ORIGINAL ARTICLE

A 6-Month Randomized Controlled Pilot Study on the Effects of the Clubhouse Model of Psychosocial Rehabilitation with Chinese Individuals with Schizophrenia

Ying Chen[1] · Eva Yau[1,2] · Chow Lam[3] · Hong Deng[1] · Yiting Weng[4] · Tong Liu[4] · Xiaohong Mo[4]

Abstract

To investigate the effectiveness of the Clubhouse Model of Psychosocial Rehabilitation on psychosocial functions and recovery of native Chinese individuals with schizophrenia in a community sample. A randomized controlled design was used. A total of 56 participants were recruited from a community sample for a study lasting 6 months, but five participants dropped out. Twenty-eight participants attended the Clubhouse program, and twenty-three participants served as controls. Standardized assessments were performed on three areas at the baseline and the 6-month follow-up: 1. symptom reduction; 2. social function, self-determination, and quality of life; and 3. rehospitalization rate. Compared to the controls, the Clubhouse participants showed reductions in psychiatric symptoms and better social function, self-determination, and quality of life ($p < .05$), but with no difference in the rehospitalization rate between Clubhouse members and the controls. The Clubhouse Model demonstrates its effectiveness and shows its viability as a service delivery model in psychosocial rehabilitation for individuals with schizophrenia in mainland China.

Keywords Chinese individuals with schizophrenia · Clubhouse model · Randomized controlled study

Introduction

Schizophrenia affects approximately 0.54% of people during their lifetimes in mainland China, which means that more than 7.16 million people will suffer from schizophrenia during their lifetime in China (Long et al. 2014). In 2013, the total cost of mental disorders accounted for more than 15% of the total health expenditure in China and 1.1% of China's gross domestic product (Xu et al. 2016). The availability and integration of community-based mental health services can promote adherence to treatment and increase the positive clinical outcomes. Moreover, community services can play an important role in reducing stigma and discrimination, strengthening recovery and social inclusion, and preventing mental illness (Kohrt et al. 2018).

The World Health Organization's (WHO's) mental health action plan 2013–2020 proposes that all stable schizophrenia patients should recover in community-based care (WHO 2013). However, the treatment and rehabilitation of severe mental disorders in China is still dominated by psychiatric or general hospitals, with community services accounting for less than 11% of the total services (Zhao et al. 2017). Furthermore, the forms of community-based rehabilitation services are scattered, such as sunshine homes, which is a drop-in center-type program, skill training, sheltered workshops, and other services, without establishing a systematic effective and feasible community-based rehabilitation for mental disorders.

The Clubhouse Model of Psychosocial Rehabilitation is an evidence-based community mental health service model for helping people with serious mental illnesses to develop their potential and capacities (Doyle et al. 2013). It is a peer-driven, recovery-oriented practice for psychosocial rehabilitation (Mckay et al. 2018). The Clubhouse refers to people recovering from mental illness

✉ Hong Deng
rhdeng88@hotmail.com

1 Mental Health Center, West China Hospital, Sichuan University, 28# Dian Xin Nan Jie, Chengdu, China

2 University of Hong Kong, Hong Kong, China

3 Department of Psychology, Illinois Institute of Technology, Chicago, USA

4 "Hope" Clubhouse, West China Hospital & Qingyang Disabled People's Federation, Chengdu, China

as members, not patients. When part of the Clubhouse, members are expected to share in all of the activities and managerial functions of the community. As a result, the staffs working in the Clubhouse program are colleagues who work side-by-side with members to run the Clubhouse through the Work-ordered Day. In the Work-ordered Day, the Clubhouse requires the participants to determine the task requirements of the posts under the work units. At the same time, those participants who are capable of carrying out the tasks provide support and assistance to other members to help them successfully complete their tasks. Members then learn and gain experience through helping and working processes (Yau et al. 2005). These features are believed to create an empowering environment for enhancing the dignity and personal achievement of its members (Johnsen et al. 2002). Part of the daily work of the Clubhouse involves keeping track of all of the active members. When a member does not attend the Clubhouse or is in the hospital, a "reach out" telephone call, visit or text is made to that member. Employment assistance, including transitional employment, supported employment and independent employment, is also a key component of the Clubhouse. Clubhouses help members find paid jobs in community. For example, transitional employment positions are usually 6–9-month part-time opportunities. This position belongs to the Clubhouse, and absence coverage is guaranteed by the Clubhouse staff or a member. The Clubhouse maintains a good relationship with employers and provides on-site training and support to members. In addition to work opportunities, Clubhouses provide evening, weekend and holiday social and recreational programming (Mckay et al. 2018).

