Effects of a Psychoeducational Program on Attitude toward Medication and Compliance with First Appointment after Discharge in Schizophrenic Patients*

Wirin Chaiyajan, Yajai Sitthimongkol, Prapa Yuttatri, Piyanee Klainin

Abstract

Purpose: This study aimed to examine the effects of a psychoeducational program on attitude toward medication and compliance with first appointment after discharge in schizophrenic patients.

Design: A quasi-experimental design was employed.

Methods: Fifty-five schizophrenic patients, who were inpatients in a governmental mental hospital, were divided into two groups: experimental and control, by pair technique. Each pair had a difference in age less than five years. The patients in the experimental group attended the psychoeducational program, whereas those in the control group received treatment as usual. Drug Attitude Inventory (DAI-10) was used to assess the patients' attitude toward medication. ANCOVA and Z-Test for comparing the properties of those presenting for the first appointment after discharge were employed for data analysis.

Main findings: The result revealed that the patients in the experimental group reported a significantly more positive attitude toward medication than those in the control group (p<.05). The experimental group also presented with a significantly higher proportion of attendance for the first appointment after discharge than the control ((p<.05).

Conclusion and recommendations: The psychoeducational program can improve attitudes toward drugs and compliance with first appointment of inpatients diagnosed with schizophrenia. The success factors are combinations of medication education, active patient participation, utilization in one-to-one teaching, and nurse contact over time after discharge. The program should be retested on a larger scale, including both male and female patients, for further investigation of outcomes.

Keywords: attitude toward medication, schizophrenia, psychoeducation, compliance with first appointment
Background and Significance of the Study

Continuous antipsychotic medication is recognized as the mainstay of treatment of schizophrenia.\(^1\) Many schizophrenic patients do not adhere to their treatment regimens. Rates of medication noncompliance among schizophrenic patients have ranged from 12% to 65% over a 6-month period following discharge.\(^2\) In a survey of 160 schizophrenic patients in a psychiatric hospital in Thailand, Tiralap\(^3\) found that three quarters of patients were noncompliant. Non-compliance with treatment regimens increases the risk of relapse. While compliance with medication would decrease the risk of psychiatric hospitalization; the use of emergency services; a possibility of being arrested, substance use; conversely, noncompliance in the first year significantly predicted poorer outcomes in the following 2 years.\(^4\)

Developing strategies to enhance treatment compliance is one of the most significant challenges for psychiatric nurses. Nose and colleagues,\(^5\) in their meta-analysis of 24 studies, assessed the effectiveness of clinical interventions on reducing treatment non-compliance in patients with psychosis. These interventions included pre-discharge educational sessions, psychotherapy, and telephone prompts. Nose and colleagues suggested that medication compliance involves the following patient behaviors: taking medication regularly and compliance with appointment after discharge. In a review of interventions to improve antipsychotic medication compliance, the findings showed that longer interventions and an alliance with health care providers were essential for successful outcomes.\(^6\) Among the strategies used to enhance compliance, the telephone follow-up sessions appeared to be preferable for community-based care because of its low cost and easy utilization.\(^7, 8\)

Several empirical-based reviews have strongly suggested that the factor most likely to predict psychiatric patients' compliance to medication was a positive attitude toward medication.\(^9, 10, 11\) Thus, one of the goals of the effective psychoeducational program is to promote a positive attitude toward medication. Providing services for schizophrenic patients during the first three months after hospitalization was found to solve the problems that patients encountered in daily living, such as side effects of medication, anxiety, sleep disturbance, recurrent symptoms, and financial problems.\(^12\) Clinton et al.\(^13\) asserted that the schizophrenics who received high social support could better adapt themselves to live within the community than those without social support. Rachanee Srihiran\(^14\), in her study with 30 Thai schizophrenic patients, revealed that the telephone follow-up program could improve the participants’ self-care practices after the program, and that its effect was sustained throughout the two-week follow-up period. Therefore, the service aimed at supporting the schizophrenic patients in transition from the hospital to community is crucial.

