

The Effect of Case Management for Schizophrenia Clients in China

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How to cite this paper: Cheng, J., Liu, H.C., Geng, T., Wang, Y., Yu, L., Li, J.J., Li, W.X., Chen, C.L. and Yao, G.Z. (2020) The Effect of Case Management for Schizophrenia Clients in China. *Journal of Behavioral and Brain Science*, 10, 297-310.
<https://doi.org/10.4236/jbbs.2020.108019>

Received: June 29, 2020

Accepted: July 24, 2020

Published: July 27, 2020

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Abstract

Background: The aim at this study is to establish the effectiveness of case management (CM) compared to care as usual (CAU) in patients with schizophrenia. **Methods:** 128 patients with schizophrenia were recruited from the community of Haidian District (Beijing, China), 68 patients in the CM group and 60 patients in the CAU group. Efficacy and safety information were assessed at one year follow-up. The relapse rate was similar in both groups after 12 months followed up (7% and 5%). The withdraw rate was significant lower in CM group compared with CAU group (10% and 36%). **Results:** There is no significant difference in PANSS, PSP and SSMI score between 2 groups at each visit. Between endpoint and baseline, there is a significant improvement on PANSS negative score and PSP in patients treated with CM, while CAU group was not significantly changed. **Conclusions:** There is a possible effectiveness of CM group of improving negative symptoms and social function in schizophrenia clients.

Keywords

Case Management, Care as Usual, Schizophrenia Clients, PANSS Score

1. Introduction

People with severe mental illness have various needs for treatment, assistance, and support to have the best recovery opportunity. These needs include not only mental health services, but also general health services, education, employment,

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housing, family services, etc. [1]. In the past few decades, significant changes have taken place in psychiatric treatment, especially to people with severe mental disorders throughout the Western World. The deinstitutionalization movement towards the 1960s and 1970s changed the locus of treatment for most people with severe mental illnesses from the hospital to the community. For many mentally ill persons that are accustomed to be served as the hospital, it is complex and difficult to actively seek out psychiatric services from the community. Community services were losing contact with patients and failing to meet their complex psychiatric and social needs [2].

Case management arising as a response to this problem, is a means of coordinating the care of severely mentally disorder people in the community. It aims to enhance the continuity of care and its accessibility and efficiency.

There are a variety of different models of case management, including the brokerage, clinical, strengths, rehabilitation, and ACT models [3] [4] [5]. Strengths Case Management focuses on working with the client's skills rather than deficits. This model was developed for persons with severe mental disease tend to overemphasize the limits and impairments associated with psychiatric illnesses rather than concern the personal advantage that patients can use toward achieving individual goals. A great quantity of studies has been published about the efficacy and effectiveness of case management services, and also a lot of reviews covering these studies [4]-[10]. The results of these studies and reviews are divergent, but overall more intensive models like the Assertive Community Treatment model (ACT) seem to be more effective in ameliorating many outcomes relevant to people with severe mental illness. ACT tends to more effective against decreasing hospitalisation and maintains stability in the community. There is no significant difference between standard management in improving symptoms, quality of life, social and occupational functions [4] [9]. Standard case management is more effective than standard care on numbers maintaining contact with services, while approximately doubles the rate of hospital admissions. In addition, compared with standard care, case management did not improve mental health, social function or quality of life [11]. In this review it was also noted that there is some evidence that the strengths model of case management is more effective than other standard case management models of high or low intensity.

In Asia, various community programs have been adopted and studied in several countries to promote de-institutionalization, community psychiatric services and reduce relapses or readmission rates.

In China, the government has to implement the community severe mental illness management program (686 projects) from 2004. Thus, case management for clients with severe mental illness in the community is still in its infancy. Given the current state of development of resources for people with severe mental illness in the community and the limited resources overall, it is difficult to develop the assertive community service in China.