Several studies have shown the clinical benefits of the Clubhouse Model, including promoting employment, reducing hospitalization(s), and improving quality of life as well as offering support in education and social domains (Mckay et al. 2018). Longitudinal case-controlled studies have found that the Clubhouse Model improves medication management and compliance and social functions of members and reduces positive and negative psychiatric symptoms (Beard et al. 1978; Tsang et al. 2010).

The Clubhouse model might be suitable to address the urgent need for community mental health services in China. In 2007, the first psychosocial Clubhouse was established in Changsha, China, and another five Clubhouses were then set up in Hangzhou, Kunming, Shenzhen, Chengdu and Zigong. However, this model was based on Western philosophy and beliefs, which are mainly individualistically oriented. As such, a legitimate concern is raised as to whether the Clubhouse Model is relevant and appropriate to the collectivistic Chinese culture. Furthermore, there is a lack of vigorous control studies on the Clubhouse model in China (Tsang et al. 2010). Thus, the purpose of this research

was to conduct a randomized-control study to examine the effectiveness of the Clubhouse Model in psychosocial rehabilitation and recovery with Chinese individuals with schizophrenia.
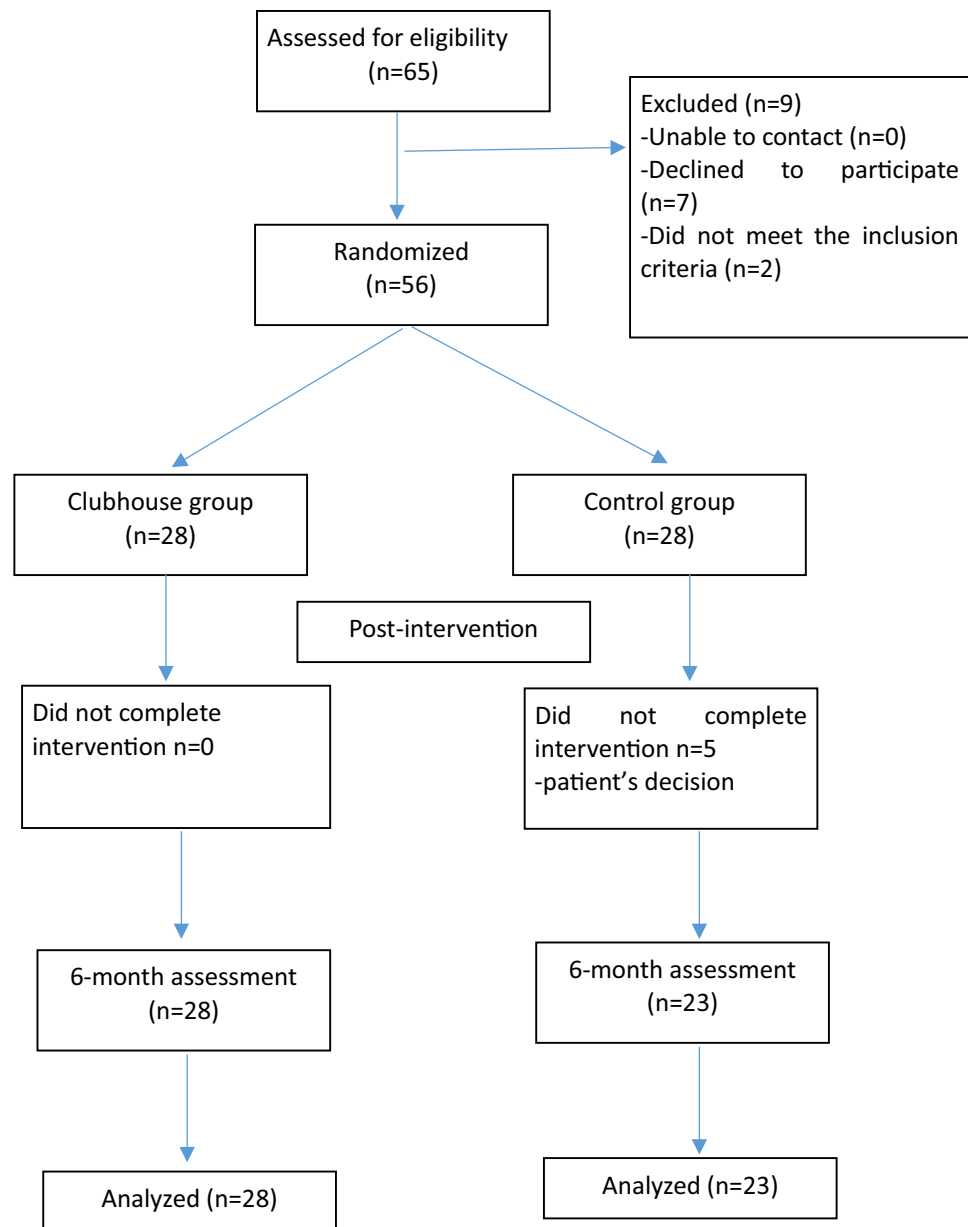
Methods

