Effectiveness of Social Skills Training on Quality of Life and Functional Performance in Patients with Schizophrenia

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ABSTRACT:
The study aims to determine the effectiveness of social skills coaching on quality of life and functional performance in patients with schizophrenia. Methods: A quasi-experimental study design was chosen and sixty participants (N=60) aged 18 to 55 years were recruited using a convenience sampling approach. The participants were divided into two groups viz. experimental (n = 30) and control (n = 30). Participants in the experimental group received social skills coaching for eight weeks, while participants in the control group received traditional occupational therapy interventions. Two outcome measures, consisting of the Canadian Activity Performance Index (COPM) and a 36-item short survey (SF-36), were used to measure quality of life and functional performance. Results: There was a statistically significant difference between the pre- and post-test scores of the COPM and SF-36 survey in both the experimental and control groups. In addition, the quality of life and functional performance of the patients in the experimental group improved significantly compared to those in the control group. Conclusion: In schizophrenia patients, a social skills training intervention was more successful in improving quality of life and functional performance. Through social skills training exercises, participants' engagement increased, they showed more enthusiasm in completing their everyday tasks, and their role identity and integration into the community also improved.

1. Introduction

Schizophrenia is a severe and persistent mental illness that disrupts a person's behavior, thought process, social interactions, and view of reality (Vohs et al., 2018). It is a serious mental illness that results in psychosis and affects every aspect of life, including personal, family, social, educational, and occupational functioning. Human rights violations and social discrimination against people with schizophrenia are widespread. Schizophrenia patients seem to have lost touch with reality, which is detrimental to both themselves and their family and friends.

The DSM-5 identifies five types of schizophrenia: catatonic, residual, undifferentiated, disorganized, and paranoid. Delusions, mental disorders, hallucinations, anomalous affects, and disturbances in motor behavior are some of the clinical signs of schizophrenia. These distinguishing characteristics affect the person's professional and social functioning, which is significantly below the level achieved before the onset of schizophrenia. People with schizophrenia often experience cognitive deficits associated with social impairments, community functioning, interpersonal connections, problem-solving techniques, or learning new skills (Perlick et al., 2008). One of the main features of schizophrenia is its impact on a person's functioning at a psychosocial level, including his or her ability to care for himself, as well as all other skills necessary for a competent and effective lifestyle, social interactions, family life and independent living and work performance (Ottavi et al., 2014). Despite the fact that both positive and negative symptoms have a significant impact on social and occupational functioning, negative symptoms have been found to worsen everyday activities, impair quality of life, and reduce occupational performance (Bejerholm et al., 2007).

Schizophrenia significantly reduces the quality of life for individuals compared to the general population or those with other chronic illnesses (Lin et al., 2023). Two critical factors affect the quality of life of patients

with schizophrenia: clinical factors such as psychiatric symptoms, medication adherence, and insight into the illness (Maryam et al, 2023) and psychosocial factors like social support, cognitive abilities, stigma, self-esteem, and individual needs (Hongmei et al., 2023; Xiao-Yan et al., 2022). Furthermore, the extent of symptoms in schizophrenia greatly affects a person's capacity to carry out everyday tasks, as both positive and negative symptoms playing crucial roles. There is a strong correlation between severe clinical symptoms, specifically disorganization and negative symptoms, and impairments in real-world functioning, particularly in social interactions and communication (Veleva et al, 2023). These problems are made worse by cognitive impairments, such as deficiencies in verbal memory, executive function, and verbal fluency. As a result, the person becomes more disabled in areas like household activities and social interaction. (Chen-Fong et al., 2023). Elderly individuals with schizophrenia often experience significant everyday functional limitations, influenced by factors such as the progression of the illness, cognitive abilities, feelings of depression, and physical health conditions, particularly those impacting the respiratory and urinary systems (Ellaheh et al., 2022). Additionally, people with schizophrenia often experience difficulties with fundamental social, vocational, and independent living skills, which can hinder their day-to-day functioning (Bowie et al., 2012).

There are various interventions to correct the functional impairment of schizophrenic patients and improve their quality of life. These include Community-Based Rehabilitation (CBR) (Xin Zhang., 2023), Cognitive Behavioral Therapy (CBT) (Irene Bighelli et al., 2022) and Early Intervention Services (EIS) as well as family interventions that are particularly effective in early-stage psychoses and improved a range of outcomes including overall symptoms, positive and negative symptoms, and quality of life (Viviane et al., 2023). Furthermore, physical exercise, both aerobic and functional, has had a positive impact on improving quality of life, posture and flexibility, with functional interventions showing slightly better results in schizophrenic patients (Annie et al., 2021).

