Research Paper: The Effectiveness Of "Open The Doors" Program On Meta-Cognitive Beliefs, Self-Care Activities, And Instrumental Activities Of In Patients With Schizophrenia

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ABSTRACT

Background: Schizophrenia is one of the most disabling mental disorders, in which important functional activities such as independent life, production, and occupational activities, and social interactions of affected patients are damaged. The purpose of this study was to investigate the effectiveness of "Open the Doors" program education on meta-cognitive beliefs, self-care activities, and activities of everyday life in patients with schizophrenia.

Methods: This semi-experimental study was conducted using a pretest-posttest. The statistical population of the research included all patients with schizophrenia hospitalized in Rehabilitation Centers in Maragheh; among which 30 ones were selected using the available selection method. The patients were randomly categorized in experimental and control groups. Both groups completed Barthel Activities of daily living index, Lawton Instrumental Activities of Daily Living Scale, and Wales's meta-cognitive beliefs questionnaire in two stages of pre-test and post-test. Patients with schizophrenia in the experimental group received "Open the Doors" program education for 3 months and patients in the control group received daily rehabilitation programs during this time.

Results: Findings showed that the "Open the Doors" program, instrumental activities, and self-care activities of patients in the experimental group were significantly improved following the intervention; however, this program didn't have any significant effect on the meta-cognitive beliefs of the experimental group.

Conclusion: "Open the Doors" program education improved the skills of everyday life of patients with schizophrenia and prepares them for living with family members.

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Introduction

Schizophrenia is one of the most common psychiatric disorders that affects about 1% of the human population. In this disorder, the patient's personality is disrupted, and the reality is distorted, damaging personal, family, and social functions of the patient [1]. Therefore, schizophrenia is a disorder that goes beyond the signs like delirium and illusion. Treatment of delirium and delusion is not a guarantor of overall improvement in the function and quality of life of these patients; whereas, improving the everyday performance of these patients is the objective purpose of drug, behavioral and rehabilitation interventions [2].

Schizophrenia is also one of the most disabling psychiatric disorders, affecting the important functional activities such as independent life, productive and occupational activities and social interactions of the patients [3]. Even when the psychotic symptoms of these patients are treated, more than two thirds of them are not able to play the basic social roles such as spouse, parent, or worker Most of these patients, due to experiencing serious damages in their social interactions, are often isolated and have difficulties in interacting with others, establishing a proper communication, expressing needs and feelings, achieving social goals, or expanding intimate relationships so that the social network of these patients is smaller compared to the healthy people [4].

Functional activities are the most important components of the life that include basic activities of everyday life or self-care activities such as bathing, brushing, and organizing the apparent state and instrumental activities such as financial resources management, taking the prescription drugs, buying, housekeeping, calling and cleaning the home. These activities are particularly limited in patients with schizophrenia; disrupt the independent social life of the patient and ultimately causing his/her disability [3]. In this regard, research implies that patients with schizophrenia have problem in performing daily activities and matching them with social criteria, especially in housekeeping, financial management, safety and management of emergency situations, social and functional activities, management of medicine consumption, taking the use of communication devices such as phones, food preparing, buying, and paying attention to others and caring for them [4].

On the other hand, in addition to impaired functional capacity, defect in meta-cognitive abilities is also observed in these patients [5]. Lysaker et et al. have combined different definitions in the metacognition field together and have provided this definition: "Metacognition is the ability to understand the psychological state of oneself and others and the ability to think purposefully on a particular problem" [6]. Therefore, metacognitive capabilities are closely interrelated with the ability to cope with the challenges of everyday life and solving complex social problems [7].

Meta-cognitive problems are diverse and stable in schizophrenic patients and they are known as indicators of the main typology in this disorder [8] that are in positive and close relationships with negative signs of disorder [9] and duration of disease [10,11]. On the other hand, improvement of meta-cognitive defects is in relation with reducing symptoms of depression, improving the quality of life [12,13] and improving social performance [14]. In other words, when meta-cognitive abilities are limited, communication with others will be ambiguous and confusing for the schizophrenic patient and patient's acquaintances will step away from him [15].