Design

We used a randomized controlled design to compare effects of the Clubhouse Model on the psychosocial functions of Chinese individuals with schizophrenia. Measurements were taken at baseline and 6 months thereafter. Figure 1 shows the flow chart of the study.

Participant Recruitment

Participants were recruited from Qingyang community in Chengdu, a major city in Sichuan, China, from September 1, 2014, to July 31, 2017. The Qingyang District Disabled Persons' Federation provided a list of residents in the community who have a diagnosis of mental disorders. Each potential participant was interviewed with the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (SCID), for their eligibility for the study by psychiatrists or graduate students who were trained in SCID. The study was reviewed and approved by the Internal Review Board (IRB) of the Mental Health Center of West China Hospital, Sichuan University. After informed consent was obtained from each eligible participant, and their respective parents or guardians if the participant was under the age of 18, the participants were then randomly assigned to either the Clubhouse group or the general community service group via a computer (we randomly assign them using computer software for every 4–6 people who sign up), and baseline assessments were conducted.

The required sample size with Cohen's d effect size of 1.0, alpha error probability = .05, power = .80 (Cohen 1992) was calculated. For repeated measures ANOVAs with between- and within-group interactions, the required sample size was 26 per group. In view of possible drop-outs, missing data and incomplete attendance in the program, the study recruited 56 participants with a major diagnosis of schizophrenia. Admission criteria for the study included the following: (1) having a diagnosis of schizophrenia or schizoaffective disorder; (2) continuing to take psychiatric drugs for more than 6 months without impulsive aggressive behavior; (3) being between 16 and 60 years of age; and (4) not having a diagnosis of mental retardation or organic brain syndrome, or a primary diagnosis of substance dependence. This trial was registered in West China Hospital.

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                              │ ───────►│ Excluded (n=9)           │
                              │         │ -Unable to contact (n=0) │
                              ▼         │ -Declined to participate │
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                    │  Randomized     │ │ -Did not meet the        │
                    │   (n=56)        │ │ inclusion criteria (n=2) │
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  │ Clubhouse group │                    │  Control group  │
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          │          ┌──────────────────┐        │
          │          │ Post-intervention│        │
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  │ Did not complete│                    │ Did not complete│
  │ intervention n=0│                    │ intervention n=5│
  │                 │                    │ -patient's      │
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  │ 6-month         │                    │ 6-month         │
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  │   (n=28)        │                    │   (n=23)        │
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Fifty-one participants completed the entire course of study. Five participants from the control group refused to continue in the study due to transportation problems. The drop-out participants did not differ from the rest of the sample in characteristics and psychosocial functions. Thus, the Clubhouse group consisted of 28 participants, and the control group had 23 participants.

