

# Effects of needs-assessment–based psycho-education of schizophrenic patients’ families on the severity of symptoms and relapse rate of patients

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## ABSTRACT

**Background:** Family psycho-education is one of the most effective interventions for preventing relapse in patients with schizophrenia. We evaluated the efficacy of a needs-assessment–based educational program in comparison with a current program (textbook based) in the treatment of schizophrenia.

**Materials and Methods:** Patients with schizophrenia and their families ( $N = 60$ ) were allocated to needs-assessment–based education (treatment) and textbook-based (control) programs; both included 10 sessions of education within about 6 months. Symptoms were assessed by the Positive and Negative Syndrome Scale (PANSS) prior to intervention and every 3 months for a total of 18 months. A 25% decrease or increase in total PANSS score was considered as response or relapse, respectively.

**Results:** Forty-two cases completed the study. The total PANSS score was significantly decreased in both groups with more reduction in the treatment group. Positive and negative scale scores were reduced in the treatment group, but not significantly in the control group. Response rate was higher in the treatment group and relapse rate was lower (15% vs. 27.2%,  $P = 0.279$ ). In logistic regression analysis, needs-assessment–based psycho-education was associated with more treatment response.

**Conclusions:** Needs-assessment–based psycho-education is more effective than textbook-based education for treating schizophrenia. We recommend psychiatric care centers to conduct needs-assessment and develop their own program for family psycho-education.

**Key words:** Family, needs-assessment, psycho-education, schizophrenia

## INTRODUCTION

Schizophrenia, with a prevalence of about 1% among the general population, is one of the major mental health problems around the world.<sup>[1,2]</sup> The disease develops during childhood and adolescence. In the course of this disorder, the patient experiences recurrent relapses and long-term hospitalization, which lead to considerable cognitive and psychosocial impairment.<sup>[1,3-7]</sup> Advancements in biological treatments have led to a reduction in need for long-term hospitalization of the patients in psychiatric wards. In this regard, families of the patients have been

found to play a more important role in managing the patients.<sup>[5,8]</sup>

There are various preventive and rehabilitative community-based intervention programs including different components. Patient and family psycho-education tops the list of these programs. These programs are helpful in preventing relapse, mainly through reduction of the expressed emotion and early detection of the relapse symptoms.<sup>[9-14]</sup> Previous studies have shown that schizophrenic family-focused psycho-education programs enhance treatment compliance and reduce the disease relapse.<sup>[12,15-19]</sup>

Schizophrenia is a disorder with heterogeneity in its symptoms and course. Furthermore, the cultural and psychosocial status and attitude of the family and the patient toward the disorder could be different among different patients in a community and also in various communities.<sup>[20-23]</sup> Accordingly, general provision of psycho-education programs given in the textbooks and some literatures that are based on limited experiences may not meet all the needs of the patients’ families. We designed, implemented, and evaluated the efficacy of an intervention based on the needs-assessment from the patients’ families in Iranian society, in order to compare the efficacy of

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this needs-assessment-based family education with the traditional and current practice of textbook-based family education in our department on the symptom severity and the relapse rate of symptoms.

## MATERIALS AND METHODS

This controlled clinical trial was conducted in Behavioral Sciences Research Center (BSRC) in Isfahan city (Iran) between 2011 and 2013. Participants were patients with schizophrenia and their families. Diagnosis of schizophrenia was established by a psychiatrist based on the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition, Text Revision (DSM-IV-TR) criteria.<sup>[24]</sup> Patients with debilitating diseases such as uncontrolled epilepsy and mental retardation and those who were addicted to any substance, drug, or alcohol were not included in the study. Also, those who had received psycho-education or family therapy during the past 2 years were not included. Considering type I error = 0.05, study power 0.8, and expecting 25% difference between the two groups in response rate, the sample size was calculated as 30 patients in each group.

Seventy-four cases (patients and their families) were included in this study. Fourteen cases were not included as they were not eligible based on the inclusion criteria. Finally, 30 cases were included in each group and 18 were excluded because the patient or the family did not attend more than 50% of the evaluations. Thus, 20 cases in the treatment group and 22 in the control group completed the study.

The study was approved by the ethics committee of the Isfahan University of Medical Sciences and all participants signed an informed consent.

Participants were alternately assigned to two groups of treatment and control. Both groups were under biological therapies with their attending psychiatrists. The treatment group received psycho-education based on the content provided by a needs-assessment study.<sup>[25]</sup>

Those in the control group received psycho-education based on the current textbook-provided content. The number of sessions (10 sessions with 15-day intervals) and the structure were similar for the two groups (Atkinson and Coia).<sup>[26]</sup> The subjects for education included: (1) What do you know of schizophrenia?, (2) What is schizophrenia?, (3) What causes schizophrenia?, (4) different methods of treatment for schizophrenia, (5) problems of patient's family, (6) family and schizophrenia (learning ways to deal with stress), (7) creating an environment with minimal stress (coping skills), (8) how to manage and control the chaotic behavior of the patient, (9) use of services and dealing with crises, and (10) Where are we and where

are we going? Educators of the treatment group were two residents of psychiatry who had been trained in needs-assessment-based psycho-education. Educators of the control group were mental health nurses who worked for the clinic and were unaware that some of their participants were under observation in the study.

