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The effect of cognitive-behavioral group training of self-care skills on self-care in patients with schizophrenia

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ABSTRACT

Background & Aim: Self-care is one of the challenges of the health care system in patients with schizophrenia. It has been less studied due to these patients have no insight into the symptoms. This study aimed to determine the effect of cognitive-behavioral group training on self-care skills in patients with schizophrenia.
Methods & Materials: This single-blind randomized controlled clinical trial (blinding of data analysts) was performed on 50 hospitalized schizophrenia patients by convenience sampling method and random block allocation to the intervention (n=26) and control (n=24) groups in Ebn-Sina Psychiatric Hospital of Mashhad, Iran from late July 2020 to mid-January 2021. The intervention group received cognitive-behavioral group training of self-care skills based on Kashani Lotfabadi et al. (2020) protocol in 10 sessions (two sessions per week). The control group was placed on a waiting list. Data collection tools included the Self-Care Requisites Scale (SCRS-H) and the Positive and Negative Syndrome Scale (PANSS). The data were analyzed by SPSS 25 version, repeated measures of ANOVA test.
Results: 60 % (n=30) of participants were female, and 40% (n=20) were male with a mean age of 32.98±8.35 years. The results of repeated measures of ANOVA indicated a significant difference between the intervention and control groups in terms of descending mean score of total self-care during the test stages (p=0.001).
Conclusion: Cognitive-behavioral group training of self-care skills could promote self-care behaviors in patients with schizophrenia. Therefore, we suggest using this intervention to strengthen self-care skills in patients with schizophrenia.

Introduction

Schizophrenia is a major health problem that imposes a heavy burden on the health care system at national, regional, and global levels worldwide (1). According to the Global Burden of Disease (GBD) criteria (2016), this disease is the twelfth disability disorder (2). One of the complications of this disease is a recurrence of symptoms, leading the patients to gradually lose their self-care skills due to interference in various areas of their lives (3, 4). Self-care performance in patients with schizophrenia might include a significant reduction in functional skills pertinent to basic and advanced care needs (5, 6). It can also indicate a lack of dominance and independent performance of these patients in activities of daily living (ADL) as well as instrumental activities of daily living (IADL) (7, 8). Moreover, lack of self-care skills in observing principles of personal hygiene and poor tidiness of patients with schizophrenia can affect their social relationships as well as their chance of success in society (9) and reduce their level of independent living, employment, and social participation (6). Therefore, such patients' ability to independently perform their daily activities is a standard of care needing attention to strengthen their self-care skills (10).

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The concept of self-care has been differently presented in various texts in terms of terminology and definitions (11). Reviewing these definitions reveals common themes of self-care that include the individuals' desire to make behavioral changes to improve well-being and health (12). Dorothea Orem (1971), a nursing theorist, designed her theory based on the concept of "self-care" and defined it as "activities that people do to maintain their life, health, and well-being" (13). Furthermore, according to Donato (2017), those with schizophrenia have a certain level of rationality and awareness compared to mentally healthy patients. Self-care can be differently defined and applied due to the patients' non-acceptance of their role and responsibility for health. In her view, in these patients, self-care includes self-awareness of the current state of health along with the ability to promote their well-being through this awareness that requires practice and can be provided by training (14). Studies have also indicated that educational interventions can strengthen self-care in personal hygiene in patients with psychiatric disorders such as schizophrenia (5, 15). However, training usually has temporary effects on behavioral changes in patients with chronic disorders; therefore, it is crucial to consider patients' psychological needs in the educational content, and appropriate supportive communication styles should be used to increase their motivation to maintain these behavioral changes (16). In patients with schizophrenia, psychiatric symptoms and lack of insight into the symptoms are the main barriers to decision-making to perform effective self-care skills (17). On this account, self-care in these patients is a major challenge of the health care system that should be interdisciplinary addressed (12).

In the National Institute for Health and Care Excellence (NICE) clinical guidelines, cognitive-behavioral therapy is recommended as a first-line psychological intervention for patients with schizophrenia (18). Cognitive-behavioral therapy is a psychotherapy and counseling approach, which relieves and reduces individuals' psychological problems by correcting and replacing wrong or distorted thoughts, feelings, and behaviors with more appropriate and acceptable behaviors (19). In patients with schizophrenia, cognitive-behavioral therapy is provided based on the cognitive model of the disease as well as the neurobiological evidence for the psychopathological pathology of schizophrenia. The symptoms of schizophrenia are due to a disorder of dopamine regulation that can be identified by several cognitive processing impairments, such as rapid deduction, social isolation, and lack of motivation. The goal of cognitive-behavioral therapy in these patients is to reduce cognitive-processing biases and their positive and negative symptoms (20).

