The mean score of supremacy and high confidence in the experimental group was significantly higher than the control group. However, in other dimensions, no significant difference was seen between the experimental and control groups ($P > 0.05$). Furthermore, according to paired *t*-test, all dimensions of the social skill were not statistically different between the two groups at the before intervention, but some of the parameters were different at 1 and 3 months after intervention [Table 3].

The results showed that the mean score of the dimensions of hallucinations, delusions, and formal thinking disorder and affect decreases significantly over time in the intervention group ($P < 0.05$). However, the scores of any of the dimensions of positive signs in the control group did not change significantly ($P > 0.05$). Furthermore, the scores related to bizarre behaviors and formal thinking disorder were significantly lower in the intervention group than in the control group ($P < 0.05$). Furthermore, according to paired *t*-test, all dimensions of positive symptoms were not statistically different between the two groups at the before intervention, but some of the parameters were different at 1 and 3 months after intervention [Table 4].

DISCUSSION

The results of statistical analysis showed that Lieberman community return program reduces positive symptoms, i.e., the mean score of the dimensions of hallucinations, delusions, formal thinking disorder, and inappropriate affect over time in the intervention group. Furthermore, the scores

Table 2: Comparison of negative symptom evaluation dimensions

Variables	Groups	Before intervention	1 month after	3 months after	P**
Affective flattening	Treatment	17.79±5.92	15.81±2.31	13.66±1.62	<0.001
	Control	16.05±5.1	16.34±5.47	16.34±5.47	0.076
	P*	0.61	0.64	0.039	0.003***
Avolition	Treatment	11.55±4.09	11.15±2.25	9.46±2.35	<0.001
	Control	11.24±4.52	11.24±4.52	11.24±4.52	0.067
	P*	0.811	0.50	0.049	0.037***
Anhedonia-asociality	Treatment	15.03±13.51	13.02±1.84	11.89±1.77	<0.001
	Control	14.86±3.22	14.86±3.22	14.86±3.22	0.081
	P*	0.12	0.09	0.002	<0.001***
Attention	Treatment	8.75±2.92	7.59±1.31	6.34±1.23	<0.001
	Control	8.25±2.13	7.14±3.50	7.13±1.25	0.63
	P*	0.90	0.92	0.032	0.001***
Alogia	Treatment	11.55±4.09	11.46±1.83	10.15±1.79	0.002
	Control	11.24±4.52	11.68±4.56	11.68±4.56	0.104
	P*	0.71	0.15	0.09	0.056***

*Significance level of the difference between the two groups based on paired sample *t*-test, **Significance level of changes within each group based on repeated-measures ANOVA, ***Significance level of changes between the two groups based on repeated-measures ANOVA

Table 3: Comparison of the dimensions of the social skill questionnaire

Variables	Groups	Before intervention	1 month after	3 months after	P**
Total skill score	Treatment	182.34±17.98	177.27±6.93	186.17±5.01	<0.001
	Control	189.27±21.66	188.64±21.78	191.34±19.34	<0.001
	P*	0.081	0.040	0.002	0.076***
Appropriate social skills	Treatment	56.03±3.50	59.94±2.80	63.99±3.05	0.01
	Control	53.13±7.02	53.17±9.68	52.82±8.62	0.07
	P*	0.072	0.11	0.051	0.258***
Aggression and impulsive behaviors	Treatment	33.15±3.25	34.15±3.50	36.72±3.08	0.50
	Control	38.19±4.31	48±4.79	47.55±5.07	0.03
	P*	0.12	0.001	0.002	0.06***
Supremacy, high confidence	Treatment	17.18±2.13	20.81±2.79	19.90±2.59	0.02
	Control	15.62±14.80	14.97±4.88	17±4.16	0.06
	P*	0.14	0.012	0.08	<0.001***
Abnormal behaviors	Treatment	43.25±2.13	33.21±2.29	35.1±2.21	0.48
	Control	44.8±3.21	45.27±4.55	44.93±4.26	0.22
	P*	0.62	0.001	0.001	<0.001***
Relationship with peers	Treatment	25.14±2.31	29.14±2.31	30.44±2.60	0.01
	Control	25.41±3.33	28.00±4.53	29.03±3.58	0.72
	P*	0.82	0.15	0.20	<0.001

*Significance level of the difference between the two groups based on paired sample *t*-test, **Significance level of changes within each group based on repeated-measures ANOVA, ***Significance level of changes between the two groups based on repeated-measures ANOVA

related to formal thinking disorder and bizarre behaviors in the intervention group were significantly lower than the control group, which indicates the effectiveness of Lieberman community return program in reducing positive symptoms.