Assessment Measures

Psychiatric Symptom Severity

A Chinese version of the Positive and Negative Syndrome Scale (PANSS) (Kay et al. 1987) was used to measure psychiatric symptom severity. It is a structured clinical interview consisting of 30 items designed to assess severity of symptoms over the past week on a 7-point Likert scale (1 = Absent to 7 = Extreme). The scores range from 30 to 210, with higher scores indicating more symptom severity. The PANSS Raters were trained in an interrater agreement of 80% on a series of videotapes for which "gold-standard" consensus ratings had been determined by a group of experienced raters. PANSS subscales were used to measure negative symptoms, positive symptoms, and dysphoric mood. Reported psychometric properties of PANSS include Cronbach's alpha of .73 on the positive scale, .83 on the negative scale, and .87 on general psychopathology (Kay et al. 1987). In this study, the Cronbach's alpha values of the positive

scale, the negative scale and general psychopathology were .80, .94 and .84, respectively.

Social Functioning

A Chinese version of the Personal and Social Performance Scale (PSP) (Tianmei et al. 2011) was used to assess the participant's social functioning. The PSP scale was developed based on the social functioning component of the DSM-IV Social and Occupational Functioning Assessment Scale (SOFAS). The scale assesses four main areas of social functioning: socially useful activities; personal and social relationships; self-care; and disturbing and aggressive behaviors. Difficulty in each area is rated on a six-point scale: Absent; Mild; Manifest; Marked; Severe; or Very severe, with lower ratings indicating higher social functioning. A global item ranging from 1 to 100 in ten-point intervals is rated by the interviewer, where lower scores indicate poorer functioning. Cronbach's alpha = .84 was reported (Tianmei et al. 2011), and in this study, the Cronbach's alpha was .97.

Quality of Life

The Schizophrenia Quality of Life Scale (SQLS) (Wilkinson et al. 2000) was used to measure family function and quality of life for people with schizophrenia. This scale has 30 items. Ratings of 30 items are made using a 4-level scale ranging from 0 to 4, and scores range from 0 to 100, with the higher scores indicating poor quality of life. The Cronbach's alpha values were as follows: psychosocial factor = .93, motivation and energy factor = .78 and symptoms and side-effects factor = .80 (Wilkinson et al. 2000). In this study, the Cronbach's alpha of the SQLS was .90.

Self-Determination

The Consumer and Family Decision-Making Scale (CFDMS) (Chen et al. 2018) was constructed to measure consumers' views on self-determination on various aspects of daily matters. The CFDMS has 27 items spread across four factors: psychiatric care/treatment, personal/social function, community/daily living, and money management. Ratings of 27 items are made on a 10-point scale from 0 to 10; scores range from 0 to 270, with the higher scores indicating higher self-determination. The Cronbach's alpha values of psychiatric care and treatment factor, personal and social function factor, community and daily living factor, and money management factor were as follows: .86, .89, .87 and .76, respectively (Chen et al. 2018). In this study, the Cronbach's alpha of the CFDMS was .94.

Rehospitalization Rate and Employment Rate

The rehospitalization rate was defined as the numbers of members returning to hospital because of the deterioration of the disease from the baseline to the 6-month follow-up/the total number of members. The employment rate was defined as the numbers of members achieving employment, including independent employment and transitional employment, from the baseline to the 6-month follow-up of the total number of members.

Treatments

Clubhouse Model: This study was conducted at a local Clubhouse (Hope Clubhouse) in Chengdu that was established in 2012, which was the first Clubhouse in Sichuan Province. It caters to the needs of approximately 150 members who are all Chinese people with mental illnesses. The Clubhouse is open from 9 am to 5 pm from Monday through Friday to provide a work-oriented day program (called the Work-ordered Day). The members' work activities center around three work units. The Administration Unit supports the day-to-day operation of the Clubhouse, while the Food Services Unit and the Employment and Education Units provide different opportunities for the members to practice a wide spectrum of work skills and to contribute to the productivity of the Clubhouse. All members choose the work they want to perform according to their interests and needs. The Clubhouse also provides employment and supported education programs for its members. There are six transitional employments for Clubhouse members. By engaging in simple, stable, repetitive part-time work, our members regain confidence, self-esteem and determination. In addition, evening, weekend and festival activities are available. During the study period, six full-time staff and approximately 30 members attend the Clubhouse daily. Shortly after the study, Hope Clubhouse attained international accreditation by Clubhouse International in November 2017, which strongly supports its fidelity to the model.

