Effect of family-centered empowerment model on the attitude to medications and drug compliance in patients with schizophrenia: A randomized controlled trial

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Introduction: Schizophrenia is a severe mental illness that causes lack of insight into the disease and the drugs will experience episodes of relapses. In addition, it is a progressive disorder effect on the individual and involved their family. This study aimed to determine the effects of family-centered empowerment model on the attitude and medication compliance of patients with schizophrenia.

Materials & Methods: This study is a randomized controlled trial study in which 71 patients with schizophrenia and their families referred to IbnSina hospital of Shiraz who met inclusion criteria were divided randomly into control and study groups. The study group received education through 6 training sessions every which last 90 minutes. This training was planned on the basis of family-centered empowerment approach. In the contrast, the control group just received routine care. Both groups were evaluated by assessing questionnaire. To analyze the data chi square, t test and fishers were used in this study.

Results: The findings showed that a statistically significant difference between the intervention and control groups in the attitude to medication in the one month after the intervention (p<0.01) and in the drug compliance after intervention (p<0.01). On the other hand, no significant relation was seen about attitude to medication between two groups after intervention (p>0.12).

Conclusion: Family-centered empowerment model can increase drug adherence of patients with schizophrenia but cannot effect on the attitudes of these patients in the short period.

Keywords: Family-centered empowermentmodel, Schizophrenia, Attitude toward drugs, Drug compliance.

Introduction
Among mental disorders, psychosis and schizophrenia are very important. Statistics show that schizophrenia is 16% of all psychiatric illnesses (1). The disease usually occurs in late adolescence and disrupt social trends and skills development and cause increasing social isolation and frustration in social roles (2). Schizophrenia is one of the most debilitating mental disorders and it is in the third disabilities ranking after amnesia and cerebral palsy (3). This disorder reduces life expectancy 12 to 15 years under normal range (4). Approximately 50% of patients with schizophrenia who attempted suicide (5). According to the World Health Organization in 2010, there are about twenty-nine million people with schizophrenia aged 35-15 years worldwide (6) and every year, appear two million new cases of schizophrenia in the world (7).

Statistics about severe mental disorders particularly schizophrenia, in Iran, like other countries, in the general population is 1%, if we consider the population of 70 million
therefore there are 700 thousand people with this disease who need serious treatment and hospitalize (8). This disorder occupies 50% of beds in mental hospitals due to frequently relapse (9). The relapse of schizophrenia with pharmacological treatment is 40% and without that is 80% (5). Recurrent disease means an especially positive symptom returned after a period of treatment (10). In a study that was conducted by Ascher-Sanum et al in America, 2010, the schizophrenia showed that the costs of hospitalized patients are three times more than non-hospitalized over a period of 12 months (11). Many alternative definitions of relapse in schizophrenia have been published. These include number of admissions to hospital, detention under a section of the Mental Health Act, attendance at an acute day care center, change of antipsychotic agent, increased staff input and/or more intensive case staff management, and a significant change in accommodation. The main reason for readmission of these patients eventually relapse of schizophrenia is discontinuing of medication. Treatment of schizophrenia is multifaceted and can be used in combination therapies. But the main method of treatment is use of antipsychotic drug so that it is the most important factor in the successful treatment and prevention of relapse and readmission of patients (12). Unfortunately, one of the major problems is the patient's refusal of treatment due to the problem of individual characteristics, drug dosage, side effects, symptoms of disorder, patients with poor insight and negative attitudes toward the disease and the drug (13).

Studies have shown that medication compliance in schizophrenic patients 40% to 50% (14,15). Researches have shown that discontinuing of drugs by patient cause aggression, self-injury, loss of remission, suicide, job loss, dropouts, drug and alcohol abuse, increased use of emergency services, prosecution of patients, victimization of patients, deterioration of quality of life and increased recurrence five time more in patients with schizophrenia (16-18), while medication compliance is a major factor in the successful treatment and prevention of relapse and it has great effects on prevention of patient readmission. If the schizophrenic patient believes that medications to help them it can cause increase their medication compliance, even if they have some side effects. In the opposite, negative attitudes to drugs cause poor compliance with the drugs. If nurses change the attitude of psychiatric patients about diseases and drugs, they are able to interact intimately and increase acceptance of treatments in these patients (13).