To date, little effort has been made to develop a program to improve compliance with appointments for medical services of Thai schizophrenic patients. In this study, the authors developed and tested the efficacy of a pre-discharge psychoeducational program that incorporated post-discharged telephone follow-up sessions. It was hypothesized that the program would enhance patient attitude toward medication and compliance with the first appointment after discharge.

Method

A quasi-experimental research design with a wait-listed nonequivalent control group was used. Schizophrenic patients who had been admitted in psychiatric units in a governmental psychiatric hospital in Thailand were potential participants for this study. Inclusion criteria included: a) being an adult aged 18 or older; b) being diagnosed with schizophrenia according to the International Classification of Disease-10\(^15\) and exhibiting mild psychotic symptoms determined by 18-36 marks on the Brief Psychiatric Rating Scale.\(^16\) This scale has been routinely used to assess the severity of psychotic symptoms of patients admitted in hospital; d) having an obligation to utilize mental health services at the hospital; and e) returning to
a known address with telephone access after discharge. Patients who received electroconvulsive therapy (ECT) and have been diagnosed with brain dysfunction or cognitive impairment would be excluded.

In this study, matching techniques (based on age) were used to select the experimental group participants. Pairs with an age difference of less than five years were acceptable. A total of 70 participants, including 60 male and 10 female patients, who met the inclusion criteria were identified by reviewing medical records. Of this female group, four refused to take part due to feeling reluctant to receive the telephone follow-up sessions; six were not discharged as scheduled due to family problems and thus the telephone follow-up sessions could not be initiated. The participants were divided into control and experimental groups with each group consisting of 30 participants. However, five participants in the control group exhibited deteriorating psychotic symptoms and were subsequently excluded. Thus, the total sample size was fifty-five, consisting of 30 participants in the experimental group and 25 in the control group.

All participants were male. In the experimental group, most participants were single (n = 26, 87%), unemployed (n = 24, 80%), and lived with their parents (n = 22; 73.33%). In the control group, most were single (n = 18, 72%). Half were unemployed (n = 13, 52%). Nearly half of the participants lived with their parents (n = 11, 44%). There was no significant difference in age, years of education, income, years of illness, and number of hospitalization between the two groups (Table 1).

Table 1: Demographic characteristics of study participants

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Experimental group</th>
<th>Control group</th>
<th>t-test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>30</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Age</td>
<td>32.13 (7.86)</td>
<td>34.24 (8.66)</td>
<td>-9.44</td>
<td>.35</td>
</tr>
<tr>
<td>Mean Years of education</td>
<td>9.33 (3.15)</td>
<td>9.84 (4.17)</td>
<td>-5.13</td>
<td>.61</td>
</tr>
<tr>
<td>Mean income (Baht/month)</td>
<td>2,243.33</td>
<td>2,284.00</td>
<td>-0.98</td>
<td>.33</td>
</tr>
<tr>
<td>Mean Years of illness</td>
<td>(2,227.98)</td>
<td>(2,626.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Number of hospitalization</td>
<td>9.60 (5.04)</td>
<td>9.04 (6.63)</td>
<td>0.36</td>
<td>.72</td>
</tr>
<tr>
<td>X(SD)</td>
<td>3.86 (2.88)</td>
<td>3.72 (3.68)</td>
<td>0.17</td>
<td>.87</td>
</tr>
</tbody>
</table>

**Measurement**

Research data were collected by means of face-to-face interviews. Attitude toward medication was measured by the 10-item Drug Attitude Inventory (DAI-10). The scale was originally developed in English and translated into Thai by using a back-translation technique. It was designed to capture the patient’s views of psychiatric medications and the nature of their experiences on these drugs.