Demographic data and disease characteristics were collected at baseline. The primary outcome of the study was improvement in symptom severity. For this outcome, a trained psychologist completed the Positive and Negative Syndrome Scale (PANSS) for all patients at baseline and then every 3 months for 18 months.

PANSS contains 30 items in three subscales of positive symptoms (7 items), negative symptoms (7 items), and general psychopathology, which evaluates general function of the patient (16 items). Each item is scored from 1 (absent) to 7 (extreme). Thus, the PANSS total score ranges from 30 to 210.<sup>[27,28]</sup> PANSS is one of the most commonly used instruments for patients with schizophrenia and is used in several clinical trials for evaluating the response to treatment and relapse.<sup>[29,30]</sup> A 25-30% decrease or increase in total PANSS score (25% in our study) is usually considered as response or relapse.<sup>[31]</sup>

Data were analyzed using SPSS software version 16.0. Quantitative and qualitative variables are reported as mean  $\pm$  standard deviation (SD) and frequency (%), respectively. Independent sample *t*-test was used for comparison of quantitative variables between groups. Mann-Whitney test was applied when data were not normally distributed and also for comparison of qualitative data. Trend of changes in PANSS score between groups and within group was evaluated using repeated measure analysis of variance (ANOVA). Also, logistic regression was applied to find the predictors of response. A *P* value of less than 0.05 was considered significant in all analyses.

## RESULTS

Despite alternately allocation of cases, the two groups were not similar in age, disease duration, education level, and marital status [Table 1].

Trend of changes in the total PANSS score and each of its subscales is presented in Table 2 and Figures 1-3.

The total PANSS score was significantly decreased in both groups; however, higher reduction was seen in the treatment group ( $P = 0.002$ ) [Table 2].

Positive scale score was significantly decreased in the treatment group ( $P < 0.001$ ), but the decrease in the

**Table 1: Comparison of demographic characteristics between groups**

	Treatment (n=20)	Control (n=22)	P
Age, years	31.8±8.3	49.7±10.8	<0.001*
Male/female	15/5	19/3	0.294
Disease duration, years	9.8±6.3	18.1±12.3	0.002*
Education level, from illiterate (0) to MSc and above (7)	4.9±1.4	3.5±1.3	0.002**
Marital status			
Single	15	9	
Married	3	12	0.050***
Divorced/separated	2	1	

Data are presented as mean±SD (in the case of age, disease duration, and educational level). \*Independent t-test, \*\*Mann-Whitney U test, \*\*\*Chi-square test

**Table 2: Changes in positive and negative symptoms scale scores observed in the study in the two groups**

	Treatment (n=20)	Control (n=22)	P
Baseline	80.9±18.4	94.1±25.6	0.065
3 <sup>rd</sup> month	72.7±15.4	95.0±23.1	0.001
6 <sup>th</sup> month	70.1±21.5	90.0±23.0	0.006
9 <sup>th</sup> month	67.1±22.1	91.2±27.5	0.003
12 <sup>th</sup> month	62.2±23.7	85.3±24.3	0.003
15 <sup>th</sup> month	59.3±21.9	85.3±25.4	0.001
18 <sup>th</sup> month	61.5±21.5	83.9±26.9	0.005
Follow-up measure	P<0.001	P=0.006	
Main group	P=0.002		

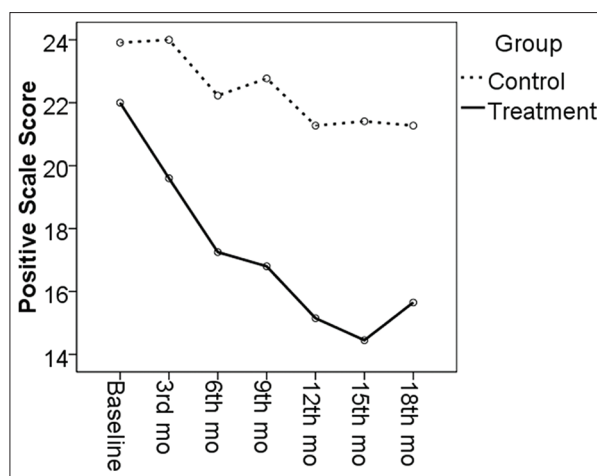
Data are presented as mean±SD

control group was not statistically significant ( $P = 0.075$ ), and the two groups were different in this regard ( $P = 0.009$ ) [Figure 1].