Apart from being a psychotherapy model, cognitive-behavioral therapy is an intervention through which various psychological skills such as self-care can be taught to patients with schizophrenia due to focusing on behavioral changes (21). Therefore, it seems that training skills such as self-care through cognitive-behavioral therapy techniques may help improve the efficacy of these skills in patients with schizophrenia by challenging intervening thoughts about these skills in the real world (22). However, the majority of studies in this area have focused on chronic physical illnesses. Besides, these studies have yielded conflicting results about the longer effectiveness of cognitive-behavioral therapy compared to educational programs on enhancing self-care behaviors in hemodialysis patients (23) and the ineffectiveness of cognitive-behavioral therapy on self-care in patients with heart failure (24). Since cognitive-behavioral therapy can be used for different aspects of schizophrenia patients-related problems, it seems that group implementation of this type of therapy can increase its effectiveness in such patients by strengthening self-help and increasing motivation (25). It has been reported that cognitive-behavioral group therapy is not effective in improving personal health status and the observance of educational-medical tips of female patients with chronic schizophrenia; nonetheless, such a group therapy has shown to be efficient in enhancing self-care skills related to nutrition,

clothing status, and environmental hygiene (26).

Furthermore, by reducing social apathy, cognitive-behavioral group social skills training can improve functional outcomes in patients with schizophrenia (27). It is believed that the importance of strengthening self-care skills in the recovery and rehabilitation of patients with schizophrenia has not received adequate attention because of these patients' lack of insight into their disease symptoms. In addition, related studies have reported conflicting results about the use of cognitive-behavioral therapy to teach self-care skills. Hence, this study intended to examine the effect of cognitive-behavioral group training of self-care skills on self-care in patients with schizophrenia.

Methods

This single-blind randomized controlled clinical trial (blinding of data analysts) was performed on 50 schizophrenia patients hospitalized in Ebn- Sina Psychiatric Hospital of Mashhad, Iran, from late July 2020 to mid-January 2021 after the approval of the ethics committee of Torbat-e Jam Islamic Azad University. The sample size was calculated based on the data obtained from a pilot study on 20 schizophrenia patients eligible to participate in the study in both intervention and control groups. Therefore, the sample size was estimated to be 22 per group using the formula of comparing the mean of the two populations by calculating the mean and standard deviation of the total score of self-care after intervention in the intervention group (81.20±8.30) and control (90.80±9.15) with a 95% confidence interval and 85% test power. Therefore, according to a 15% sample drop, the final sample size was equal to 52 (26 in the intervention group and 26 in the control group).

Inclusion criteria of the study were as follows: being diagnosed with schizophrenia based on Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), being in the age range of 25-55 years, having at least a history of hospitalization, obtaining a score above 50 on the Positive and Negative Syndrome Scale (PANSS) to homogenize the participants in the intervention and control groups in terms of symptom severity, having the verbal ability, having at least third-grade-of-secondary-school level of education, no change in standard antipsychotic dose in the last three months to control the effects of drugs on schizophrenia symptoms, and changing self-care needs due to symptoms, no other chronic physical illnesses, no substance abuse, and non-involvement with legal issues. These criteria were investigated by reviewing patients' hospital records and interviewing patients and their families. On the other hand, exclusion criteria were: not participating in the post-test or follow-up, being absent from one or more intervention sessions, and being unwilling to continue participating in the study.

Data collection tools included the Self-Care Requisites Scale (SCRS-H) and the Positive and Negative Syndrome Scale (PANSS).