Participants were asked to select one of two response categories: true or false. Six items contained “true” as a correct answer and the rest had “false” as a correct one. A correct answer to these items was scored as plus one (+ 1) and an incorrect response as minus one (-1). The final score was the sum of the total of pluses and the minuses. A positive total score indicated a positive subjective response (compliance) whereas a negative total score reflected a negative subjective response (non-compliance). Example items included: “I feel weird, like a “Zombie”, on medication”, “Medications make me feel more relaxed.” Content validity of the Thai-version DAI-10 was established by three Thai experts (a psychiatric nurse instructor, 9 psychiatrists, and an advanced psychiatric-mental health practiced nurse). With respect to the reliability of the scale, Kuder-Richardson Formula-20 was 0.94 and test-retest reliability collected from 55 participants in
this study was 0.98.

The second variable, compliance with first appointment after discharge, was obtained from the patient's medical record by assessing whether or not the participants attended the first appointment as scheduled by the psychiatrist.

**Data Collection Procedure**

After this study was reviewed and approved by the Institutional Review Board, Mahidol University, Thailand, the researcher approached potential participants at the psychiatric wards, explained the purposes of the study and requested participation. Twenty five participants in the control group completed the questionnaire twice: at the first meeting, then again 5 weeks later. They received standard care (traditional care) provided by the hospital staff at the inpatient units prior to discharge. The patients were generally educated about the illness, benefits of medications, and the importance of taking medications regularly. They were reminded to adhere to the regimens and attend a follow-up visit as scheduled by their physicians. After discharge, community nurses provided routine home visits to participants who had a history of relapses of more than three times a year.

After the patients in the control group in the psychiatric unit were discharged, a new group of participants was recruited for the experimental group. These participants received the psychoeducational program in an individual format by one of the researchers. They completed the questionnaires before (pretest) and after the intervention (posttest).

**Intervention**

The psychoeducation program consisted of 6 individual sessions and 4 telephone follow-up sessions. The education sessions were delivered to the schizophrenic patients during the last week of their hospital stay. The content of the program was developed based on results from a systematic review by Pekkala & Merinder. Specifically, it was suggested that a psychoeducational program contain education concerning symptoms of schizophrenia, treatments, and side effects of medications, symptom management, and stress management.

The program consisted of 10 sessions. The first six individual sessions, which took 30 minutes per session, were administrated daily to the patients for six days in the psychiatric units. Its content included the symptoms of schizophrenia, treatment, side effects of medication, symptom management, and stress management (Table 2). For the latter four sessions, the researcher made a weekly phone call to the patients for four weeks during the first month after discharge. The conversation took about 15-20 minutes per session. The first call was started on the third day after patient discharge. The follow-up phone sessions focused on assessing the patient's emerging problems after they returned to live in the community, assisting them to identify possible problem-solving strategies. Also encouragement, praise, and advice as well as reminders about the first appointment after discharge were offered. Major contents for each group session were summarized in Table 2.
Table 2: Outline of the psychoeducational program

<table>
<thead>
<tr>
<th>Session</th>
<th>Objectives</th>
<th>Content</th>
</tr>
</thead>
</table>
| I       | • To establish the relationship.  
• To help the patients understand the program objectives.  
• To provide an opportunity to ask questions related to the program. | • Introduce the researcher and the program.  
• Open discussion about the program and the patient's responsibility. |
| II      | • To increase knowledge about schizophrenia. | • Assess the patient's knowledge and understanding about schizophrenia. |
| III     | • To increase knowledge about medication and side effects. | • Describe the nature of schizophrenia, symptoms, causes, and treatment. |
| IV      | • To enhance the knowledge with regard to managing the side effects of antipsychotic medications. | • Discuss patients' concern with the illness.  
• Describe medications and their importance.  
• Discuss patients' concerns/experiences with taking medication. |
| V       | • To increase knowledge and skills with respect to managing stress related to daily living. | • Review medications and their side effects.  
• Discuss patients' experiences relating to side effects.  
• Discuss how to manage the side-effects effectively. |
| VI      | • To increase ability to recognize warning signs, symptoms and management. | • Review stress, causes and its consequences.  
• Discuss how to manage stress.  
• Practice stress management skills: breathing exercise, talking with significant others. |
| VII-X   | • To follow up the participants by phone after discharge. (15-20 min/each) | • Review the warning signs and relapse.  
• Discuss the ways to manage warning signs and symptoms, such as sleeping problems, auditory hallucination.  
• Assess patients' health conditions  
• Discuss patients' problems in daily living  
• Work together with the patient to solve any problems. |