General community service group: in this group, the communities irregularly provide psychoeducational talks about mental illness for people with mental disorders. Community workers visit their homes irregularly and contact medical institutions for emergency hospitalization when their illness worsens and they experience impulsive and aggressive behavior.

Statistical Analyses

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows, version 13.0. To test the between- and within- group differences, the study used repeated measures ANOVAs on data from the baseline and

the 6-month follow-up and complemented these analyses with traditional significance testing. Follow-up analyses were performed on interaction effects. Effect sizes on comparisons were reported. The Mauchly sphericity criterion (W) was used to judge the validity of conditions for repeated measures ANOVAs, and the conditions were met. The correlation analysis was used to assess the relationships between attendance rate, clinical symptoms and social functions.

Results

Sample Characteristics

Demographic characteristics and clinical variable baseline measures are presented in Tables 1 and 2. The sample consists of 51 participants, with 28 participants in the Clubhouse group and 23 participants in the control group. No significant differences were found on any of the demographic and dependent variables between the two groups at the baseline.

Evaluation of Treatment Effectiveness

The study measured three areas of treatment effectiveness: (1) Symptom reduction (PANSS); (2) Social function, self-determination and quality of life (PSP, SQLS, CFDMS, Employment rate); and (3) Rehospitalization rate. Table 3 provides a summary of the mean differences and levels of significance associated with the dependent measures from pre- to posttreatment. Repeated measures analyses of variance were conducted to examine the impact of the Clubhouse

Table 1 Comparison of demographic and clinical variables between clubhouse and control groups at baseline

Variable	Data		Statistics	
	Clubhouse N = 28	Control N = 23	X^2/t	P
Age	38.96 ± 10.23	39.13 ± 11.57	.054	.957
Gender				
Male	20	14	.634	.426
Female	8	9		
Marital status				
Single	12	10	.678	.713
Married	5	6		
Separated	11	7		
Education level				
Primary	2	1	.601	.74
Secondary	22	17		
Tertiary	4	5		
Illness duration (years)	16.97 ± 8.83	17.30 ± 10.19	.128	.898

Table 2 Comparison of psychopathological and psychological variables between clubhouse and control groups at baseline

Variable	Clubhouse N = 28	Control N = 23	t	p
PNASS				
Positive scale	16.19 ± 7.42	14.08 ± 6.16	-1.09	.28
Negative scale	17.81 ± 9.27	17.79 ± 8.43	$-.01$	.993
Total score	65.93 ± 26.10	61.33 ± 23.25	$-.66$	.512
PSP scale	54.3 ± 17.01	53.22 ± 17.52	$-.20$	.84
SQLS scale	47 ± 18.81	40.04 ± 17.52	-1.31	.197
CFDMS scale	145.84 ± 55.34	162.4 ± 40.62	1.09	.28

PANSS: Positive and Negative Syndrome Scale (possible scores range from 30 to 210, with higher scores indicating more severe symptoms)

PSP: Personal and Social Performance Scale (possible scores range from 0 to 100, with lower scores indicating poorer functioning)

SQLS: Schizophrenia quality of life scale (possible scores range from 0 to 100, with lower scores indicating better quality of life)

CFDMS: The Consumer and Family Decision Making Scale (possible scores range from 0 to 270, with higher scores indicating higher self-determination)

program, with Group (intervention versus control) as the independent variable and Time as the assessment point (pre versus post). For these analyses, a group-by-time interaction examines whether participants in the Clubhouse group improved more than clients in the control group. An analysis was performed for each of the dependent measures, including the subscales of the PANSS, PSP, SQLS, and CFDMS. Statistically significant interactions between group and time were found for the total PANSS (F = 6.645, df = 1.51, p < .05) and both Positive PANSS (F = 5.823, df = 1.51, p < .05) and Negative PANSS (F = 4.955, df = 1.51, p < .05), as well as CFDMS (F = 4.6, df = 1.51, p < .05) and SQLS (F = 6.931, df = 1.51, p < .05).

The means and standard deviations in Table 3 indicate the sources of these interactions. Data in the table indicate that the participants' psychiatric symptoms, self-determination, and social functioning improved significantly more for the participants in the Clubhouse group than for those in the control group.