The pilot study presented here was conducted to evaluate the effects of the

strengths model case management service on Chinese patients with schizophrenia recruited from five community health centers.

The main aim of the present study was to assess the effectiveness of a CM group and CAU group in patients with schizophrenia, to establish an evaluation system for clinical case management techniques for schizophrenia with Chinese characteristics.

2. Methods

This study has been conducted an one-year, longitudinal, experimental study which aims to compare the effectiveness of the case management and the care as usual. The subject, grouping, intervention, supervision and training, evaluation procedures and data analysis are described below.

Subject

Schizophrenia patients documented in the community mental health management system of Haidian District (Beijing, China), and met the following criteria was recruited between October 2010 to October 2012. Patients were randomly divided into two groups (CM group and CAU group) according to a 1:1 ratio with the block randomization.

Inclusion criteria:

Subjects enrolled in this study were required to meet the following criteria:

- 1) The subject had received the diagnosis of schizophrenia according to the International Classification of Diseases-10 (ICD-10) by two psychiatrists;
- 2) Not in acute phase (medication was stable in the last month, no hospital admission within the previous one year);
- 3) The subject was aged 18 - 60 years and the education level was above nine years;
- 4) Informed consent from the patients or their legal guardians.

Exclusion criteria:

Subjects were excluded if they had the idea or behavior of self-harm, suicide, assault or violence that cause harm to others or property damage.

Grouping

Subjects are volunteered as the one years of case management or standard community service, which is more to align with clinical reality. However, some of the subjects were lost during the follow-up because the patients could not be contacted.

Intervention

CAU group:

Patients received care as usual, no special intervention are added by the trail except regular assessment according to the protocol.

CM group:

A staff in the community health center provided a supportive service to assist clients to live independently in the community. A multidisciplinary team in the psychiatric hospital supervised their service. The staff in the community received

case management training before starting the study and took turns in attending regular booster training after the study began. The case management model which we applied was the strengths model [12]. The service for the clients:

1) The community mental health staffs were assuming the role of case managers. The case load was 1:15.

2) The case manager conducted a comprehensive evaluation of the clinical and psychosocial needs of their clients, informed by the following eight fields: mental health, physical health, cope with stress, social interactions, work and educational leisure, daily activity and living skills, financial management, family support. The case manager was evaluated the present situation with their clients, together with their future goals and past experiences. After discussions and consultations, individual service plans for their clients are formulated. For the first month, clients had an interview for their case manager once a fortnight. Then they met monthly to review their plan. The case managers made detailed clinical notes of each meeting with their clients.

3) Consistent with a strengths-based approach, the intervention focused on the strengths, abilities, resources, and potential of people and their community.

4) The psychiatrist in the multidisciplinary team visited the community once a week to do the clinical work, including reviewing clients' mental states and medication regimes and making necessary adjustments.

5) The service to clients was provided for workdays, 9am-5pm, face-to-face or by telephone.

6) Psychosocial education was delivered to clients and their family caregivers in a group education session once a week. These covered introductory knowledge of mental illness, medication information, how to communicate with clients, supporting the clients at home, how to prevent the relapse.

7) Emergency intervention: The community staff assessed clients that were thought to be in crisis and reported to the multidisciplinary team, who offered advice, earlier review of the client or inpatient admission, as appropriate.

8) Each case manager reminded their clients to see the doctor and supported their visit.

Supervision and training

1) Case managers in the community health center were experienced nurses, doctors, social workers.

2) Each case manager has a supervisor from the multidisciplinary team. They were supervised through review of their written records of their case management practice.

3) Multidisciplinary review meetings were held every week to discuss the recovery plans of the clients.

Evaluation

For all patients, the one year assessment period was dates from baseline with follow-up interviews scheduled for one month, three months, six months and twelve month by research assessors, who were senior psychiatrists. Following scales is used to do quantitative evaluation.