Data analyses

Data analyses in this study was undertaken using SPSS software. Initially, the researchers performed preliminary analyses which emphasized exploring characteristics of the study variables and testing statistical assumptions for inferential statistics. T-test and Analyses of covariance (ANCOVA) were used to compare the mean scores of attitude toward medication between the study groups. A Z-test was performed in order to compare the rate of first appointment after discharge between the study groups.

Results

Preliminary Analyses

Descriptive statistics of attitude toward medication for control and experimental groups are reported in Table 3. Statistical assumptions required for T-test and ANCOVA were tested, including normal distributions of variables, homogeneity of variance, homogeneity of regression across groups, and linear relationship between covariate and dependent variable. There was no evidence of violations of statistical assumptions in this study. Two major hypotheses were tested.
Hypothesis 1: After controlling for covariate (pretest scores), schizophrenic patients in the experimental group would report a significantly higher level of positive attitude toward medication than those in the control group.

This hypothesis was supported by the result of the present study. Analysis of covariance (ANCOVA) was performed (Tables 3 and 4). After a covariate variable (pretest attitude toward medication score) was controlled, the mean score of attitude toward medication of the patients in the experimental group was higher than that in the control group at the significant level of .05 (F = 17.80, p < .05).

Table 3  Descriptive statistics for attitude toward medication in the two study groups

<table>
<thead>
<tr>
<th></th>
<th>Sample size</th>
<th>Mean</th>
<th>SD</th>
<th>Max</th>
<th>Min</th>
<th>Skewness</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Intervention</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental group</td>
<td>30</td>
<td>13.20</td>
<td>2.95</td>
<td>18</td>
<td>8</td>
<td>-.141</td>
<td>-.141</td>
</tr>
<tr>
<td>Control group</td>
<td>25</td>
<td>14.56</td>
<td>3.19</td>
<td>20</td>
<td>8</td>
<td>-.166</td>
<td>-.166</td>
</tr>
<tr>
<td><strong>After Intervention</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental group</td>
<td>30</td>
<td>15.87</td>
<td>2.82</td>
<td>20</td>
<td>10</td>
<td>-.268</td>
<td>-.268</td>
</tr>
<tr>
<td>Control group</td>
<td>25</td>
<td>14.00</td>
<td>3.78</td>
<td>20</td>
<td>8</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note:  SD = Standard Deviation,  Max = Maximum,  Min = Minimum

Table 4  The analysis of covariance of posttest attitude toward medication score, with pretest attitude toward medication score as covariate

<table>
<thead>
<tr>
<th>Source</th>
<th>Df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest attitude toward medication score (Covariate)</td>
<td>1</td>
<td>256.170</td>
<td>256.170</td>
<td>41.719</td>
</tr>
<tr>
<td>Type of intervention (Independent variable)</td>
<td>1</td>
<td>104.902</td>
<td>104.902</td>
<td>17.084*</td>
</tr>
<tr>
<td>Error</td>
<td>52</td>
<td>319.297</td>
<td>6.140</td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>54</td>
<td>622.982</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:  Dependent variable: Posttest attitude toward medication score, \( R^2 = .487 \) (Adjusted \( R^2 = .468 \))  

Hypothesis 2: Schizophrenic patients in the experimental group would show a significantly higher proportion of compliance with first appointment after discharge than that in the control group.