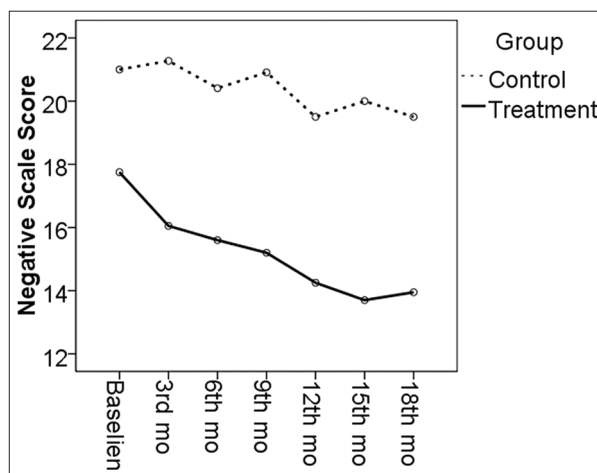
The negative scale score was also significantly decreased in the treatment group ( $P = 0.002$ ), but there was no significant change in the control group ( $P = 0.281$ ), and the two groups were different in this regard ( $P = 0.034$ ) [Figure 2].

Regarding the general psychopathological scale score, there was a significant reduction in both groups ( $P = 0.002$ ), but increased reduction was observed in the treatment group ( $P = 0.002$ ) [Figure 3].

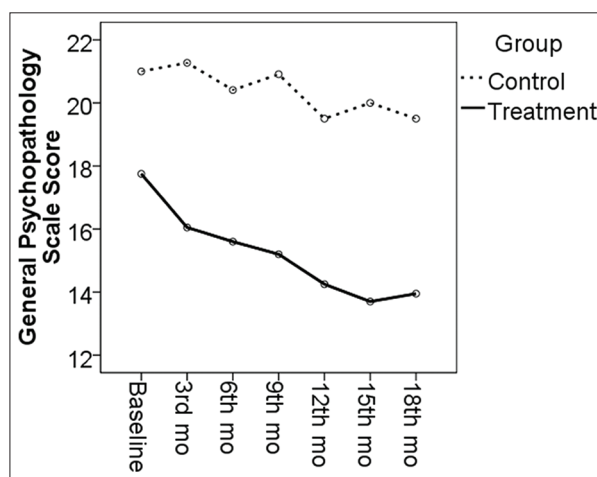
Better improvement was observed in the total PANSS score in the treatment group compared to the control group [22.2% (SE = 5.5) vs. 9.8% (SE = 3.8),  $P = 0.025$ ]. Accordingly, the response rate was higher, though not statistically significant, in the treatment group compared with the control group (40% vs. 13.6%,  $P = 0.055$ ). The difference between the treatment and control groups in relapse rate was not significant (15% vs. 27.2%,  $P = 0.279$ ).



**Figure 1:** Trend of changes in positive scale score during the study in the two groups



**Figure 2:** Trend of changes in negative scale score during the study in the two groups



**Figure 3:** Trend of changes in general psychopathological scale score during the study in the two groups

Based on some differences observed between the two groups in demographic and clinical characteristics, a

logistic regression analysis was applied to find the predictors of response. Controlling for age, disease duration, educational level, and baseline PANSS score, the type of intervention (needs-assessment-based psycho-education) was associated with treatment response ( $P = 0.053$ ).

## DISCUSSION

The aim of the present study was to compare the effects of education based on needs-assessment and the current method of education given to the families of schizophrenic patients on the patients' symptoms and functions and also on the disorder relapse. Our results demonstrated that both methods were generally effective on reduction of the symptom severity. However, education based on needs-assessment led to more improvement in the symptoms, and this educational method was independently related to response to treatment. These results support our hypothesis that education based on needs-assessment is more effective than the currently used educational program for families of schizophrenic patients.

So far, many studies have addressed the effectiveness of psycho-education in the treatment of schizophrenia.<sup>[12,15,16]</sup> In a systematic review of 5142 patients in 44 clinical trials, it was concluded that psycho-education leads to better treatment compliance in the patients. Moreover, the relapse rate and need for re-hospitalization reduced significantly following the psycho-education. In the studies that used indices such as the PANSS for evaluation of the symptoms, it has been shown that psycho-education improves the global and social functioning of the patients and improves satisfaction with mental health services.<sup>[12]</sup> Although the components and content of the educational programs are different, successful programs in this regard have the following items in common: (1) considering schizophrenia as an illness; (2) designed and directed by professionals; (3) being a part of a more comprehensive treatment package that includes biological treatments; (4) considering the family members as treatment factors and not as patients; (5) focus on the disorder outcome, though family outcomes are also important; and (6) not having the conventional belief of family therapy that behaviors and relationships in the family have the key role in the etiology and development of schizophrenia.<sup>[9]</sup>