1) The relapse criteria were consisting of four categories: Hospitalization due to deterioration of mental symptoms; The PANSS score increased by 25%, or PANSS score increased by 10 points when baseline PANSS score was 40 points; CGI-S score of 6 or 7; The Significant self-injury behavior, clinically significant suicide and murder concept, violent behavior leading to injury or property damage.

2) The Chinese version of the PANSS has been validated, which consists of 30 items and offers three categories: positive, negative and general syndromes [13]. Psychotic symptoms occurring during one week prior to the interview are rated from 1 to 7. The higher the PANSS score is, the more severe the psychotic symptoms the patient has.

3) The PSP scale was administered by trained raters. It scored in four domains: psychosocial functioning within four domains: socially useful activities, personal and social relationships, self-care, and disturbing and aggressive behavior. A higher domain score represents worse functional performance in each domain. The final global score is defined according to a summary instruction table converting four domain scores into a single, overall rating from 1 to 100, where a higher score represents better personal and social function [14].

4) The Social Function 36 Scale (SF36) was used to evaluate the quality of patients' life, and the higher grades meaning the higher quality of life [15].

5) The Stigma Self-assessment Scale was used to evaluate patients' experiences of stigma and discrimination [16].

6) A Rating Scale for Extrapyrarnidal Side Effects (RSESE) was used to assess the drug's extrapyramidal side effects [17].

Statistics

We estimated the study group relapse rate is 30%, the control group is 60%. When α is 0.05, β is 0.1, $n = (U\alpha + U\beta)2 2P(1 - P)/(P1 - P0)2$, 47 cases for each group, consider 20% drop rate, a total of 112 cases were needed. Statistical analyses were performed using SPSS software (version 17.0), with the significance level set at $p = 0.05$. Use Last Observation Carried Forward (LOCF) imputation method to fill in missing data. Chi square analysis for categorical variables and independent samples and Student's t test for continuous variables were used. Descriptive statistics were computed using means and standard deviations from continuous variables, and absolute frequencies and percentages for categorical variables.

Ethics

This study was approved by the Ethics Committee of the Peking University Sixth Hospital (2011-8-26-1) and was conducted in accordance with the ethical standards of the 1964 Declaration of Helsinki.

3. Results

In this study, we recruit the patients from the community mental health management system of Haidian District between the October 2010 and October 2012. A total of 128 people participated in this study, 60 people in the CAU

group, and 68 people in CM group. And patients are volunteered for the one years of case management or standard community service. At the end of this study, there are only 106 people complete the 12 month visiting, 44 people in the CAU group, and 62 people in CM group.

Demographics information

Findings of univariate analysis comparing the experimental and control group at baseline are presented in **Table 1**. In general, the sociodemographic and clinical characteristics of the participants were similar between two groups.

The relapse rate and withdraw rate

There was no significant difference in relapse rate for CAU and CM group (CAU group: 5%, CM group: 7.35%) (**Table 2**); the withdraw rate was significant lower in CM group compared with CAU group of each visit (**Table 3**).

Table 1. Demographics at onset for the CM and CAU group.

	CAU (N = 60)	CM (N = 68)	Univariate statistics
Sex			$\chi^2 = 0.443$; ns
Male	30 (50.0%)	30 (44.1%)	
Female	30 (50.0%)	38 (55.9%)	
Age	42.07 (9.5)	41.34 (9.9)	t = 0.423; ns
Working			$\chi^2 = 12.604$; ns
Full time	18 (30.0%)	9 (13.2%)	
Part time	3 (5.0%)	1 (1.5%)	
No job	39 (65.0%)	58 (85.3%)	
Marital status			$\chi^2 = 2.22$; ns
Married	15 (25.0%)	15 (22.1%)	
Single	33 (55.0%)	40 (58.8%)	
Divorce	12 (20.0%)	13 (19.1%)	
Disease course	20.24 (9.5)	17.32 (8.1)	t = 1.87; ns
Hospitalization experience			$\chi^2 = 4.84$; ns
Hospitalization	42 (70.0%)	57 (83.8%)	
No hospitalization	18 (30.0%)	11 (16.2%)	
Medication			$\chi^2 = 1.39$; ns
Novel	29 (48.3%)	36 (52.9%)	
Conventional	24 (40.0%)	28 (41.2%)	
Combined	7 (11.7%)	4 (5.9%)	
Subtype			$\chi^2 = 10.01$; ns
Paranoid	39 (65.0%)	52 (76.5%)	
Hebephrenic	1 (1.7%)	3 (4.4%)	
Undifferentiated type	4 (6.7%)	0	
Other	16 (26.6%)	13 (19.1%)	