In addition, skills-based interventions, including psychoeducation, cognitive behavioral methods, and social skills training, have also been shown to be effective in improving independent functioning and reducing caregiver burden (Francesco Matrisciano., 2023). All of these programs are referred to as Social Skills Training (SST) programs because they address deficits in social cognition and social skills that result in ineffective and declining social functioning. (Chien et al., 2003; Smith et al., 1996). Despite the existence of these interventions, the effectiveness of social skills-based interventions on quality of life and functional performance in patients with schizophrenia is very limited. Therefore, this study aims to determine the effectiveness of social skills training on quality of life and functional performance in patients with schizophrenia.

2. METHODOLOGY

Study design: Using a quasi-experimental study design consisting of an experimental group and a control group, the influence of social skills training on quality of life and functional performance in patients with schizophrenia was examined. This study received ethical approval from the institutional ethics committee of SRM Medical College Hospital and Research Center (No. 3028/IEC/2021).

Subjects

All the subjects visiting Arisjuvady mental health center (n=220) in Pondicherry formed the population for this study and using a convenient random sampling, a total of 60 patients between the ages of 18 and 55 diagnosed to having schizophrenia were recruited for the study. Before being randomized into groups, all the subjects were subjected to initial screening using the Positive and Negative Syndrome Scale (PANSS) and Social Dysfunctionality Rating Scale. PANSS is a widely used clinical tool to measure symptom severity in five domains: positive symptoms (e.g., hallucinations and delusions), negative symptoms (e.g., social withdrawal), agitated/agitated symptoms (e.g., hostility), cognitive symptoms (e.g., poor attention), and affective symptoms (e.g., depression and anxiety) in individuals with Schizophrenia. (Findling et al., 2023). In addition, all patients were assessed using the Social Dysfunctionality Rating Scale, which includes 21 items on a six-point scale, each graded from 1 to 6, and is divided into three subcomponents: the self-system, the interpersonal system, and the performance system. Surveys and reports from family members or employees of hospitals in primary care are also taken into account. Scores range from 1 (not present) to 6 (very severe), with 1 being the least severe and 6 being the most severe. Scores for the self-system, interpersonal system, and performance system are frequently reported individually.

In order to identify potential subjects with schizophrenia and include them in the sampling frame, the following criteria were used: (i) patients must be of both genders and between the ages of 18 and 55; (ii) patients must be in a stable phase of illness, as indicated by no significant medication changes or hospitalizations during the previous three months; and (iii) patients must be able and willing to provide informed consent after being fully informed about the nature, goals, and interventions of the study. In addition, those schizophrenic patients with substance use were excluded. Based on the application of both inclusive and exclusive criteria, one patient was excluded from the total count of 60 samples and participated in this study. These patients (n=60) underwent screening on a social dysfunction rating scale before being randomly assigned to either the experimental group (n=30) or the control group (n=30).

Randomization:

Participants were randomly assigned to either an experimental group or a control group by drawing a card from an envelope in a concealed box. The person facilitating the drawing process was not part of the study. Those who drew red cards were placed in the experimental group, while those who drew blue cards were placed in the control group, as shown in Figure 1.