The Self-Care Requisites Scale (SCRS-H) was designed by Roldán-Merino (2017) to assess the self-care needs of hospitalized patients with schizophrenia. This scale is prepared in two steps. In the first step, the questions of this scale proposed based on Orem's nursing theory were reviewed and approved by a team of experts, including 9 mental health specialists and a psychiatrist. The second step confirmed the scale's psychometric properties in 264 hospitalized patients with schizophrenia through confirmatory factor analysis. The scale consisted of 33 items with 6 subscales, namely proper conservation of water, food, and air storage (items 1 to 6), excretory needs (items 7,8, 9), the balance between activity and rest (items 10 to 15), the balance between periods of loneliness and social interaction (items 16 to 18), prevention of life-threatening dangers (items 19 to 28), and promotion of proper functioning and development of human group activities (items 29 to33). Each item was scored on a 5-point scale from 1 (no self-care deficit) to 5 (total self-care deficit). The total score of the questionnaire ranged from 33 to 165 so that a

lower score indicates less self-care deficit (28). Roldán-Merino (2017) confirmed the validity characteristics of the Self-Care Requisites Scale on 264 patients diagnosed with schizophrenia based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (28). In the present study, it was first translated into Persian by two fluent translators. The approved Persian translation was again translated into English by two other translators. The English and Persian translations were finally compared and approved by another translator, who was fluent in English and Persian. Next, the Persian translations of the scale were reviewed by a team of 10 clinical psychologists, psychiatrists, and psychiatric nurses. Then, they confirmed the most eloquent Persian translation with CVI=0.79 and CVR=0.83. As Roldán-Merino et al. (2017) confirmed the scale's reliability by the internal consistency method with a Cronbach's alpha of 0.94 for the whole scale (28). In the present study, we also confirmed the scale's reliability by the internal consistency method for the whole scale with a Cronbach's alpha of 0.88.

The standard Positive and Negative Syndrome Scale (PANSS) was designed by Kay et al. (1967) to evaluate the positive, negative, and general psychopathological symptoms of schizophrenia. Evaluators complete this scale. It consists of 30 questions or 7-choice items scored on a 7-point scale, namely absence= 1, very mild= 2, mild= 3, moderate= 4, almost severe= 5, severe= 6, and very severe= 7. Among the assessed items, 7 items are about positive symptoms, 7 items are about negative symptoms, and the remaining 16 items are about general psychopathology. PANSS is calculated by summing up the scores of each item. Scores of the positive and negative symptoms subscales range from 7 to 49, while the general psychopathology subscales range from 16 to 112 (29). Peralta et al. (1994) evaluated and confirmed the validity characteristics of PANSS on 100 patients with schizophrenia. Furthermore, using the inter-rater reliability method with inter-class correlation coefficients (ICC), they obtained the reliability of 0.72, 0.80, and 0.56 for positive, negative, and general psychopathology scales, respectively; these values indicate acceptable reliability for positive and negative scales as well as moderate reliability for general psychopathology scale (30).

Moreover, in the present research, by convenience sampling method and based on the inclusion criteria, the sample units were randomly assigned to the intervention (n=26) and control (n=26) groups using the randomized block design. First, a list of eligible patients to participate in the study was prepared through clinical interviews and inpatient records. Next, the patients were registered to participate in the study after obtaining written consent from both patients and their guardians. Then, registered patients were assigned into two groups of A and B, and 13 four-item blocks (AABB, ABAB, BABA,...) were determined based on the sample size. The blocks were later numbered from 1 to 13. Through the table of random numbers, the sequence of entry of the blocks into the study and the allocation of patients to the intervention and control groups were specified before the intervention. To hide random allocation, a number of envelopes were prepared based on the sample size, each random sequence was recorded on a card, and the cards were placed in the envelopes in order. The envelopes were numbered in the same way on the outer surface. Finally, the lids of envelopes were glued, and they were placed in a box in order. At the beginning of the registration process of each eligible participant, an envelope was selected to determine the assignment of the participant to a particular group. Besides, the randomization process was performed by a researcher who was not involved in the intervention process to reduce the possible bias in the randomized assignment. Further, data analysis was performed by evaluators who were blind to the treatment protocol and appointment of participants to intervention and control groups.