Table 2. The relapse rate between control and experimental group.

	CAU	CM	Total	P value
total	60	68	128	
relapse	3	5	8	
relapse rate	0.05	0.07	0.06	0.73

Table 3. The withdraw rate between control and experimental group.

	CAU			CM			P value
	Total	withdraw	Percent	Total	withdraw	Percent	
Baseline	60	0	0.00%	68	0	0.00%	
1 month	53	7	13.21%	67	1	1.49%	0.03
3 month	51	9	17.65%	64	4	6.25%	0.08
6 month	48	12	25.00%	62	6	9.68%	0.07
12 month	44	16	36.36%	62	6	9.68%	0.01

The Positive and Negative Syndrome Scale Score (PANSS)

The primary outcomes were a change in symptoms and social function in 12 months. To assess mental symptoms, participants were measured at baseline, 1, 3, 6, and 12 months with the PANSS. As shown in the **Table 4**, no statistically significant differences in PANSS total score was observed between two groups of each visit to the 1 year follow-up. The change of PANSS total score of baseline to each visit was not significantly different, either (**Table 5**). The PANSS total score decreased significantly from baseline and each visits in both groups (**Table 6**). At the endpoint, the PANSS negative score of CM group was significantly improved to compare with baseline, while in CAU group, the change was not significantly.

Personal and Social Performance (PSP)

In order to assess the social function of schizophrenia patients, we used the PSP scale of baseline, 1, 3, 6, and 12 months and the results were shown in **Table 4**, **Table 5**. There was no difference between control and experimental group in each visit of PSP global score (**Table 4**). But the change of PSP global score of CM group was obvious higher than CAU group ($P = 0.01$, $P = 0.03$) from 3 months to the endpoint (**Table 6**). Interestingly, the score was in the trend of gradually rising in both group, but only CM group had the statistical significance each visit.

Social Function 36 (SF36)

The grade in Social Function 36 (SF36) reflexes the quality of patients and we found there was no difference between CAU and CM group in each visit (**Table 4**) or the change of total score from baseline to each visit (**Table 6**). However, we can see the statistical significance when it comes to comparison of SF36 total score of baseline and each visit.

Table 4. Comparison of different stages between control and experimental group.