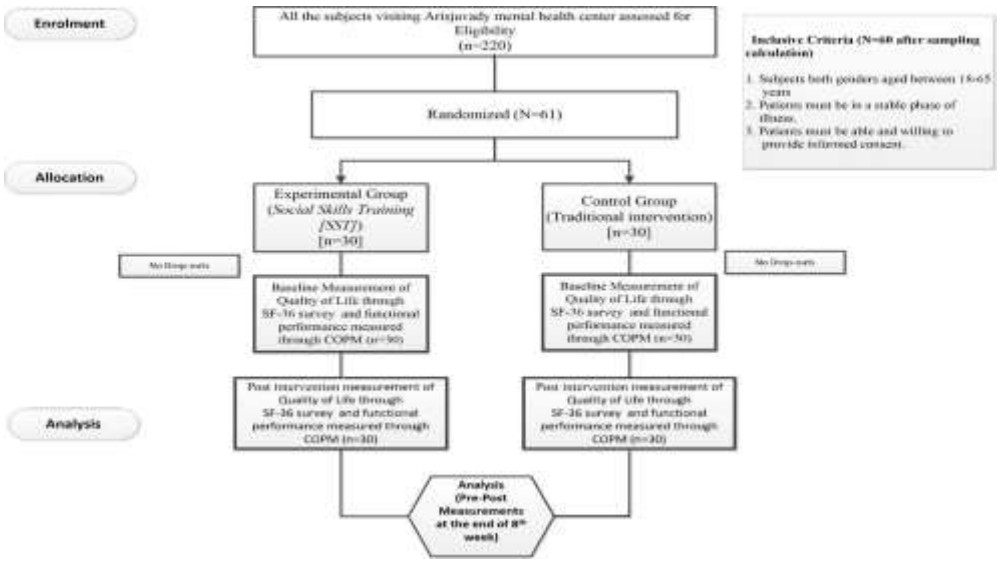

Figure 1. Flow chart displaying the subjects' randomization.

Methods

The 8-week intervention included two hour-and-a-half hours social skills training sessions per week (3 sessions per day/28 sessions in 8 weeks duration), while the control group received only a traditional intervention. Traditional interventions begin with activity analysis and adaptation, in which therapists adapt tasks and environments to individual abilities, promoting independence. Second, patients were provided with cognitive-behavioral techniques such as cognitive restructuring and coping strategies to manage symptoms and reduce negative thought patterns (Marco Solmi et al., 2022), and sensory integration therapy addresses sensory processing difficulties through activities such as swinging or brushing teeth (María et al., 2021). Finally, vocational rehabilitation was offered, which included vocational assessment, vocational coaching, and work-related skills development to assist in employment (Mustafa Yildiz., 2021). These techniques are tailored to the needs of each individual, emphasizing patient-centered goals and holistic care, thereby addressing the diverse challenges faced by subjects with schizophrenia.

Description of Intervention: Social Skills Training (SST):

Social Skills Training (SST) programs for individuals with schizophrenia are tailored to address the unique challenges posed by the disorder, focusing on enhancing social functioning and reducing negative symptoms. Key components of these programs include breaking down complex interpersonal skills into smaller, manageable tasks, which are taught through a structured format involving modelling, behavioural rehearsal, and feedback (Aquino et al., 2022). SST tailored to the patient's specific needs includes things like the development and maintenance of interpersonal relationships, the ability to manage medication, the ability to

find and keep a job, the capacity to express negative emotions, problem-solving abilities, personal hygiene, and the ability to choose the preferred form of recreation. (Barzegar et al, 2016). There are warm-up and wind-down periods during each treatment session. Participants warm up to the activity and, as they relax, reinforce the skills they have acquired during the performance. At the end of each meeting, participants are given homework to complete before the following session. Before the start of the following session, homework is reviewed against the skills that are the focus of that session.

COPM and SF-36 were used to collect baseline data. Post-test results for both groups were reassessed using the COPM, a 36-item brief survey, after 28 therapy sessions (SF-36).

Description of Outcome variables

Two variables were used to assess the intervention technique's effectiveness: (i) 36 -Item Short Form Survey (SF -36) and, (ii) Canadian occupational performance scale. Firstly, the patient's perspective on their health status is captured by the SF-36, which is essential for evaluating the efficacy of treatments and changes in health that occur in clinical trials and other studies (Saba Maria Lambert et al. 2023). It assesses eight aspects of health, the first four of which are physical functioning, role restriction because of physical health, role restriction because of emotional problems, and energy/fatigue. The next four factors are pain, social interaction, emotional well-being, and overall health (Madeline Reed et al., 2022).

Second, the Canadian Occupational Performance Measure (COPM) was introduced, a standardized, client-centered outcome measure that assists occupational therapists in identifying and assessing occupational performance problems in various areas such as self-care, productivity and leisure (Gerhard & Kostner., 2023; Anna Lauritzson et al., 2203). The COPM uses a semi-structured interview format to collect information directly from clients about the activities they consider important and their perceived performance and satisfaction in those activities (Mary Ann McColl et al., 2023). This measurement is particularly effective in detecting changes in clients' perceptions of their performance and satisfaction over time, making it a valuable tool for evaluating the impact of therapeutic interventions (Kanta Ohno et al., 2021). The following evaluation criteria were adopted when evaluating patients using COPM. Each patient is asked to rate the importance of the problems on a scale from 1 (least important) to 10 (most important). They then rate their ability to complete each task and their satisfaction with their performance. Baseline scores are calculated by multiplying the ability and satisfaction rating, which range from 0 to 10, by the importance ratings. For each problem specified, ratings from 1 to 100 for satisfaction and performance are possible. Higher scores reflect improved performance and patient perceptions of performance satisfaction. After treatment, performance and satisfaction can be reassessed.