This hypothesis is also supported by current research findings. As illustrated in Table 5, 27 participants (90%) in the experimental group attended the first appointment after discharge as compared to 3 respondents (36%) in the control group. Difference in the proportions of participants were statistically significant (\( Z = 3.909; p < .01 \))

Table 5  The number of the patients, percentage, and the proportion in the experimental and control groups, who had compliance with first appointment after discharge

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample size</th>
<th>First appointment after discharge</th>
<th>Proportions of first appointment after discharge</th>
<th>Z-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes n(%)</td>
<td>No n(%)</td>
<td></td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td>30</td>
<td>27(90%)</td>
<td>3(10%)</td>
<td>0.90</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>25</td>
<td>9(36%)</td>
<td>16(64%)</td>
<td>0.36</td>
</tr>
</tbody>
</table>

** p < .01
Discussion

This study demonstrated that the patients who participated in the psychoeducational program were more likely to express positive attitude toward medication and attend the first follow-up appointment after discharge than those in the control group. Five explanations may be possible for the positive results. First, the psychoeducational program was administered to the patients before discharge and continued for one month after discharge. This program might provide knowledge and skills necessary for the time and needs of the patients. It is likely that the continuing care for patients in the transitional period from the hospital to the community is very important for a successful outcomes. Secondly, the program, offered in an individual format, might provide an opportunity to establish trust and a healing relationship between the researcher and the participants. The participants were encouraged to discuss their feelings, express problems/concerns and collaboratively work with the researcher to identify appropriate problem-solving strategies. Thirdly, the program emphasized the benefit of taking medication regularly. Two sessions focusing on pharmacological treatment (such as medication, side effects, and side effect management) were implemented. Despite these two sessions being offered before discharge, the issues of taking medication continuously was repeatedly discussed when the patients were discharged. It is suggested that the nurse contact over time is very important for producing optimal medication compliance. Fourthly, the program provided information relating to stress management skills such as breathing exercise for relaxation. The researcher called these patients to further support them while they were living in the community. As a result, patients received continuous support while facing problems in the community.

Finally, during the telephone follow-up sessions, the researcher discussed with patients about the appointment, feelings and concerns about the appointment, and possible difficulties for the follow-up visit. It was found that there were several difficulties for their noncompliance with the follow-up visit, such as the lack of confidence to visit the physician by themselves, perceived family burden, and insufficient money for transportation. These concerns were collaboratively discussed and solved, while the patients were also encouraged to recognize the benefits of the appointment after discharge. As a result, their stress and symptoms could be controlled and managed. This clinical stability would help lead the patients to comply with the first appointment.

It can be concluded that the patients in the experimental group reported their improvement of compliance due to several factors such as the acceptance of the illness, the ability to manage the symptoms and stress management skills. As a result, their psychotic symptoms were decreased. These factors could increase the positive attitude toward medication in schizophrenic patients.

Limitation

In this study 4 females refused to participate in the program, suggesting a possible self-selection bias, in that, potential participants who had paranoia or poor insight, and high stigma may have declined participation in the study. In addition, the subjects were required to be discharged to a known address with telephone access. The inclusion criteria for this study eliminated the potential participants who were either homeless, or unable to afford a telephone.

This was a quasi-experimental research study, which held a small group of patients and its sample was male only. The evidence documented that gender was associated with attitude toward medications. Women were more likely to exhibit positive attitudes toward medications than men. The effectiveness of the program should be tested in a further clinical trial with a larger sample size, including both male and female.
Acknowledgement

We thank Associate Professor Dr. Fongcum Tilokskulchai, and Dr. Prayuk Serisathien for their valuable suggestions and comments. The authors also wish to thank all participants who participated in this study.

References

プログラムの結果、心療学のプログラムの参加者は、薬物療法に対する態度と、初回外来での到着率が、薬物療法のプログラムの人々に対して有意に高かった（p < .05）。

要約：本研究の結果は、心療学のプログラムが、薬物療法に対する態度と、初回外来での到着率を高めることができることを示しています。この結果は、心療学のプログラムが、薬物療法に対する態度と、初回外来での到着率を高める効果があることを示しています。今後の研究では、このプログラムの効果をさらに検証することが必要です。