	CAU (n = 60) mean (SD)	CM (n = 68) mean (SD)	t value	P value
PANSS total score				
Baseline	44.03 ± 8.74	45.50 ± 10.81	0.84	0.40
1 month	43.13 ± 9.73	43.04 ± 9.38	0.05	0.96
3 month	43.47 ± 11.32	40.95 ± 9.15	1.29	0.20
6 month	40.85 ± 8.81	40.85 ± 9.16	0	1.00
12 month	39.93 ± 9.08	39.89 ± 9.25	0.03	0.98
end point	41.03 ± 9.59	40.93 ± 10.69	0.06	0.95
PSP total score				
Baseline	71.25 ± 17.70	67.76 ± 12.91	2.00	0.05
1 month	70.96 ± 17.74	73.09 ± 12.32	0.66	0.51
3 month	72.60 ± 15.39	74.21 ± 11.08	0.64	0.53
6 month	74.81 ± 11.47	74.65 ± 11.21	0.08	0.94
12 month	76.55 ± 11.10	76.44 ± 10.42	0.05	0.96
end point	75.35 ± 10.90	75.54 ± 11.68	0.10	0.92
SF36 total score				
Baseline	103.69 ± 13.27	99.50 ± 14.62	1.68	0.10
1 month	104.74 ± 12.47	103.72 ± 13.40	0.43	0.67
3 month	105.73 ± 13.51	103.81 ± 12.77	0.78	0.44
6 month	104.15 ± 15.95	102.65 ± 12.54	0.55	0.58
12 month	104.91 ± 13.90	103.85 ± 12.68	0.41	0.69
end point	102.47 ± 20.24	102.57 ± 13.95	0.04	0.97
SSMI total score				
Baseline	35.85 ± 16.13	39.96 ± 15.43	1.47	0.15
1 month	36.23 ± 15.67	36.84 ± 14.34	0.22	0.83
3 month	36.57 ± 15.46	38.09 ± 16.81	0.50	0.62
6 month	35.96 ± 17.16	40.50 ± 16.15	1.42	0.16
12 month	37.43 ± 17.44	38.66 ± 15.59	0.38	0.70
end point	38.02 ± 18.07	39.63 ± 15.57	0.54	0.59
RSESE total score				
Baseline	0.91 ± 0.99	1.07 ± 1.27	0.77	0.44
1 month	0.79 ± 1.03	0.85 ± 1.32	0.27	0.79
3 month	1.12 ± 1.63	0.78 ± 1.35	1.20	0.23
6 month	0.73 ± 0.89	0.79 ± 1.22	0.29	0.77
12 month	0.68 ± 0.91	0.94 ± 1.90	0.82	0.41
end point	0.66 ± 0.88	1.00 ± 1.89	1.27	0.21

Table 5. Comparison of PANSS score change between control and experimental group.

	CAU (n = 60) mean (SD)				CM (n = 68) mean (SD)			
	PANSS total score	PANSS positive score	PANSS negative score	PANSS general score	PANSS total score	PANSS positive score	PANSS negative score	PANSS general score
Baseline	44.03 ± 8.74	9.68 ± 2.68	11.52 ± 4.50	22.82 ± 4.95	45.50 ± 10.81	10.38 ± 4.19	11.91 ± 4.22	23.10 ± 5.18
1 month	43.13 ± 9.73	10.66 ± 11.34	11.79 ± 4.63	22.00 ± 5.43	43.04 ± 9.38	9.85 ± 3.27	11.46 ± 4.50	21.84 ± 4.79
3 month	43.47 ± 11.32	9.02 ± 2.84	11.98 ± 4.60	22.22 ± 6.20	41.20 ± 9.30*	9.17 ± 3.26*	11.45 ± 4.31	20.69 ± 4.22**
6 month	40.85 ± 8.81	8.58 ± 2.15	12.83 ± 9.45	20.98 ± 4.77	40.85 ± 9.16**	8.97 ± 2.72*	11.00 ± 3.77	20.71 ± 4.53**
12 month	39.93 ± 9.08*	8.39 ± 1.91	10.86 ± 4.22	20.43 ± 4.67*	39.89 ± 9.25**	8.84 ± 2.59**	10.45 ± 4.10*	20.44 ± 4.41**
end point	41.03 ± 9.59	8.92 ± 2.80	10.95 ± 4.38	20.98 ± 4.94	40.93 ± 10.69**	9.25 ± 3.23*	10.49 ± 4.08*	21.04 ± 5.58*

*, P < 0.05 compare with baseline; **, P < 0.01 compare with baseline.

Table 6. Changes of PANSS, PSP and SF36 score from different stage to baseline.