Statistical analysis

Data were analyzed using SPSS (Statistical Package for Social Sciences) for Windows, version 22.0. Paired t-test was used to compare pre- and post-intervention scores within each group. Additionally, an unpaired t-test was conducted to evaluate the effectiveness of SST on two outcome measures, namely the Canadian Occupational Performance Scale and the 36-Item Short Form Survey scores between the experimental group and the control group.

3. RESULTS

Table 1: Comparison of COPM results before and after application of selected interventions between control and experimental groups.

COPM-Conventional		Pre-Intervention			Post-Intervention		
		Mean ± SD	t Test	p value	Mean ± SD	t Test	p value
Performance	Control	1.820 ± 0.436	0.328	0.747^{ns}	1.878 ± 0.485	7.620	<0.05
	Experimental group	1.760 ± 0.380			5.870 ± 1.584		
Satisfaction	Control	1.680 ± 0.478	0.102	0.920^{ns}	1.808 ± 0.540	7.423	<0.05
	Experimental group	1.700 ± 0.394			4.890 ± 1.196		

This study found that there were no instances of subjects dropping out, and no negative incidents were reported throughout the study period. All participants' data subjected to statistical analysis at a significance level of

0.05. The results suggest that there is no notable difference in the mean scores of the COPM subscales 'performance' and 'satisfaction' before the application of SST during the Pre-intervention phase, as indicated by an unpaired t-test at a significance level of 0.05. On the other hand, a significant difference was observed between the control and experimental groups at the post intervention stage at a significance level of 0.05.

Table 2: Comparison of pre- and post-test COPM scores in the control and experimental groups.

COPM-Conventional		Control-Group			Experimental Group		
Subscale	Test	Mean ± SD	t-value	p value	Mean ± SD	t-Test	p value
Performance	Pre-intervention	1.820 ± 0.436	0.924	0.380^{ns}	1.760 ± 0.380	9.709	<0.05
	Post-Intervention	1.878 ± 0.485			5.870 ± 1.584		
Satisfaction	Pre-Intervention	1.680 ± 0.478	1.173	0.271^{ns}	1.700 ± 0.394	8.496	<0.05
	Post-Intervention	1.808 ± 0.540			4.890 ± 1.196		

Table 2 shows that there is a significant difference in both the “performance” and “satisfaction” of the experimental group at a significance level of 0.05. In contrast, no significant difference was observed between pre- and post-intervention stages in the control group. A further attempt was made to examine the effect of the intervention on participants' responses to the 36-Item Short Form Survey. It is observed that both the experimental group and the control group are identical at the pre-intervention stage, as shown by the p-value at 0.05 significance levels (Table 3).

Table 3: Comparison of pre-intervention scores of SF-36 between control and experimental groups.

SF -36 Factors	Pre-intervention stage		t Test	p value
	Control Group Mean ± SD	Experimental Group Mean ± SD		
Physical functioning	18.50 ± 13.13	23.50 ± 9.44	0.977	0.341^{ns}
Role limitation dueto physical health	23.50 ± 22.97	27.50 ± 24.86	0.701	0.492^{ns}
Role limitationdue to emotional problems	19.98 ± 23.28	19.98 ± 23.28	0.000	1.000^{ns}
Energy /fatigue	31.50 ± 11.55	33.00 ± 10.85	0.299	0.768^{ns}
Emotionalwell being	31.60 ± 6.09	33.60 ± 7.58	0.650	0.524^{ns}
Social functioning	25.50 ± 11.10	40.00 ± 15.36	2.419	0.026*
Pain	23.50 ± 10.08	24.25 ± 15.94	0.126	0.901^{ns}
Generalhealth	22.50 ± 6.77	31.00 ± 12.86	1.849	0.081^{ns}

When comparing the factors of SF -36 in the control group between the pre- and post-intervention periods, there was no significant difference between the two periods (i.e., pre and post) at a significance level of 0.05, as shown in Table 4. In contrast, in the experimental group, a significant difference was observed in all factors of SF-36 between the two periods at the 0.05 level (Table 5).