Effectiveness of psycho-education programs has been confirmed in many studies and the intervention components are almost the same. However, psychosocial and economic differences as well as the difference in the attitude toward and the perception of the disorder in prioritizing the educational needs among different communities necessitate customization of the structure and content of the educational

programs according to the priorities. Furthermore, cultural factors influence the expressed emotion, and in this regard, the studies have demonstrated the role of cultural factors in the disorder relapse.<sup>[13]</sup> Interpretation and definition of psychiatric disorder and expressed emotion could be influenced by inter- and intra-community cultural differences and, consequently, affect the health-seeking behavior.<sup>[13]</sup> Cultural factors can determine the stigma of a psychiatric disorder in a community. For instance, it has been shown that the stigma of psychiatric disorders in urban areas is greater than that in rural areas; thus, schizophrenic patients in urban areas are less successful in finding a job or partner.<sup>[13,32]</sup> Another factor that is different in various communities and would significantly affect the response to treatment in schizophrenia is the level of family support. Some authors have even attributed the better treatment outcome in the developing countries to the high level of family support in these communities.<sup>[33]</sup> However, considering the limitations present in the public health mental resources in the developing countries, the families of schizophrenic patients struggle with the pressure of coping with this chronic and severe psychiatric disorder, and in the absence of family support, these conventional support networks may fail.<sup>[13]</sup> Finally, each psychosocial intervention requires financial resources, time, appropriate facilities, and educated and motivated therapists; there may be some shortage of all of these in different communities. The huge workload of the psychotherapists in the setting of limited resources should be considered in planning the structure and content of educational programs.<sup>[13]</sup>

When education is coordinated with the family needs, it conveys a sense of being understood, which would enhance participation of the families in the treatment sessions. According to the discussions provided in a review paper, educational needs-assessment does not usually receive enough attention in planning the structure and content of family education programs.<sup>[9]</sup> One study demonstrated that education of additional issues that are not the needed by the family or considered low-priority items by the family members would increase the stress in the family.<sup>[34]</sup> In an Indian study similar to ours, two family education programs, a standard and organized program and a flexible program tailored to the needs of the family members, were compared with each other. The results indicated that although the two methods were not significantly different in psychopathology and the disease burden for the caregivers, most families considered the latter method more appropriate and the method led to higher participation of the family members in the treatment.<sup>[35]</sup>

In our previous study on educational needs of the families of schizophrenic patients, we found three major concepts



with regard to the problems the families experienced with the patients. The problems were social functioning, reaction to stress, and knowing about the unknowns of the diseases. The studies performed in other countries also have shown that the families have an unaddressed need for education, particularly in fields of etiology, symptoms, coping strategies,<sup>[36]</sup> and communication and social relationships.<sup>[37]</sup> In a study performed in China, the major needs of the families were receiving education on the symptoms of relapse, effects of drugs, and coping strategies for bizarre and assaulting behaviors.<sup>[38]</sup> Compared with the study mentioned, the participants of our previous study believed that presence of the patient in the family influences many of their social relationships, and expressed that further information could be helpful for making decisions about adjusting their social relationships. Therefore, in our educational program, we included providing education and necessary information about how to reshape social relationships to help the families to assumption of new roles with the patient in the family environment. the health care systems often tend to underestimate the information and educational needs of families of the schizophrenic patients in different aspect.<sup>[39]</sup> Regarding the concept of reaction to stress, the results showed that families of schizophrenic patients deal with many stresses owing to experiencing various challenges such as role change and problems related to the disease and treatment, and they need education to cope with these stresses. Adopting appropriate interventions for education of coping and adjustment with these stresses is effective, especially when they are based on the information and real perception of the people's experiences rather than the available treatment methods.<sup>[34]</sup> Finally, considering the concept of unknowns of the disorder, our previous study demonstrated that the families of schizophrenic patients require education and information in many fields of the nature of the disorder, its symptoms, care, and treatment. The education could help them make decisions about the treatment, the cure expectation, and the overall outcome, and enhances their participation in the treatment process.<sup>[24]</sup>

Our study had some limitations. Due to the limited human resources, the sample size was small and the follow-up period was short. Moreover, the two groups were not matched in their basic characteristics. To overcome this shortcoming, we used multivariate analysis.

## CONCLUSIONS

The results obtained in the study indicate that the two methods of textbook-based education and education based on needs-assessment were effective in reducing severity of the symptoms. However, education based on needs-assessment led to a higher improvement in

the symptoms and general function. Therefore, the content of educational programs should be customized in each community with regard to its educational needs. This approach would enhance the effectiveness of the education and also prevents spending time and financial resources on unnecessary items. Further studies with larger sample sizes and longer follow-up periods, and also similar needs-assessment studies and studies on adjusted interventions in other parts of Iran are required.

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