Despite cognitive deficits and functional disabilities in schizophrenic patients, many patients and their families do not take this disease seriously. One of the reasons for delaying the treatment of these patients is the negative image of the disease in public opinions [16], believing that the recovery of these patients is impossible and people with this disorder are dangerous and without any skills [17,18]. However, the treatment of these patients in the early stages of infection has a significant effect on job satisfaction and improvement of their quality of life [19,20].

In 1996, the World Psychiatrists' Association presented a program called "Open the Doors" program [16]. The purpose of this program was to provide general and educational information for target groups to raise public awareness about symptomatology, causes, and treatment of schizophrenia. Increasing people's information decreases their predispositions and their negative perceptions of illness and enhances the social interactions of people who suffer from mental illness [21].

The "Open the Doors" program is a psycho-social rehabilitation program in which, after acquiring social skills and obtaining the self-care and instrumental activities, patients can get out of the care centers in an hourly manner and benefit from the conditions and facilities available in the community. Promotion of social skills and ability for self-management creates a sense of value in the patient and makes him feel the the ability to manage an independent life. Being in the society helps these patients learn the anti-disease strategies. The main purpose of "Open the Doors" program

is providing a relaxed environment in which patients can acquire appropriate and efficient cognitive function over a long period of time about themselves and also to be allowed to leave care centers and return to society. This program is also affordable, because institutions are not capable of caring the patients in a closed and exclusive environment [22].

Research suggests that rehabilitation programs target functional capacity and its limiting factors and improve the performance of daily activities in real life [23]. In this regard, results obtained from Baumann and Gaebel [24]., research have shown that "Open the Doors" program, along with increment in people's information about the patients with schizophrenia, reduces their prejudices and negative perceptions relative to the disease improves social interactions of people who suffer from the mental disease, and consequently improves the quality of life in these patients.

Based on World Health Organization statistics [2], schizophrenia disease is considered as one of the most disabling mental disorders due to creating defects in many functional. On the one hand, despite successful psychiatric advances in the treatment of positive symptoms of this disorder, any considerable advancement in the treatment of functional injuries of this disease hasn't been achieved and functional difficulties cause increment of indirect expenses for treatment of these patients. There is no doubt that studying and treatment of functional disabilities in these patients are some of the main and necessary priorities of this research. On the other hand, "Open the Doors" can increase the possibility of returning the patient to the family life and taking care of himself/herself. For this reason, the present research was to respond the question that "whether "Open the Doors" program can cause improvements in meta-cognitive beliefs, self-care activities, and instrumental activities of the life of the daily life of patients with schizophrenia?"

Methods

The present semi-experimental study was conducted using pre-test and post-test control group design. Among all the male patients with schizophrenia who were kept in Maragheh's well-being rehabilitation center in 2015, 30 patients were selected by random sampling method. According to the psychiatrist's opinion, all these patients were diagnosed with this disorder then, these patients were randomly assigned to two groups of experimental and control. Having a minimum level of secondary education, lack of neurological diseases, orthopedic disorders, blindness, deafness and diabetes were among the criteria for including the patients into the study. Concurrent co-morbidities with other chronic mental illnesses such as Tourette's disorder, drug dependence, epilepsy, orthopedic disorders, blindness, deafness, diabetes, and uncontrolled bipolar disorder led to exclusion of patients from the study sample. In this study, the following tools were used to collect data:

Barthel Activities of daily living index

This scale was designed by Barthel [25] to evaluate self-care activities. This scale evaluates ten areas of useful activities of daily life such as intestine activities, bladder control, toilet use, personal grooming, nutrition, ability to move, ability to use stairs, ability to dress, transfer, and ability to bathe. Scoring is based on Likert Scale as zero for disability and lack of independence, 1 for sometimes, and 2 for independence and ability to run the performance. The overall test score is obtained from the total scores of the patients in 10 areas of performance. The score ranges from 0 to 20 and higher scores express the independence and ability of the patient to perform activities. After participating in rehabilitation sessions, changes in more than two scores in this test indicate a fundamental change in the ability of the patient's performance activities. In a research conducted by Akbari et al. [26], the reliability of this test was obtained as 0.78 using test-retest reliability. Moreover, the validity of this test was also confirmed by three expert technicians and psychiatrists.