Table 4: Comparison of pre- and post-intervention scores of the 36-item short survey (SF-36) in the control group

Factors of SF -36	Pre-Intervention Mean ± SD	Post-Intervention Mean ± SD	t-test	p value
Physical functioning	18.50 ± 13.133	20.00 ± 12.247	1.406	0.193^{ns}
Role limitations due to physicalhealth	20.00 ± 22.973	20.00 ± 22.973	NA	NA
Role limitations due to emotional problems	19.980 ± 23.283	19.980 ± 23.283	NA	NA
Energy / fatigue	31.50 ± 11.559	31.50 ± 11.559	NA	NA
Emotional well being	31.60 ± 6.095	31.60 ± 6.095	NA	NA
Social functioning	25.50 ± 11.105	25.50 ± 11.105	NA	NA
Pain	23.50 ± 10.083	23.50 ± 10.083	NA	NA
General health	22.50 ± 6.770	22.50 ± 6.770	NA	NA

Table 5: Comparison of pre- and post-intervention scores of the 36-item short survey (SF-36) in the experimental group.

Factors of SF -36	Pre-Intervention Mean ± SD	Post-Intervention Mean ± SD	t test	P value
Physical functioning	23.50 ± 9.442	37.50 ± 19.89	3.56	0.006**
Role limitationsdue to physical health	27.50 ± 24.86	32.50 ± 26.48	0.80	0.443ns
Role limitations due to emotional problems	19.98 ± 23.28	33.30 ± 22.20	2.44	0.037*
Energy / fatigue	33.00 ± 10.85	41.50 ± 11.55	3.79	0.004**
Emotional well being	33.60 ± 7.58	42.40 ± 8.88	3.40	0.008**
Social functioning	40.00 ± 15.36	50.00 ± 19.54	3.20	0.011*
Pain	24.25 ± 15.94	42.50 ± 14.43	5.31	0.001**
General health	31.00 ± 12.86	40.00 ± 13.12	2.68	0.027*

Table 5 shows that social skills training improved physical functioning, general health, role limitations brought on by emotional issues, energy and weariness, emotional wellness, social functioning, pain, and general health. However, there is no significant difference between the pre- and post-intervention periods concerning the role restrictions brought on by physical health.

Table 6: Comparison of post scores of SF-36 between control and experimental groups

SF -36	Post-intervention stage		t Test	P value
	Control Group Mean ± SD	Experimental Group Mean ± SD		
Physical functioning	20.00 ± 12.24	37.50 ± 19.89	2.369	0.029*
Role limitations due to physical Health	20.00 ± 22.97	32.50 ± 26.48	-1.127	0.274ns
Role limitations due t emotional Problems	19.98 ± 23.28	33.30 ± 22.20	1.309	0.207ns
Energy /Fatigue	31.50 ± 11.55	41.50 ± 11.55	1.934	0.069ns
Emotional well Being	31.60 ± 6.09	42.40 ± 8.88	3.170	0.005**
Social Functioning	25.50 ± 11.10	50.00 ± 19.54	3.447	0.003**
Pain	23.50 ± 10.08	42.50 ± 14.43	3.413	0.003**
General health	22.50 ± 6.77	40.00 ± 13.12	3.748	0.002**

The results of the SF-36 post-test between the control and experimental groups were statistically different, as shown in Table 6, as the results implied a significant improvement in pain, general health, social functions and emotional well-being. According to the study's results, after social skills training, participants improved in their daily activities, had higher self-esteem and confidence, and were better able to communicate with others. These improvements allowed them to find better employment opportunities, gain the respect and acceptance of their peers, and overall lead better lives. (Table 6).

4. DISCUSSION

This study revealed the effects of social skills training on the quality of life and functional performance of patients with schizophrenia. Accordingly, those schizophrenia patients visiting Arisjuvady mental health center were the focus of this study and those patients fulfilled the eligibility criteria were recruited and subjects in the experimental groups were given occupational therapy and social skills training and those are in the control group received traditional intervention for the period of 8 weeks.