Negative symptoms of schizophrenia such as affective flattening, avolition, anhedonia–asociality, attention, and alogia in the intervention group decreased significantly over time. It was also shown that the mean of the variables mentioned in the intervention group was significantly lower than the control group, which indicates the effectiveness of the community return program (Lieberman) in reducing the negative symptoms of schizophrenia; implementing a community return

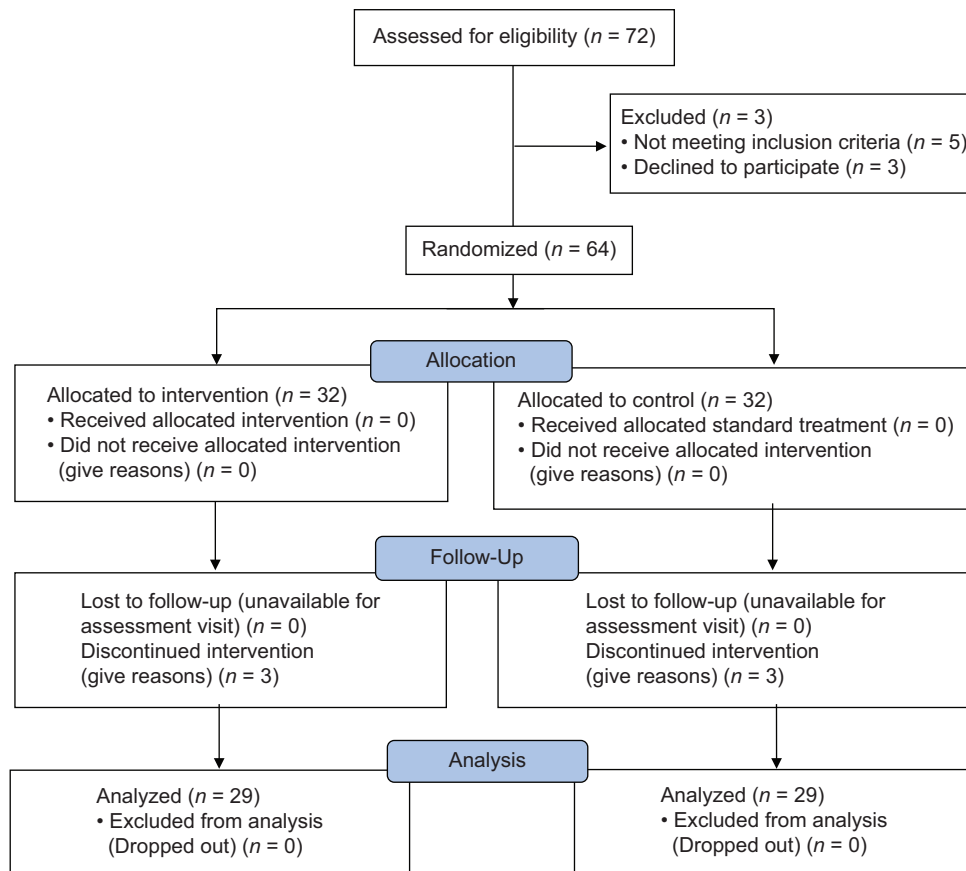
program increased appropriate social skills–peer relationships and reduced supremacy and confidence in the intervention group compared to the control group. This finding is in line with the results of Xiang and Wong research.

In a study entitled the effectiveness of a return program on patients with schizophrenia in China, the researchers found that training in a return program increases social functioning, reduces psychological symptoms, increases insight, and reduces recurrence and readmission.^[15] These findings are also consistent with the research of Xu *et al.*, Smith, Hull, Mackain, Kopelowicz, and Zarate.^[16-18] The strength of this study is to investigate the effect of the Lieberman community return program on the

Table 4: Comparison of dimensions of positive symptom evaluation

Variables	Groups	Before intervention	1 month after	3 months after	P**
Inappropriate affect	Treatment	1.45±1.29	0.93±0.852	0.89±0.552	0.047
	Control	1.17±1.167	1.01±0.885	1.10±0.603	0.765
	P*	0.18	0.20	0.14	0.966***
hallucination	Treatment	6.14±6.26	4.51±2.05	4.31±1.28	<0.001
	Control	6.24±5.05	3.88±1.58	3.89±1.54	0.43
	P*	0.88	0.09	0.045	0.03***
Delusions	Treatment	5.99±2.03	5.14±2.11	4.82±2.23	0.03
	Control	5.15±3.12	5.73±2.34	5.58±1.79	0.76
	P*	0.90	0.84	0.64	0.11***
Bizarre behavior	Treatment	2.98±1.59	3.31±1.30	3.01±1.22	<0.001
	Control	2.62±1.47	2.59±1.72	4.35±1.27	0.66
	P*	0.60	0.58	0.040	<0.001***
Formal thinking disorder	Treatment	6.80±2.05	6.37±2.07	5.48±1.10	0.01
	Control	6.92±1.22	6.82±2.00	6.37±1.51	0.55
	P*	0.71	0.78	0.08	0.01***

*Significance level of the difference between the two groups based on paired sample *t*-test, **Significance level of changes within each group based on repeated-measures ANOVA, ***Significance level of changes between the two groups based on repeated-measures ANOVA

**Figure 1: Study algorithm**

positive and negative symptoms of patients with schizophrenia. In this study, the effect of Lieberman community return program on social skills and positive and negative symptoms of patients was not studied separately in patients taking the antipsychotic drug clozapine (due to its greater effectiveness than other antipsychotic drugs on symptoms of the disease).