The Lawton Instrumental Activities of Daily Living Scale

This scale was developed to evaluate independent activities in everyday life according to the patient's statement. This scale is an 8-item questionnaire that deals with the daily activities of buying, using phones, preparing food, housewarming, washing clothes, using vehicles, taking medicine, and dealing with finance. Performance of each one of these functions is based on the cognitive or physical abilities or both of these abilities. These instrumental skills are more complex than the basic activities of everyday life. The scoring of this scale begins from 0 to 3, where zero means complete dependency, the score between 1 and 2 indicates the existence of a restriction and requires the help of others, and a score of 3 indicates independence in carrying out the activities. The total of 8 functional areas indicates the ability of the instrumental activities of the daily life of the patient. Research suggests that women are evaluated in all eight areas of activity, and men are often not evaluated in areas such as preparing food, home-grooming, and washing clothes. However,

Lawton et al., recommend that both sexes be evaluated in all areas [27, 28]. In research conducted by Graf, the reliability (0.85) and validity (from 0.95 to 0.99) of this scale were approved [29] In Iran, Doroud et al, also obtained the reliability of 90% for this scale by using test-retest reliability method [30]. Additionally, Taheri and Azadbakht reported content validity of this questionnaire as 0.82 in their study [31].

Wells's meta-cognitive beliefs questionnaire: This questionnaire was by Wells [32] in order to measure some meta-cognitive elements (attributes), some of which have a central role in the meta-cognitive model of psychological disorders. This questionnaire is a 30-point self-report scale that measures the following meta-cognitive domains in five separate scales: 1) Positive beliefs about worries such as "Concerns help me deal with issues."; 2) Negative beliefs about concerns that are related to control and risk; for example, "When I'm worried, I cannot stop it." ;3) Weak confidence; for example: "I have a faint memory."; 4) The need to control thoughts, for example: "Failure to control my thoughts is a sign of my weakness." ; and 5) Self-awareness cognition, for example: "I pay a lot of attention to how my mind works."

The scoring of this scale is based on Likert scale and ranges from 1 (for "I do not agree") to 4 (for "I completely agree). Cronbach's alpha coefficients for internal consistency of subscales of this questionnaire were between 0.72 and 0.93. Test-retest reliability for intervals of 18 to 22 days has been reported as follows: 0.75 for the whole questionnaire, 0.79 for subscales of positive beliefs, 0.59 for uncontrollable / risk, 0.69 for confidence cognition, 0.74 for the need to control the thoughts, and 0.87 for self-awareness cognition [33].

In Iran, Shirinzadeh reported the internal consistency coefficient of this questionnaire using Cronbach's alpha coefficient as follows: 0.90 for the whole scale, 0.71 to 0.87 for its subscales, 0.73 for the validity of retest of this test within 4 weeks for the whole scale, 0.59 to 0.83 for its subscales [34]. Its subscales correlation with total test, and their correlations with each other were (0.58 to 0.87) and (0.26 to 0.62), respectively.

"Open the Doors" program: This program is a psychosocial- supportive - program according to which the patient (called disabled or client) receives self-care skills, social skills, life skills, group treatment, and therapeutic recreation. After receiving the necessary training for 3 months and during 7 training sessions, the client is accompanied by a guardian or supervisor, and sometimes alone with the supervision of the center's therapeutic team (psychiatrist, psychologist, worker and nurse, and technical officer) for a specified time and for the purpose of performing social activities such as visiting relatives, doing recreational activities, using public transport etc ; and they leave the center and return to it after a certain period of time.