In the intervention group, cognitive-behavioral group training of self-care skills was performed based on the protocol by

Kashani Lotfabadi et al. (2020). This protocol was designed based on the self-care requisite skills of hospitalized patients with chronic schizophrenia, including dressing status, nutrition, eating status, environmental hygiene status, personal hygiene status, and educational-medical status. The overall goal of the protocol is to help patients with chronic schizophrenia correct dysfunctional beliefs and behaviors about self-care skills disorders by combining cognitive-behavioral therapy techniques and self-care skills training (26). In this study, cognitive-behavioral group training of self-care skills was performed by a Ph.D. student in clinical psychology with 12 years of specialized experience in cognitive-behavioral therapy on schizophrenic patients. Based on the protocol topics, cognitive-behavioral training of self-care skills was performed in homogeneous groups of 16 female and -10 male individuals in terms of gender by the Socratic dialogue method in the training room of Ebn-Sina Psychiatric Hospital in Mashhad. According to the Socratic dialogue, to challenge patients' self-care problems, a group discussion was held with consecutive and purposeful questions and answers about their self-care problems according to the training sessions.

Consequently, the participants first agreed and accompanied and then contradictions of their arguments were revealed, and their claims about self-care behaviors were refuted by themselves. According to the protocol, cognitive-behavioral training of self-care skills was performed in the intervention group within 35 days in 10 sessions (two sessions per week). Each session lasted for 60 min, 10 min of which was spent on relaxation and stress reduction, about 40 min were allocated to a discussion, and the last 10 min was spent on summarizing the results (Table 1).

Table 1. Cognitive-behavioral group training of self-care skills based on Kashani Lotfabadi et al. Protocol (2020)

Title	Content	Time	Training method	Professor
First session	Relaxation exercise, investigating and challenging the state of clothing of patients in the ward, summary, and conclusion of the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Second session	Relaxation exercise, gathering the homework of the previous session that were mentally and textually reviewed, talk about homework, summary and conclude the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Third session	Relaxation exercise, investigating and challenging the nutrition status and eating habits of patients in the ward, summary, and conclusion of the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Fourth session	Relaxation exercise, gathering the previous session homework that was mentally and textually reviewed, talk about homework, summary, and conclusion of the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Fifth session	Relaxation exercise, investigating and challenging the cleanliness of the environment of patients in the ward, summarize and conclude the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Sixth session	Relaxation exercise, gathering the previous session homework that was mentally and textually reviewed, talk about homework, summary, and conclusion of the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Seven session	Relaxation exercise, investigating and challenging the personal grooming and health care of patients in the ward, summarize and conclude the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Eight session	Relaxation exercise, gathering the previous session homework that was mentally and textually reviewed, talk about homework, summary, and conclusion of the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Ninth session	Relaxation exercise, investigating and challenging the status observance of educational-medical points in the ward, summary, and conclusion of the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology
Tenth session	Relaxation exercise, gathering the previous session homework that was mentally and textually reviewed, talk about homework, summary, and conclusion of the end of the session	60 minutes	Socratic dialogue	Ph.D. student in clinical psychology

On the other hand, the control group was placed on a waiting list and was invited for cognitive-behavioral training on self-care skills after completing the test and research stages. To comply with ethical principles, the intervention was fully performed for the control group as well. It should also be noted that the control group received the usual pre-discharge training during the study. Data were collected in three stages of before-the-intervention, after-the-intervention, and six-months-after-the-intervention. The six-month follow-up stage was completed during the patients' discharge from the hospital and by telephone calls and invitations to the hospital in person.

The research data were analyzed by SPSS 25. Kolmogorov-Smirnov and Shapiro-Wilk tests were used to investigate the normal distribution of quantitative data. Chi-square, Fisher's exact test, and independent t-test were also used to evaluate the homogeneity of qualitative and quantitative variables before the intervention. Moreover, to compare the self-care variable and its subscales, the independent t-test and repeated measures analysis of variance (ANOVA) were used respectively before the intervention and during the test stages. A confidence level of 95% and a significance level of α=0.05 were considered in all the performed tests.

This article is extracted from the doctoral thesis with the code of ethics committee IR.IAU.TJ.REC.1399.007 dated 18.07.2020 approved in the Islamic Azad University, Torbat-e Jam Branch and with the clinical trial code IRCT20180817040818N2. It has been approved by the Vice-Chancellor for Research of the Islamic Azad University, Torbat-e Jam Branch.

Results

In the present study, two participants were excluded from the control group in the final data review; one was discharged from the hospital in the post-test phase. In addition, one was not participating in the follow-up phase. Therefore, the final evaluation was performed on 50 patients (26 in the intervention group and 24 in the control group) with schizophrenia (Figure1).