Employment and Rehospitalization

Since both employment and rehospitalization rates are categorical data, the study used nonparametric statistics for analyses. Three members (10.7%) had been rehospitalized in the Clubhouse group, and seven participants (30.4%) had been rehospitalized in the control group. There was no significant difference in the proportions of rehospitalized participants between the two groups (x^2 = 3.12, df = 1.51, p = .079). Seven participants (25%) participated in transitional employment in the Clubhouse, and one participant

Table 3 Changes in psychopathology for clubhouse and control groups during the study

Variable	Baseline		6 months		F	P
	Clubhouse	Controls	Clubhouse	Controls		
PNASS						
Positive scale	16.19 ± 7.42	14.08 ± 6.16	10.04 ± 2.70	12.25 ± 6.15	5.82	.02
Negative scale	17.81 ± 9.27	17.79 ± 8.43	12.04 ± 5.89	17.75 ± 7.84	4.96	.033
Total score	65.93 ± 26.10	61.33 ± 23.25	46.07 ± 15.07	59.46 ± 20.57	6.65	.013
PSP scale	54.3 ± 17.01	53.22 ± 17.52	72.59 ± 11.02	57.7 ± 17.17	7.87	.007
SQLS scale	47 ± 18.81	40.04 ± 17.52	38.95 ± 16.95	42 ± 22.33	6.93	.012
CFDMS scale	145.84 ± 55.34	162.4 ± 40.62	171.56 ± 65.21	163.47 ± 33.74	4.6	.038

PANSS: Positive and Negative Syndrome Scale (possible scores range from 30 to 210, with higher scores indicating more severe symptoms)

PSP: Personal and Social Performance Scale (possible scores range from 0 to 100, with lower scores indicating poorer functioning)

SQLS: Schizophrenia quality of life scale (possible scores range from 0 to 100, with lower scores indicating better quality of life)

CFDMS: The Consumer and Family Decision Making Scale (possible scores range from 0 to 270, with higher scores indicating higher self- determination)

(4.3%) was employed in the control group. The employment rate of Clubhouse members was higher than that of the controls ($x^2 = 4.07$, df = 1.51, p = .044).

Discussion

This is the first randomized-control study attempting to explore the effectiveness of the Clubhouse Model of Psychosocial Rehabilitation on patients with schizophrenia in a Chinese community. The study found that compared to the control counterparts, persons who participated in the Clubhouse showed significant improvements in their psychiatric symptoms, social functions, and quality of life and higher self-determination and employment rates.

Our results indicated that participants in the Clubhouse Model have better management of their psychiatric symptoms than control participants. Previous studies also reported similar findings (Beard et al. 1963, 1978; Warner et al. 1999; Mowbray et al. 2009). Furthermore, Crowther el al. found that people who participated in the Clubhouse had significantly reduced hospitalization rates compared to those in standard community care in the first year of the study (Crowther et al. 2010). As resources for people with mental illnesses are very limited locally, Hope Clubhouse's staff and members co-lead educational classes on weekends and evenings to help interested members improve their personal coping skills, including stress and illness management of members, which may reduce the probability of symptomatic relapse. However, we did not find any significant difference in rehospitalization rates, even though Clubhouse members had a lower rate than the controls. This result may be because our sample size was relatively small and was only observed for 6 months. Further longitudinal studies are needed to examine the long-term rehospitalization rate for the Clubhouse Model.

We also found that Clubhouse participants had better social functioning and better quality of life and higher rates of employment after 6 months. These results were consistent with previous studies (Crowther et al. 2010; Johnsen et al. 2004; Anthony and Liberman 1986; Macias et al. 2001, 2006; Schonebaum and Boyd 2012). When Macias et al. compared outcomes with Assertive Community Treatment, the Clubhouse participants were employed more calendar days, worked more hours, and earned more money (Macias et al. 2001, 2006). Schonebaum and Boyd (2012), found that participation in the Work-ordered Day likely enhanced the work readiness of members and had a significant positive impact on the average duration of employment. The Work-ordered Day is a main feature of the Clubhouse Model. It provides a real work environment and offers participants opportunities to work in various areas, which can help members develop skills and the ability to work on different tasks, including those involving social and interpersonal skills. Members were more likely to build social and working relationships with staff and other members through partnerships in the Clubhouse (Yau et al. 2005). All of the skills learned and developed in the Clubhouse enhance employment prospects. Furthermore, as part of the Clubhouse model, transitional employment may provide members with faster and more employment opportunities than the control groups. All of these factors may offer an explanation of the higher social functions and employment rates of members.