	CAU (n = 60)			CM (n = 68)		
	PANSS	PSP	SF36	PANSS	PSP	SF36
1 month - Baseline	-1.05 ± 5.45	-0.72 ± 13.00	0.22 ± 9.05	-1.84 ± 6.56	4.24 ± 8.04*	3.56 ± 8.34*
3 month - Baseline	-0.48 ± 7.94	-1.12 ± 16.18	0.95 ± 0.68	-3.66 ± 7.04	4.99 ± 8.26*	3.50 ± 9.81
6 month - Baseline	-2.18 ± 7.54	2.12 ± 9.03	-0.2 ± 12.73	-3.69 ± 6.78	6.15 ± 10.24*	1.97 ± 10.82
12 month - Baseline	-3.00 ± 7.72	3.3 ± 10.59	0.5 ± 10.19	-4.57 ± 8.15	7.78 ± 11.30*	3.07 ± 10.33
end point - Baseline	-3.00 ± 7.72	3.3 ± 10.59	0.5 ± 10.19	-4.57 ± 8.15	7.78 ± 11.30*	3.07 ± 10.33

*, P < 0.05 compare with CAU group; **, P < 0.01 compare with CAU group.

Stigma Scale Mental Illness (SSMI)

Like the result of SF36, there was no difference between CAU and CM group in each visit of stigma scale mental illness (SSMI) grade (Table 4) while when it comes to comparison of SSMI total score of baseline and each visits, we can see the statistical significance of experimental group of visit 3.

A Rating Scale for Extrapiramidal Side Effects (RSESE)

There was no difference between CAU and CM group in each visit of RSESE total score (Table 4) or comparison of RSESE total score between baseline and each visit.

Other outcomes

For patients with schizophrenia, there are some other outcomes to evaluate the changes in their overall situation including the frequency of communication with doctors, the compliance with medication, the treatment effect evaluation and self-satisfaction. We can see the higher frequency of communication with doctors in visit1 (p < 0.01) and visit 2 (p = 0.02) and become similar in other visit to the progress of treatment (Table 7).

Table 7. The frequency of communication with doctors.

	1/week	1/2 weeks	1/4 weeks	1/6 weeks	<1/8 weeks	Total	χ^2	P
1 month before baseline								
CAU	7	3	28	1	10	49	10.99	0.05
CM	26	6	24	1	7	64		
1 month before 1 month								
CAU	14	5	20	0	7	46	15.11	<0.01
CM	21	2	41	1	0	65		
1 month before 3 month								
CAU	13	3	23	1	6	46	11.36	0.02
CM	31	4	28	1	0	64		
1 month before 6 month								
CAU	13	2	24	2	6	47	5.58	0.23
CM	31	2	22	2	5	62		
1 month before 12 month								
CAU	17	4	18	0	4	43	2.57	0.63
CM	30	5	20	2	5	62		

4. Discussion

In this study, we examined the effectiveness of a CM group compared to a CAU group of 128 patients with schizophrenia from outpatient clinic of community of Haidian District in china. The demographic information shows no different between CM and CAU group. Which means the sociodemographic and clinical characteristics of the participants were similar between two groups.

In the end of this study, which shows there was no significant difference in relapse rate for two groups (CAU group: 5%, CM group: 7%). However, this relapse rate was much lower than we estimated the sample size. Part of the reason is because the clients are chronic patients (disease course CAU group 20 year, CM group 17 year), and they are all in the community mental health management system. The sample size maybe not sufficient to identify the difference between the two groups. As suggested by some authors, [18] certain outcomes of CM practices for persons with CAU do not appear in a short-term perspective (*i.e.* between 6 and 24 months).

The withdraw rate was significant lower in CM group compared with CAU group, which means the CM group patients have a better compliance, which is very important to the treatment of schizophrenia patients. The result is same to the study which indicated that people receiving case management was more

likely to remain in contact with services than those receiving usual care [19]. Although based on not high quality evidence, compared to usual care, another study also said that ICM (one of the case management model) may increase retention in care [3].