Social skills training should be part of the rehabilitation of patients with schizophrenia because clinical symptoms negatively impact activities of daily living (ADL), social interaction, functional performance, self-care, leisure, and productivity (Chapleau et al., 2012). The negative symptom has been observed to interrupt activities of daily living (ADL) more than the positive symptom, thus affecting their functional performance and quality of life. The positive and negative symptoms both have a significant impact on sociability and functionality. For individuals with schizophrenia, the development of social skills is essential as it enhances independence in basic and essential daily activities. In this study, both the experimental and control groups are identical in the pre-intervention phase, as shown by an insignificant p-value (Table 1 and Table 3). When comparing the post-intervention scores of the experimental and control groups, the social skills training

provided to the experimental group resulted in better improvement in both performance and satisfaction subscales of COPM [<0.05] (table 1). In accordance with this finding, an earlier study showed that social skills enhancement training programs reduced negative symptoms and improved overall functioning and satisfaction of schizophrenic patients (Sara et al., 2022). Specifically, cognitive-behavioral social skills training (CBSST) enhanced community functioning and self-reported functioning, potentially positively impacting COPM subscales (Robert et al, 2021). Earlier studies have demonstrated that SST has the ability to improve adaptive social functions and personal as well as social functioning, which play a crucial role in enhancing performance and satisfaction in everyday tasks (Saida et al., 2022). Patients engaging in SST exhibited enhancements in social skills, emotional regulation, and a decrease in negative symptoms, all of which contribute directly to enhanced performance and satisfaction in their daily routines. (Amanda et al., 2023). Many arguments back up the effectiveness of Social Skills Training (SST). It aids individuals in enhancing their capacity to regulate impulses, exhibit behavioral adaptability, and foster an understanding of their social engagements/interactions, all of which are essential for successful daily functioning (Sara et al., 2022). Additionally, the SST program involves breaking down complicated social skills into more manageable, achievable goals, which are then practiced through activities such as role-playing, modeling, problem-solving skills, reinforcement, and constructive feedback in which patients are made aware of the value of social skills and life skills in daily activities (Shoib et al., 2021). This serves to augment the individual's capacity to participate/encage suitably and proficiently in various social contexts (Aquino Marilena & Serelli Anna Agnese., 2022).

In observing these eight factors affecting quality of life as assessed by the 36-item Short Form Health Survey (SF-36) in the post-intervention period (at the end of the 8th week), between the control and experimental groups, subjects in the experimental group exposed to social skills training showed better improvement in all health factors that influence quality of life. Further, when observing those health factors that influence the quality of life between the time intervals before and after the intervention in the experimental group, a significant difference was observed in the experimental group between the time intervals before and after the intervention (at the end of the 8th week), as the shows significant p-value (Table 5). This improvement is due to the fact that participants exposed to social skills training in the experimental group resulted in better improvement in all health factors affecting quality of life, with the exception of role limitations due to physical health. In accordance with these findings, prior studies have also suggested that individuals diagnosed with schizophrenia spectrum disorders derive benefits from Social Skills Training (SST) through experiencing enhancements in both positive and negative symptoms, as well as improvements in the psychological aspect of quality of life. These advantages were observed to persist even three months after the intervention (Rezki Suci Qamaria., 2023). Additionally, SST has been demonstrated to aid individuals with schizophrenia in improving their social abilities, leading to better interactions with others and higher social support, consequently resulting in an enhanced quality of life (Nicole Surdyka et al., 2022). The study has illustrated that the impact of SST on the reversal of role limitations resulting from physical health is not significant. Additionally, a prior investigation has indicated that SST has a limited effect on the physical aspect of quality of life (Aquino Marilena & Serelli Anna Agnese., 2022).

This study recommends ongoing participant monitoring to evaluate the impact of social skills training. It suggests replicating the study with a more extensive and diverse sample to reach the generalizability of the findings. The improved program can be applied in various settings to enhance social interaction and quality of life. Additionally, it highlights the need to explore psychosocial interventions, involve families, and expand social networks for individuals with schizophrenia to improve their functioning and also include other diagnoses of mental illness.

5. CONCLUSION

The results suggest that 8 weeks of social skills training improves the quality of life and functional performance of patients with schizophrenia. It is a promising strategy to improve quality of life and functional performance outcomes for people with schizophrenia that proposes social skills training. Increased functionality, social participation and quality of life are benefits of using occupational therapy in a comprehensive approach to psychosocial rehabilitation of patients with schizophrenia.

Clinical Implications

According to the results of the study, unpleasant symptoms such as verbal and non-verbal communication and

the expression of emotions have significantly improved. Social skills training has a major impact on undesirable symptoms such as poor rapport, social avoidance, awkward conversational flow and emotional withdrawal. Compared to subjects who underwent treatment, social skills training significantly improved daily living skills and negative symptoms. It also significantly improved occupational performance and social engagement. Social skills training promotes social interaction and teaches practical daily life skills that can be used in a community environment. It promotes independence and helps them successfully complete everyday tasks that improve their quality of life.

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