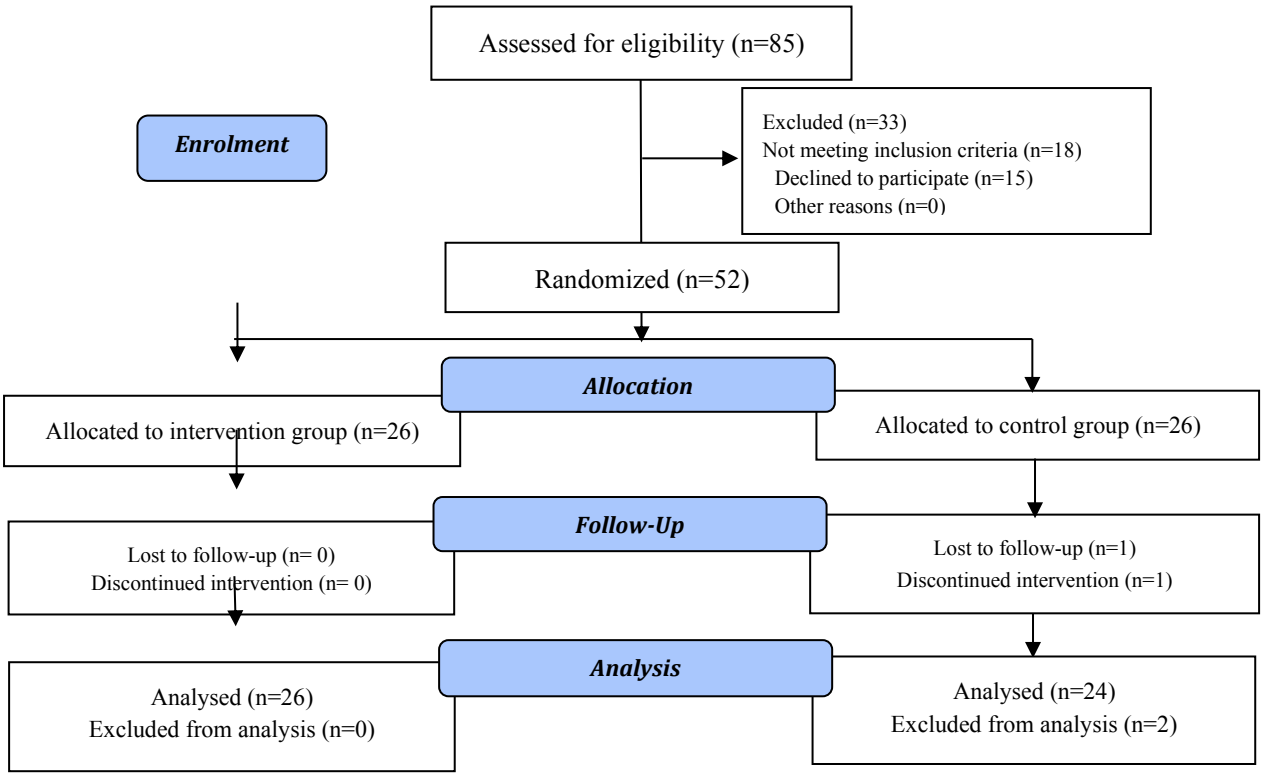

Figure 1. Consort flow diagram of the study

In the current study, 60% (n=30) of participants were female, and 40% (n=20) were male, with a mean age of 32.98±8.35 years. There was no statistically significant difference between the intervention and control groups in terms of the characteristics of patients with schizophrenia (P>0.05) (Table 2).

Table 2. Characteristics of patients with schizophrenia in the intervention and control groups