Table 1 – Contents of "Open the Doors" program

Session	Content
individually	Initial mutual acquaintance between the therapist and the patient, assessment of patient's appropriateness by involving in the study and pre-test implementation
1	Self-care education: In this session, observing the personal hygiene and taking care of personal cleaning and taking care of hairdressing, and clothes cleaning are taught to patients.
2	Self-awareness training: The patient receives training on his or her identity and knowledge of his skills, abilities and talents. The patient also gets enough information about schizophrenia and the impact it has had on his function.
3	Teaching effective communication skills: Learning this skill will help the client to express his ideas, beliefs and wishes and ask for help when needed. They are taught that asking for help from others is essential when it comes to healthy relationships. They learn that paying attention allows the other party to express his/her opinion about the words of other converser; pausing at the end of his/her talk allows the other party to express their opinions. They learn to make correct eye contact with the opposite side. Additionally, they are taught sympathetic behavior, honesty, and truthfulness in behavior.
4	Learning listening skills: The way to listen correctly and the fact that active listening is a voluntary movement that involves receiving audio logical stimuli, processing and changing them, and requiring patience's taught along with the role play.
5	Anger and aggression control training: At this session, the skill of controlling anger and aggression and staying calm when dealing with stressful events is taught to the patient.
6	Learn to deal with stressful events: Problem solving skills, believing that the fact that dealing with stressful events is part of life, achieving more success and experiencing less defeat, and having reasonable goalsare taught. Furthermore, counteracting maladaptive and irrational intellectual practices such as exaggerated generalization and hasty conclusion as well as ignoring positive affairs in life are taught to the patient.
7	Teaching how to decide: Situations that a disabled faces in the outdoor environments and he has to decide, is explained to him and how to react correctly, is taught to him.
8	Implementation of post – test

In order to conduct the research, appropriate coordination was carried out with the authorities of the psychiatric care center of Maragheh. Since one of the researchers of the present research has been working as a psychologist at the care center for many years and he had the experience of holding several "Open the Doors" program plan for schizophrenic patients, he asked patients who were willing to work with the researcher to participate in the research. Patients who expressed readiness were randomly assigned to two experimental and control groups and completed the questionnaires in the pretest stage. Then, the experimental group received "Open the Doors" program for 3 months and the control group received no intervention. At the end of the program, both groups completed the questionnaires again. After the end of the study, the control group also received "Open the Doors" program to observe the ethics of the research. Data obtained from the questionnaires were analyzed using SPSS 18 and running Multivariate covariance analysis.

Results

In this study, thirty patients with schizophrenia were studied using experimental and control groups. The mean age of patients in the experimental group was 32.99 ± 8.07 years and in control group was 33.5 ± 6.82 years. were male.

In the experimental group, the level of education of the patients was as follows: 4 had bachelor's degree, 8 had diploma degree and 3 had primary education. Considering marital status in this group, 11 were single, 1 was married, and 3 were divorced.

In the control group, 3 had bachelor's degree, 9 had diploma, and 3 had primary education. In terms of marital status, 13 were single and 2 were divorced. Further descriptive indicators of the studied variables are presented in Table 2.

Table 2 Descriptive indicators of the research variables in both experimental and control groups

Group	Control Group				Experimental Group			
Dependent Variable	Pre-test		Post-test		Pre-test		Post-test	
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Instrumental activities	13.60	3.68	12.93	2.28	14.53	5.69	22.73	3.39
Self-care activities	15.53	1.96	14.47	2.90	17	1.88	19.33	1.91
Cognitive beliefs	15.64	3.35	15.54	3.38	14.76	4.26	14.98	3.30

Table 2 shows the mean and standard deviations of research variables in both pre-test and post-test situations in both experimental and control groups.

In the further analysis of data multivariate covariance analysis was used in order to test the research hypotheses. To use this test, its implications must be met. One of these assumptions is the equality of group variances and the other is the equality of the variance-covariance matrix of the groups in the dependent variable.