PANSS were assessed at baseline, 1, 3, 6, and 12 months. Our results show there is no statistically significant differences in PANSS total score of two groups of each visit to the 1 year follow-up. But we could see some difference when identify the change in baseline and each visits. At the endpoint, the PANSS negative score of CM group was significantly improved to compare with baseline, while in CAU group, the change was not significantly. Negative symptom is a big challenge to schizophrenia treatment, suggest maybe CM is an efficacy treatment to improve negative symptoms, [20] which requires further exploration. EYH Chen found that the case management group had better function, fewer negative symptoms, general psychopathology, and depressive symptoms [21]. The Occupational Functioning Assessment Scale (SOFAS) and Role Functioning Scale scores in the case management group improved significantly from baseline to 6 months, and from 6 to 12 months patients in the case management group attained significant functional improvement. The negative symptom score also evident changed from baseline to endpoint. But, in this study, both groups of patients are with early psychosis and have received 2 years of early intervention before starting the research. But at the same time, it is also suggested that perhaps with the extension of intervention time, we may get better results.

There was no difference between control and experimental group in each visit of PSP global score. But, at the endpoint, the PSP score of CM group was significantly higher compared with baseline, while CAU group was not significantly changed. This indicates the functionality of CM group was significantly improved, while CAU group was not. In this study, we evaluate patients' function of four domains socially useful activities, personal and social relationships, self-care, and disturbing and aggressive behavior. This improvement on the functionality of CM group is consistent with previous findings. Its results show an overall positive impact on the CM service on participants' self-report outcomes of several domains that CM participants improved in self-efficacy, unmet needs, and general quality of life, and set more goals than the control group [22]. A before review also had showed case management globally improved social functioning, although it social's effect on mental state and quality of life remains unclear [3]. But, a recent research suggested that functional outcomes improved significantly on the two forms of community-based psychosocial treatments in contrast to the treatment as usual group, which contains case management [23].

Lin CH suggested that clinical symptoms, mainly negative symptoms, mediate the influence of neurocognition and social cognition on functional outcome of schizophrenia [24]. Our study also showed both improves in the negative symptoms and in PSP scores which representing social function that was consistent with their correlation, although we did not have statistical data on neurological and social cognition in this study. We can improve this aspect in the future.

This study has several limitations. Firstly, the one year follow-up maybe is short for the more outcomes happening. Secondly, the sample size was relatively small and could only represent the small group with schizophrenia. Thirdly, in this study we did not statistic the rate of patients using long-acting antipsychotics and lack of pharmacokinetic data to monitor adherence.

5. Conclusion

This study assessed the effectiveness of case management on schizophrenia patients by using different scales. The relapse rate was similar in 2 groups, while the compliance rate was significantly better in CM group. And there is a possible effectiveness of CM group of improving negative symptoms and social function in schizophrenia clients.

Disclosure

The authors declared no conflicts of interest.

Acknowledgements

The authors would like to thank Li-Li Zhang from Xian Janssen medical department for giving valuable suggestion when develop the manuscript and thank Prof. Carol Harvey from Psychosocial Research Centre (Department of Psychiatry), The University of Melbourne, Melbourne, Australia for the valuable suggestion when develop the study and the manuscript.

Funding

This study was supported by the Clinical Characteristics of the Capital of Beijing science and Technology commission Foundation of China (D101100050010071) and Capital Health Development Research Project Program of China (2014-4-4112).

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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List of Abbreviations

CM: Case management;

CAU: Care as usual;

PANSS: Positive and Negative Syndrome Scale;

PSP: Personal and Social Performance Scale;

SSMI: Stigma scale mental illness;

ACT model: Assertive Community Treatment model;

ICD-10: International Classification of Diseases-10;

SF36: The Social Function 36 Scale;

RSESE: Rating Scale for Extrapyraxidal Side Effects;

LOCF: Last Observation Carried Forward;

SPSS: Statistical Product and Service Solutions;

SOFAS: Occupational Functioning Assessment Scale (SOFAS).