Variable	Group	Intervention n=26	Control n=24	Test results
		N (%)	N (%)	
Gender	Female	16(61.5)	14(58.3)	p= 1.00*
	Male	10(38.5)	10(41.7)	
Level of education	Third secondary	11(42.3)	12(50.0)	X^2= 0.91 p= 0.63**
	Diploma	12(46.2)	8(33.3)	
	Academic education	3(11.5)	4(16.7)	
Marital status	Single	8(30.8)	9(37.5)	X^2= 0.91 p= 0.63**
	Married	10(38.5)	12(50.0)	
	Widow	2(7.7)	0(0.0)	
	Divorced	6(23.1)	3(12.5)	
Employment status	Unemployed	14(53.8)	8(33.3)	X^2= 3.17 p= 0.37**
	Freelance	10(38.5)	15(62.5)	
	Employee	1(3.8)	0(0.0)	
	Retired	1(3.8)	1(4.2)	
Habitat	Urban	21 (80.8)	19(79.2)	p= 1.00*
	Rustic	5(19.2)	5(20.8)	
Quantitative variables		**Mean±SD**	**Mean±SD**	**Test results**
Age (years)		33.28±9.31	32.68±7.45	t=0.05 p=0.80***
Duration of the disease (year)		1.92±0.81	2.24±0.78	z=1.44 p=0.16****
Number of hospitalizations		1.76±0.72	1.52±0.58	z=1.35 p=0.25****
Positive symptoms		26.99 ± 4.01	30.20±5.53	t=1.53 p=0.14***
Negative symptoms		33.42±7.07	31.00±3.65	t=0.95 p=0.36***
Symptoms of general psychopathology		66.35±9.61	70.30±7.15	t=1.06 p=0.30***

*Fisher exact test, **chi-square, *** Independent t-test, ****U- Man-Whitney

The results of the independent t-test also showed no significant difference between the intervention and control groups before the intervention in terms of mean total scores of self-care (P= 0.17) and subscales, including proper conservation of water, food, and air storage (P= 0.49), excretory needs (P=0.19), maintenance of the balance between activity and rest (P=0.45), maintenance of the balance between periods of loneliness and social interaction (P= 0.30), prevention of life-threatening dangers (p=0.38), and promotion of proper functioning and development of human group activities (p= 0.15).

Before running the repeated measures ANOVA test, its assumptions (the normal distribution of dependent variables and sphericity) were evaluated. The first assumption was confirmed using the Kolmogorov-Smirnov test (P<0.05). In contrast, when the second assumption was assessed using the results of Mauchly's sphericity test, it showed a lack of significance in all of the self-care scale and its subscales; hence, the adjusted statistic in the Greenhouse-Geisser correction test was utilized to present the main results of the repeated-measures ANOVA.

On the other hand, the results of within-subject effects of repeated measures analysis of variance indicated that the measurement time had a significant effect on reducing the mean total score of self-care (p<0.001). It was also observed for the subscales, such as the proper conservation of water, food, and air storage (p= 0.04), excretory needs (p<0.001),

the maintenance of the balance of activity and rest (p<0.001), the maintenance of the balance between loneliness and social interaction (p<0.001), as well as the prevention of life-threatening hazards during the test stages (p<0.001). However, the measurement time did not have any significant effect on reducing the mean score of the subscale "promotion of proper functioning and development of human group activities" (p= 0.06) (Table 3). Further, the results of within-subject effects of repeated measures ANOVA indicated that the groups' interactions and time had no remarkable effect on the decreasing trend of mean total scores of self-care and its subscales during the test stages (p>0.05) (Table 3).

Table 3. The mean and standard deviation of self-care and its subscales in patients with schizophrenia in two groups of intervention and control during the test stages