Levin's test results showed that the observed F for the post-test of meta-cognitive beliefs, self-care activities, and instrumental activities of daily life was not statistically significant ($p > 0.05$); hence, the homogeneity of variances is presumed. In addition, the results of the box test to test the variance-covariance matrix of dependent variables in the two groups ($P > 0.05$, $P = 0/24$) approved this assumption. This test was used to test the hypothesis, the results of which are presented in Tables 3 and 4.

Table 3: Multivariate covariance analysis of meta-cognitive beliefs, self-care activities, and instrumental activities of daily life in both experimental and control groups

Title of the test	Value	F	Hypothesis freedom degree	Error freedom degree	Meaningfulness	ETA coefficient
Pillai·strace	0.33	9.16	3	56	0.0001	0.35
Wilkes's Lambda	0.67	9.16	3	56	0.0001	0.35
Hotelling trace	0.49	9.16	3	56	0.0001	0.35
Roy's largest root	0.49	9.16	3	56	0.0001	0.35

The results presented in Table 3 showed that by controlling the pre-test effect in multivariate analysis of covariance, i.e. metacognitive beliefs, instrumental activities of daily life and self-care activities have been significant. To check that the program of open the doors has had a significant effect on which of these variables, results obtained from multivariate covariance analysis is presented in Table 4.

Table 4: The comparison of the research variables in two groups

Variable	Sum of squares	Degree of Freedom	Mean squares	F	Sig	ETA Coefficient
Metacognitive beliefs	266.30	1	266.30	2.05	0.16	0.04
Self-care Activities	146.91	1	146.91	26.16	0.0001	0.31
Instrumental activities of everyday life	422.35	1	422.35	17.56	0.0001	0.23

Findings in Table 4 indicate that F statistics is significant for self-care activities and instrumental activities of daily life at the level of 0.0001; this finding shows that the program of open the doors has significantly been able to improve the ability to perform self-care activities and instrumental activities in the daily life of patients with schizophrenia in the experimental group compared with control group. Eta Square (effect rate) for the instrumental daily activities and self-care activities of the experimental group was 23% and 31%, respectively. In other words, "Open the Doors", respectively expresses 23% and 31% of the changes in scores of tools for daily life and self-care activities in the subjects of experimental group.

According to Table 4; however, "Open the Doors" program did not have a significant effect on meta-cognitive beliefs of experimental group ($p > 0.05$); in other words, "Open the Doors" program could not improve meta-cognitive beliefs of patients with schizophrenia.

Discussion

The present research was done with the aim of studying the effectiveness of "Open the Doors" program on meta-cognitive beliefs, self-care activities, and instrumental activities of daily life in patients with schizophrenia. Results obtained from multivariate covariance analysis showed that this program was capable of improving the performance of self-control activities and instrumental activities of everyday life in patients with schizophrenia. These findings are aligned with the results obtained from the researches done by Yoshi et al., [20], Baumann and Gaebel [24], and Gaebel et al.,[35]. Schizophrenia is a complex disease with various psychological symptoms that causes disability and numerous problems in various psychosocial aspects. On the other hand, the needs of mental patients are different in different stages of the disease. A wide range of services is needed to provide comprehensive care for these patients; Patients recover from this disease will need help in order to regain skills and re-play their role in the society. Some patients, especially in developing countries, who have been benefited less than the optimal level of care, will benefit from rehabilitation programs; Since "Open the Doors" program is a rehabilitation and psycho-educational program and teaches patients the self-care, self-awareness, and life skills such as communication skills and problem-solving ability, training these skills have been able to improve self-care activities and tools for daily life in these patients. Based on the study by Cheraaghi and Shamsaaee, patients with schizophrenia and their families need personal and family counseling by specialized and trained people after discharging from the hospital [36] that is consistent with the findings of current study.