The community return program may be help to patients about medications and increasing drug adherence, building effective relationships with others, especially physicians, teaching social roles, and giving feedback to group members after each role-play. The return to society program provides training to patients about increasing medication compliance,

establishing effective relationships with others, social roles, giving feedback to group members, issues in society, hair activities, social rejection, stress management and the right way to help. Asking offers from others.

The program teaches patients to make the best use of their ability to seek help from others when they see warning signs of an illness or even a relapse. They learn that they alone cannot diagnose the symptoms of a relapse, and for this, they must seek help from a healthy person so that they can diagnose the symptoms in a timely manner and discuss them with their doctor. They learn that behaviors such as drug and alcohol use delay their discharge from the center and their transfer to shelters; in addition, in this program, patients learn by performing various roles to communicate effectively with others; for example, by playing the role of physician and patient on the part of patients, they learn how to report their symptoms to physicians in the best possible way. In this program, patients can fully practice the learned social skills on a regular basis by placing themselves in different roles such as the role of the patient, the role of the doctor, or even the role of normal and healthy people. It seems that due to the nature of the community return program, which is run as a group, patients are encouraged to do homework, answer questions, do in class homework, and complete various worksheets.; therefore, the spirit of cooperation and collaboration is strengthened in patients.

CONCLUSION

Lieberman community return program reduces positive symptoms (hallucinations, delusions, formal thinking disorder, and inappropriate affect) and negative symptoms of schizophrenia (affective flattening, avolition, anhedonia–asociality, attention, and alogia). This program increases the overall score of appropriate social skills and relationships with peers and reduces excellence and high confidence.

Study limitation

The study faced limitations such as small sample size and short follow-up period, so it is suggested that more studies be done in this field.

Acknowledgments

The present article is the result of a doctoral dissertation in the field of psychiatry, which was approved and implemented in 2016 in the field of research of Isfahan Medical School. Therefore, the authors of the article appreciate the support of the said deputy.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Schizophrenia” Concise Medical Dictionary. 2010. Oxford Reference Online. Maastricht University Library. 29 June 2010 prepaid subscription only.
2. van Os J, Kapur S. Schizophrenia. *Lancet*. 2009;374:635-45.
3. Becker T, Kilian R. Psychiatric services for people with severe mental illness across western Europe: what can be generalized from current knowledge about differences in provision, costs and outcomes of mental health care?. *Acta Psychiatrica Scandinavica Supplement*. 2006;429:9-16.
4. Sims A. Symptoms in the mind: an introduction to descriptive psychopathology. Philadelphia: W. B. Saunders; 2002.
5. Kneisl C, Trigoboff E. Contemporary Psychiatric- Mental Health Nursing. 2nd edition. London: Pearson Prentice Ltd. 2009; p. 371.
6. American Psychiatric Association. Task Force on DSM-IV. Diagnostic and statistical manual of mental disorders: DSM-IV-TR. American Psychiatric Pub.; 2000. p. 299.
7. Carson VB. Mental health nursing: the nurse-patient journey. W.B. Saunders; 2000. p. 638.
8. Velligan DI and Alphas LD. Negative Symptoms in Schizophrenia: The Importance of Identification and Treatment. *Psychiatric Times*. March 1, 2008;25.
9. Smith T, Weston C, Lieberman J. Schizophrenia (maintenance treatment). *Am Fam Physician* 2010;82:338-9.
10. Pharoah F, Mari J, Rathbone J, Wong W. Family intervention for schizophrenia. *Cochrane Database Syst Rev* 2010;12:CD000088.
11. Medalia A, Choi J. Cognitive remediation in schizophrenia. *Neuropsychology Rev* 2009;19:353-64.
12. Dixon LB, Dickerson F, Bellack AS, *et al.* The 2009 schizophrenia PORT psychosocial treatment recommendations and summary statements. *Schizophr Bull* 2010;36:48-70.
13. Partick NJ. Social skills for teenagers and adults with asperger syndrome. London and Philadelphia: Jessica Kingsley Publishers 2008.
14. McDonald C, Schulze K, Murrig RM, editors. Schizophrenia challenging the orthodox. London: Taylorand Francis; 2004.
15. Xiang Y, Weng YZ, *et al.* Efficacy of the community re-entry module for patients with schizophrenia in Beijing, China: Outcome at 2 years follow up. *The British Journal of Psychiatry* 2007;190:49-56.
16. Xu ZD, Weng YZ, Hou YZ. Efficacy and follow-up research of medicationmanagement module training for schizophrenic patients (in Chinese). *Chinese Journal of Psychiatry*, 2012;32:96-9.
17. Smith TE, Hull JW, MacKain SJ, *et al.* Training hospitalized patients with schizophrenia in community reintegration skills. *Psychiatric Services* 1998;47:1099-103.
18. Kopelowicz A, Wallace CJ, Zarate R. Teaching psychiatric inpatients to re-enter the community: a brief method of improving the continuity of care. *Psychiatric Services* 2010;49:1313-6.