Variable	Group	Group		Repeated measures of ANOVA result		
		Intervention n=26	Control n=24	Within- subject effects		Between – subject effects
		Mean ± SD	Mean ± SD	Time	Time & group	Group
Proper conservation of water, food, and air storage	Pre-test	14.27 ± 3.04	13.62 ± 3.57	f =3.90	f = 1.06	f = 5.49
	Post- test	11.58 ± 2.28	13.58 ± 3.19	p = 0.04	p = 0.31	p = 0.02
	Follow-up	9.65 ± 2.19	13.75 ± 3.05	eta = 0.06	eta = 0.02	eta = 0.10
Excretory needs	Pre-test	5.54 ± 1.84	4.96 ± 1.23	f= 111.40	f = 3.36	f = 4.53
	Post- test	2.61 ± 0.80	3.50 ± 1.59	p <0.001	p = 0.07	p =0.04
	Follow-up	2.00 ± 0.00	3.67 ± 1.52	eta = 0.70	eta = 0.06	eta = 0.09
Balance between activity and rest	Pre-test	16.77 ± 4.46	15.79 ± 4.58	f = 13.26	f = 2.25	f = 6.05
	Post- test	12.77 ± 2.76	15.96 ± 4.34	p = 0.001	p = 0.10	p =0.02
	Follow-up	10.96 ± 2.07	16.21 ± 4.05	eta = 0.22	eta = 0.01	eta = 0.12
Balance between periods of loneliness and social interaction	Pre-test	8.46 ± 2.34	7.79 ± 2.15	f = 33.59	f = 3.13	f = 5.20
	Post- test	5.92 ± 1.52	7.87 ± 2.15	p< 0.001	p = 0.23	p = 0.03
	Follow-up	5.65 ± 1.49	8.00 ± 2.17	eta = 0.41	eta = 0.02	eta = 0.10
Prevention of life-threatening dangers	Pre-test	33.79 ± 7.08	33.96 ± 6.15	f = 13.44	f = 4.55	f = 2.27
	Post- test	33.83 ± 7.09	34.67 ± 6.28	p = 0.001	p = 0.12	p = 0.14
	Follow-up	34.08 ± 7.05	34.71 ± 6.43	eta = 0.22	eta = 0.08	eta = 0.04
Promotion of proper functioning and development of human group activities	Pre-test	20.31 ± 4.11	18.54 ± 4.43	f = 3.77	f = 2.78	f = 0.76
	Post- test	19.69 ± 4.02	18.67 ± 4.41	p = 0.06	eta =0.10	p = 0.39
	Follow-up	19.58 ±4.11	18.79 ± 4.18	eta = 0.07	eta = 0.02	eta = 0.02
Total self-care	Pre-test	100.92 ± 15.91	94.50 ± 16.50	f = 60.07	f = 9.15	f = 6.72
	Post- test	82.08 ± 10.88	93.42 ± 16.05	p< 0.001	p = 0.37	p = 0.01
	Follow-up	72.35 ± 7.88	94.50 ± 15.33	eta = 0.56	eta = 0.07	eta = 0.13

According to Table 3, the results of between-subject effects of repeated measures ANOVA show that during the test stages, the descending trend of mean total scores of self-care (p=0.01) (Figure 2) and the subscales, e.g., the proper conservation of water, food, and air storage (p= 0.02), excretory needs (p=0.04), the maintenance of the balance of activity and rest (p=0.02), and the maintenance of the balance between loneliness and social interaction (p= 0.03) were more significant in the intervention group compared to the control group. However, the results indicated no significant difference between the intervention and control groups regarding descending mean scores of life-threatening preventions (p=0.14) and promotion of proper functioning and development of human group activities during the test stages (p= 0.39).

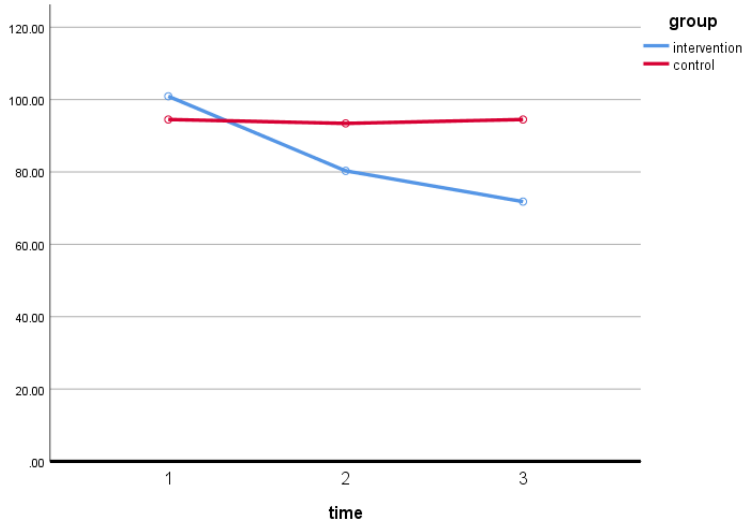

Figure 2. The trend of changes in the mean score of total self-care during the test stages

Discussion

The present study aimed to determine the effect of cognitive-behavioral group training on self-care skills in patients with schizophrenia. The results revealed that cognitive-behavioral group training of self-care skills could abate self-care needs and other needs related to the proper conservation of water, food, and air storage, excretory needs, the maintenance of the balance of activity and rest, as well as the maintenance of the balance between periods of loneliness and social interaction in patients with schizophrenia.