A study conducted by Degmecic showed that psychoeducation cause to change attitudes and increase patient compliance to medication in patients with schizophrenia (19). In the recent study in Thailand conducted by Chayajan showed that patients with schizophrenia, psychoeducation creates a positive attitude towards medication and following it by patients as a result increase medication compliance (20). Education of family members of patients with schizophrenia increases knowledge, decrease negative attitude of members towards patients and reduces caring load on the patients' families (21).

Schizophrenia as a chronic disease with a high prevalence of mental and relapses,
which causes numerous individual, family and community problems and generate a cost for individuals, families and socials. Several factors such as withdrawal, poor insight and negative attitudes towards pharmacological treatment have a significant impact on the patients relapse and readmission of patients. Therefore, this study aimed to determine the effects of family-centered empowerment care model on the attitude and medication compliance of patients with schizophrenia.

**Materials and Methods**

This study is a randomized controlled trial. 80 patients with schizophrenia referred to Ibn Sina hospital of Shiraz who met inclusion criteria, entered in this study after informing consent and explaining the plans and goals. Subjects randomly were divided into two groups, control and intervention. The sample size calculated 40 patients for each group according to sample size formula with attrition rate 15%. Inclusion criteria included: definite diagnosis of schizophrenia according to DSM-IV-TR criteria by a psychiatrist, age between 15 to 40 years, lack of mental retardation, patients have not received an education. Exclusion criteria included: Unwillingness to continue participation in the study, during the study, catching the severe physical illness, failure to complete the questionnaires. The questionnaires were included demographic information, Drug Attitude Inventory and Medication Adherence Rating Scale. The questionnaires used in the previous studies (22-24) and also was tested for content validity and reliability (internal correlation) through a pilot study.

The intervention started with one group based on the steps in the model. Patients introduced the group sessions and discussed the use of pamphlets and slides about the disease.

According to this model the first knowledge and awareness of patients about the disease and psychotic drugs was increasing. In the second step or decoding phase problem, their confidence should be increased. Then they concluded that they could participate in programs of care. In the third step, educational pamphlets and other handouts were given to patients and their family members, which raise awareness about the drug use and improve the attitude of medications in the caring process (22).

In this study, researcher getting help from a professional health educator in order to coordination and betterment of quality of education. Patients and their families in the intervention group received 6 sessions of 90 minutes of training on family-centered empowerment model. Finally, 71 patients, 35 in the intervention group and 36 in the control group came to post test.

Data gathering by questionnaires was performed before and after intervention, then one month after it for both groups. The results of these evaluations were analyzed through statistical software SPSS version 18 using statistical methods (descriptive and inferential), t test, chi-square test and Fisher’s exact test for comparing the qualitative variables in two groups.

**Ethical considerations**

Frist of all we get permission from the deputy of Ahvaz University of Medical Sciences and the president of the Ibn Sina
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Hospital of Shiraz. After the University Ethics Committee’s approval (code of ethics: ETH-396), patients with schizophrenia were informed about the purpose of the research, as well as the data collection procedures in order to ensure privacy. Patients were assured that taking part in the study is voluntary, and they can cancel proceeding at any time. The location of educations session was determined to be in a quiet place with privacy and comfort. Educational programs had no financial loss for patients and their families. Before the intervention, participants declared their approval via signing a written consent.

Results

The mean of age in the intervention and control group were about 28 years. The most common range of age of patients in both groups of subjects were 34-26 years (52.5%). Most of them were man, single and unemployed in both groups. Level of education in the both groups of patients was in the primary to secondary school. There was not a statistical difference between both groups in the demographic variables except marital status (Table 1).

According to the findings from the Table 2, t test showed a statistically significant difference between the intervention and control groups in the attitude to medication in the 1 month after the intervention (p<0.012) and in the drug compliance after intervention (p<0.015).