Education about how drugs are consumed and about social as well as professional and job skills along with increasing public awareness about schizophrenia and reducing the marking of these patients could improve self-care activities in these patients. The problem-solving ability, which is taught to patients during this program, teaches the patients the sense of responsibility towards personal issues; therefore, increases the ability of self-care activities in them

On the other hand, according to Stewart [quoted in 37], providing services outside of the maintenance centers can improve the mental health of these patients because feeling sympathy for these patients reduces the recurrence of the disease. Some studies have shown that combination of regular drug therapy with social activities and complementary therapies can reduce the relapse rate from 50% to less than 10%. In this regard, "Open the Doors" program is a program that behave with patients with schizophrenia in a humanistic manner and as the name of this program implies, the doors of maintenance centers are not closed on patients, and the patient is given opportunity to spend some specified hours out of the center together with a worker or a specialist and or alone and take action on simple social activities such as communicating with others and listening to other people's speeches; and these education along with teaching learning skill help the patient express his/her demands in a correct manner. Performing such social activities along with drug therapy improves the activities of the daily life of the patient and reduces the severity of the disease symptoms.

Another explanation for the effectiveness of "Open the Doors" program on self-care activities and instrumental activities of everyday life of patients with schizophrenia

is that treatments based on educational-psychological method are effective because duration of being admitted in hospital decreases the risk of recurrence of the disease. Additionally, the training given to patients during this program highlights the importance of taking medication to the patient and his / her family and as a result, clients refuse to stop taking medicine on their own and they regularly take the prescribed medicine.

According to the present study, "Open the Doors" program had no significant effect on meta-cognitive beliefs of patients with schizophrenia. This finding is in line with the results revealed by van Kleef et al. [5]. In their study, they studied the effect of meta-cognitive reflection and insight therapy on the cognitive and social function of schizophrenic patients and concluded that this treatment had no significant effect on the cognitive function of these patients. This lack of efficacy can be due to this fact that the more the negative symptoms of schizophrenia are the more metacognitive problems will be [37]; and in the present study the existence of positive and negative symptoms in the patients had not been controlled and probably inconsistency and the variation in symptoms of patients are among the possible reasons for the inadequacy of this program for meta-cognitive beliefs in patients.

Another explanation that can be presented for this finding is the association between meta-cognitive beliefs and schizophrenia in patients with chronic disorder, not patients who are at an early stage of the disease [6, 9]. In other words, if the relationship between meta-cognitive ability and negative symptoms in schizophrenic patients becomes more pronounced over time, then failure to control the duration of the disease in this study can be a potential cause of the inadequacy of "Open the Doors" program for meta-cognitive deficits in schizophrenic patients.

Another explanation that can be offered for the inefficacy of "Open the Doors" program on meta-cognitive beliefs of schizophrenic patients is the use of Wales's meta-cognitive beliefs test, since it does not include those cognitive elements that are affected by schizophrenia patients. In this regard, study showed that the meta-cognitive abilities of word processing speed, visual memory, and verbal memory are damaged in schizophrenic patients [12].

Another probable can be due to reverse effect of "Open the Doors" program on the meta-cognitive since, according to Harvey et al [2], interventional strategy may increase individual awareness of its functional disabilities, augmenting the patient's mental dissatisfaction and metacognitive ability.

Future studies are recommended to recruit larger samples of patients with schizophrenia for longer therapeutic courses to approve these findings.

This study was also faced with some limitations. First, patients were selected using cconvenience sampling limiting the generalization of the results. Another limitation of this study was lack of long-term follow up of the patients. The third limitation was failure to compare two groups during intervention and the fourth was of lack of considering symptoms (positive or negative) of schizophrenia.

Conclusion

In a nutshell, the use of "Open the Doors" program can improve the functional status of patients with schizophrenia. Furthermore, this program is suggested for patients with schizophrenia since it is cost effective and can improves the quality of patient's life and reduces maintenance costs.

Ethical Considerations

Compliance with ethical guidelines

This research has been reviewed and approved by the Ardabil University of Medical Sciences (Code: IR.ARUMS.REC.1396.260).

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Authors' contributions

Study design: Fereshteh Pourmohseni-Koluri; Data collection and analysis: Sara Soltani; Manuscript preparation: Fereshteh Pourmohseni-Koluri.

Conflict of interest

The authors declared no conflict of interest.

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