The present study used cognitive-behavioral therapy to teach self-care skills to patients with schizophrenia for the first time. In line with the current research, previous studies indicate that educational interventions in patients with schizophrenia could improve their self-care knowledge and skills to meet their physical needs (5) and take oral health care, such as brushing and using toothpaste (15). Other studies concluded that compared to education, cognitive-behavioral therapy could have a longer effect on strengthening self-care behaviors of hemodialysis patients (23); they also highlighted that cognitive-behavioral therapy could improve nulliparous outcomes (31) and enhance self-care behaviors in women with diabetes by focusing on self-care (33). Even though these studies were conducted on patients with physical problems who were different from patients with schizophrenia in terms of insight into symptoms and responsibility for self-care behaviors, their results are consistent with the present study results.

Schizophrenia includes a wide range of positive, negative, and cognitive symptoms (33). Negative symptoms and cognitive impairments are the main factors affecting the functional capacity of patients with schizophrenia (34, 35) and are associated with greater functional consequences than positive symptoms (36). Negative symptoms often predict the severity of social deficits (interpersonal interactions), while cognitive deficits often predict deficits in daily living and work (35).

Activities of daily living mainly include skills needed for self-care and management of physical needs (37). Such activities are more resistant to cognitive decline than instrumental activities of daily living (38). However, the ability to perform both activities of daily living and the instrumental activities of daily living are affected by cognitive ability (reasoning and planning). Therefore, it is important to distinguish between personal abilities to complete a task and the ability to perform it without asking for others' help. In this regard, patients' ability can be assessed by asking questions about cognitive, emotional, and behavioral

factors intervening in their activities (37). In patients with schizophrenia, cognitive-behavioral group training protocol seems to be able to strengthen basic self-care skills, such as excretory needs, the need for water, air, and food, and the need for a balance between activity and rest by identifying problems related to self-care skill needs and challenging them through cognitive-behavioral techniques.

Furthermore, primary negative symptoms in patients with schizophrenia are characterized by the direct manifestation of the pathological process of this disease. However, poor tidiness and impaired social relationships are secondary negative symptoms following primary negative symptoms (9). The severity of negative symptoms is associated with poor interpersonal social interactions in patients with schizophrenia (39); thus, strengthening social interactions helps these patients reduce negative symptoms (40). Given that the implementation of interventions in groups can increase the effectiveness of interventions on improving social interactions by receiving support from people with similar problems (41), it seems that cognitive-behavioral group training of self-care skills can help such patients keep a balance between loneliness and social interaction by increasing interactions with group members.

The current research indicated that cognitive-behavioral group training of self-care skills was ineffective in preventing life-threatening dangers and promoting proper functioning and development of human group activities. In agreement with this study, similar studies indicated that although cognitive-behavioral training of social skills improves functional attitudes, it could not promote social competencies (40) and social apathy attitudes of patients with schizophrenia (27).

Cognitive impairments in patients with schizophrenia include reduction of attention, memory, slow information processing, and executive dysfunction. Executive dysfunction is a common characteristic of these patients. It is associated with a decrease in the ability of these patients to integrate planning, preparation, execution, and coordination for proper adaptation to functional activities. Accordingly, patients with schizophrenia have problems with processing information for higher levels of performance, such as problem-solving that limits their participation in complex situations; therefore, the implementation of cognitive interventions might not help these patients strengthen their executive functions in the real environment and maintain the performance of their daily life tasks (42). Therefore, it seems that in these patients, cognitive-behavioral group training of self-care skills cannot promote more complex activities, such as prevention of life-threatening dangers, proper functioning, and development of group activities.

Unlike the results of this study, studies on patients with heart failure indicate that cognitive-behavioral therapy is not effective in strengthening their self-care behaviors and physical function compared to education (24). The reason for this inconsistency can be the heart patients' insight into performing self-care behaviors that can be strengthened by training and the absence of cognitive disorders in them.

One of the limitations of the present study was the lack of cooperation of patients' families and their negative attitude towards patients to encourage them to perform some activities relating to self-care skills during a six-month follow-up period. Therefore, it might be a good idea to teach patients and their families simultaneously in future studies to strengthen and maintain self-care behaviors in patients with schizophrenia.

Conclusion

The present study results revealed that cognitive-behavioral group training of self-care skills could promote self-care behaviors in patients with schizophrenia. Therefore, we suggest the psychology, psychiatry, and psychiatric nursing team of psychiatric hospitals use this intervention to strengthen self-care skills in patients admitted to psychiatric hospitals with non-acute schizophrenia.

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Conflict of interest

This article has no conflict of interest.

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