The results of this study showed that the Clubhouse members had higher self-determination than controls. Self-determination has been viewed as an important

ingredient of successful recovery and can enhance clients' motivation and treatment adherence, resulting in better rehabilitation outcomes and improved quality of life (Gard et al. 2014), while autonomy is regarded as a core component of self-determination (Deci and Ryan 1985). Raeburn et al. (2017) found that autonomy support for the members was a core component that the Clubhouse staff embodied in their daily practices and how staff and members perceived recovery practices to be implemented at the Clubhouse. Thus, autonomy support is an important means of supporting the self-determination of Clubhouse members. Autonomy refers to a sense of freedom and choice, competency to a feeling of contribution to one's community, and relatedness for relational support (Deci and Ryan 2012). The Clubhouse Model emphasizes choice, respect, and opportunity to all Clubhouse members. Members volunteer their talents and partner with staff in operating the Clubhouse; members' contributions are highly valued. These choices and opportunities may enhance members' willingness to make autonomous decisions.

We also found Clubhouse members had higher quality of life. Evidence from multiple studies, including randomized clinical trials and matched programs, also suggests that the Clubhouse has positive impacts on satisfaction and quality of life (Crowther et al. 2010; Wehmeyer and Schalock 2001; Gold et al. 2016). These results may benefit from recovery-oriented practice, a supportive environment and an array of services available for members to choose and participate in the Clubhouse, which emphasize identifying personal strengths rather than clinical symptoms.

In terms of participation rate, all members of the Clubhouse group participated in the complete study. There are several possibly reasons for the participation rate. First, the Clubhouse provides an empowering and supportive environment, which is different from previous community rehabilitation services. In the Clubhouse, the staff and members are equal so that members can gain more self-efficiency and reduce the stigma of disease. Members benefit from this organization, whether in terms of reduced symptoms or improved social and work skills; thus, they are more likely to participate in projects. Second, in China, most people with mental illnesses live with their families. Hope Clubhouse conducts family activities every month so that family members can learn more about recovery knowledge and members' activities in the Clubhouse. Family members are more willing to urge and encourage members to participate in Clubhouse activities (Chung et al. 2016). Third, as part of the Clubhouse component and daily work, outreach is provided to members who have not been attending the Clubhouse. Each member is reminded that they are missed and that they are welcome and needed at the Clubhouse. This process will encourage members to participate.

Limitations and Future Research

Several study limitations should be noted. First, the study assessed the effectiveness of the Clubhouse Model only for 6 months, and the sample size was relatively small. Thus, its long-term effectiveness beyond 6 months remains unknown. Future large-sample longitudinal studies are needed to examine the long-term effectiveness of the Clubhouse Model. Second, the multiple comparisons raises the concern of alpha inflation, the future studies should considered using the Benjamini–Hochberg false discovery rate to correct for p value. Third, the control group received scattered and unsystematic rehabilitation services and was in a naturally disadvantageous position compared to Clubhouse study members. Future studies should consider using control participants who are also involved in other rehabilitation services, such as drop-in centers and special interest or hobby groups, to name a few. Future studies on how different parties, such as members, parents, and staff, share decision-making strategies to enhance members' self-determination skills should be considered. Greater understanding in this area would be crucial for contextualizing the Clubhouse model in Chinese culture.

Conclusion

This randomized-control study found that participants in the Clubhouse model showed significant improvements in social functions and symptom control and had better quality of life and self-determination. Another merit of the Clubhouse model is that it improves members' employment rate. Although this is the first attempt to study Clubhouse effectiveness in China, the results support the use of the Clubhouse model in China for individuals with schizophrenia.

Compliance with Ethical Standards

Conflict of interest All authors have no conflict of interest.

Ethical Approval This study was in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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