Table 1: Demographic characteristics of patients in intervention and control groups

<table>
<thead>
<tr>
<th>Group Variable</th>
<th>Intervention</th>
<th>Control</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td>28.88±5.23</td>
<td>28.91±5.97</td>
<td>0.982</td>
</tr>
<tr>
<td>Sex</td>
<td>M= 35(100%)</td>
<td>M= 34(94.4%)</td>
<td>0.493</td>
</tr>
<tr>
<td></td>
<td>F= 0</td>
<td>F= 2(5.6%)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Single: 33(94.3%)</td>
<td>Single: 27(75%)</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>Married: 2(5.7%)</td>
<td>Married: 9(25%)</td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>Employed: 3(8.6%)</td>
<td>Employed: 2(5.6%)</td>
<td>0.674</td>
</tr>
<tr>
<td></td>
<td>Unemployed: 32(91.4%)</td>
<td>Unemployed: 34(94.4%)</td>
<td></td>
</tr>
<tr>
<td>Period of illness (year)</td>
<td>6.82±3.89</td>
<td>7.30±5.001</td>
<td>0.814</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>
Table 2: Comparison of score of attitude to medications and drug compliance in the intervention and control group

<table>
<thead>
<tr>
<th>Kind of Questionnaire</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group</td>
<td>p-value</td>
</tr>
<tr>
<td>Attitude to medications</td>
<td>19.40±3.87</td>
<td>0.324</td>
</tr>
<tr>
<td></td>
<td>18.55±3.24</td>
<td></td>
</tr>
<tr>
<td>Re-evaluation after 1 month of intervention</td>
<td>21.05±3.04</td>
<td>0.012</td>
</tr>
<tr>
<td>Drug compliance</td>
<td>4.88±1.99</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.02±2.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>35</td>
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<td></td>
<td>36</td>
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</table>

Discussion
This study has been discussed the impact of the family-centered empowerment model on the attitude to medications and drug compliance of patients with schizophrenia. Fortunately, drug compliance and attitude to drug (one month after the intervention) of the patients with schizophrenia significantly increased after intervention, but there was no significant difference between the scores of drug attitude of the two groups of patients after intervention.

According to findings, it can be concluded that family-centered empowerment model was no effect on patients' attitudes toward medications. In a study that was done by Chayajan and colleagues with aimed to determine mental training on the attitudes about drugs in the patients with schizophrenia showed a positive effect on the intervention group (20). Dejmesic also resulted a significant change in attitude to medications after intervention in the patients with schizophrenia (19). According to Dejmesic and Chayajan studies that were done longer period and more sessions, it can be concluded that attitude is needed more time and sessions to make changes (19, 20). The findings of the present study in the attitudes of patients toward medications have not been in line with Dejmesic and Chayajan studies, which could be due to the duration and type of intervention, training experience, and severity of disease, type of disease and gender of patients. It should be noted that, changing in the attitude need to long time duration. On the other hand, findings showed that there was a positive attitude one month after the intervention.

Finding showed that that family-centered empowerment model had a positive effect on drug compliance of patients in the intervention group than the control group. In a study by Wilk et al has showed that psychoeducation of patients and their families had a significant improvement on the drug adherence of schizophrenic patients, so the score of drug adherence in the intervention group was 78 %and in the control group was 51% (26). In this case, finding the present study was in line with Wilk et al. In a study conducted by Chen et al, there was no significant change in the drug adherence of intervention group than the control (27). Other studies by Zygmunt et al and Lincoln et al that was done on the family...
education on the drug adherence revealed significant improvement in the intervention group (28, 29). Thus, this finding was in line with Zygmund and Lincoln but not same with Chen et al, which can be affected by factors such as individual training, duration and type of intervention.

**Conclusion**

Results showed that implementing family-centered empowerment model can increase drug adherence of patients with schizophrenia but cannot effect on the attitudes of these patients in a short time. Therefore, it is suggested to nurses who apply this model for improvement of drug competency and attitude to the drug in the patients with schizophrenia.

**Acknowledgments**

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**References**