การศึกษาความเป็นไปได้ของโปรแกรมการส่งเสริมความร่วมมือในการใช้ยา โดยบูรณาการการเสริมสร้างแรงจูงใจร่วมกับการสนับสนุนในครอบครัวสำหรับผู้ที่เป็นโรคจิตเภท
Feasibility of the Motivational Interview based Adherence Therapy (MIAT) with Family Support Program to Promote Medication Adherence for Persons with Schizophrenia

นิพนธ์ต้นฉบับ

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Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาความเป็นไปได้ของโปรแกรมการส่งเสริมความร่วมมือในการใช้ยาโดยบูรณาการการเสริมสร้างแรงจูงใจร่วมกับการสนับสนุนในครอบครัวสำหรับบุคคลที่เจ็บป่วยด้วยโรคจิตเภท **วิธีการศึกษา:** การศึกษานำร่องนี้คัดเลือกกลุ่มตัวอย่างแบบเจาะจงเป็นผู้ป่วยจิตเภท 8 คนและญาติผู้ดูแลหลัก 8 คนที่เข้ารับการรักษาแบบผู้ป่วยนอกของแผนกสุขภาพจิตและจิตเวช โรงพยาบาลอาภากรเกียรติวงศ์ ฐานทัพเรือสัตหีบ จ.บุรี เป็นผู้ป่วยวัยผู้ใหญ่ช่วงอายุ 20 - 59 ปี ได้รับการวินิจฉัยโรคไม่เกิน 5 ปี และมีประวัติการเข้ารับการรักษาตัวซ้ำในโรงพยาบาลจากอาการทางจิตกำเริบเนื่องจากปัญหาความไม่ร่วมมือในการรักษาด้วยยาทางจิตเวช เครื่องมือวิจัยประกอบด้วย แบบสอบถามข้อมูลทั่วไป แบบสอบถามการหยั่งรู้การเจ็บป่วยและทัศนคติต่อการรักษา แบบประเมินทัศนคติต่อยาต้านโรคจิตของฮอแกน แบบสอบถามพฤติกรรมการรับประทานยา โปรแกรมการส่งเสริมความร่วมมือในการใช้ยาฯ และแบบประเมินผลการเข้าร่วมโปรแกรม ผู้ป่วยจิตเภทเข้าร่วมโปรแกรมเป็นระยะเวลา 6 สัปดาห์ ๆ ละ 1 ครั้งๆ ละ 45 - 60 นาที ผู้ดูแลหลักในครอบครัวเข้าร่วมโปรแกรมในสัปดาห์ที่ 3 และ 6 ประเมินความร่วมมือทั้งสามด้านที่ก่อนและหลังกิจกรรม และติดตามที่ 1 เดือน หลังกิจกรรม วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาและสถิติการวิเคราะห์ความแปรปรวนแบบทางเดียวเมื่อมีการวัดซ้ำ **ผลการศึกษา:** หลังการเข้าร่วมโปรแกรมกลุ่มตัวอย่างมีค่าเฉลี่ยคะแนนความหยั่งรู้การเจ็บป่วย ทัศนคติต่อความร่วมมือในการใช้ยา และพฤติกรรมความร่วมมือในการใช้ยาในระยะหลังการเข้าร่วมโปรแกรมและระยะติดตามผลเพิ่มขึ้นกว่าในระยะก่อนเข้าร่วมโปรแกรมอย่างมีนัยสำคัญทางสถิติที่ *P*-value < 0.05 กลุ่มตัวอย่างและผู้ดูแลหลักในครอบครัวส่วนใหญ่มีความพึงพอใจในกิจกรรมของโปรแกรมและแนะนำการปรับเปลี่ยนที่สามารถทำตามได้ **สรุป:** โปรแกรมการส่งเสริมความร่วมมือในการใช้ยาโดยบูรณาการการเสริมสร้างแรงจูงใจร่วมกับการสนับสนุนในครอบครัวมีความเป็นไปได้ในการนำมาทดลองขนาดใหญ่ต่อไป

คำสำคัญ: ผู้ที่เป็นโรคจิตเภท, การบำบัดเพื่อการรับประทานยาอย่างต่อเนื่อง, การสัมภาษณ์เพื่อเสริมสร้างแรงจูงใจ, ความร่วมมือในการรับประทานยา, การสนับสนุนในครอบครัว, การศึกษาความเป็นไปได้

Abstract

Objective: To examine the feasibility of the Motivational Interview based Adherence Therapy (MIAT) with family support program. **Method:** This pilot study used purposive sampling to recruit 8 patients with schizophrenia and their major family caregivers. These patients received outpatient treatment at the Mental Health and Psychiatric Department, Abhakorn Kiattiwong Hospital, Sattahip Naval Base, Chon Buri province, Thailand. They were in adulthood (age 20 - 59 years), with diagnosis of schizophrenia disorder within 5 years, and with a previous history of re-hospitalization due to recurrent severe psychiatric symptoms from medication non-compliance. Instruments included demographic data record form, the Insight and Treatment Attitude Questionnaire, the Hogan Drug Attitude Inventory, the Medication Adherence Questionnaire, the MIAT with family support program, and a program evaluation questionnaire. Schizophrenic patients participated in 6 weekly sessions, 45 - 60 minutes per sessiom. Family caregiver for each patient participated in 3rd and 6th week. Three aspects of adherence were assessed at before and after 6 sessions, and 1 month follow-up after the last session. Descriptive statistics and repeated measures ANOVA were used to analyze the data. **Results:** Scores of insight into illness, adherence attitude, and adherence behavior at post-test and follow-up were significantly higher than the pre-test (*P*-value < 0.05 for all). The participants and family caregivers were satisfied with the program's activities. Suggestions were feasible to adjust the program. **Conclusion:** The Motivational Interview based Adherence Therapy (MIAT) with family support program was feasible for further studies with a larger sample size.

Keywords: persons with schizophrenia, adherence therapy, motivational interview, medication adherence, family support, feasibility study

Introduction

Medication adherence is very important to patients especially those with psychiatric disorders. Among all psychiatric illnesses, schizophrenia was found the highest number of patients. In 2018, there were 99,865 patients with schizophrenia of which 8,140 were new cases who attended as the outpatient at the mental health and psychiatric

departments in Thailand.[1] The first 5 years of maintaining medications taken since the initial diagnosis are the critical period. It would lead to good prognosis for the persons with schizophrenia. Medication adherence helps the patient recover to the normal function like healthy people and reduce the incidence of relapse and re-hospitalization.[2,3] Nevertheless, systematic reviews found that in developing countries, medication adherence was generally poor with average adherence rates of 30 - 50%.[4] For Thailand, according to the report of Ministry of Public Health in 2016, it was found that two out of five patients with schizophrenia are unresponsive to treatment including non-adherence in medication and loss of follow-up.[5] This poor medication adherence results in this group of patients having a poor prognosis due to residual symptoms in the form of delusions, hallucination, and separation from the environment which leads to losing ability to self-care themselves and social functioning.[6,7] In addition, schizophrenic patients who are non-adherent to medications are also the cause of crime due to their inability to control their psychiatric symptoms severity. This leads to self-harm and violence to their family members and people in society. In accordance with the study of Murasugi and colleagues, it was found that 60% of psychiatric patients who are not adherent to medications had a high tendency to commit crimes.[8]

Partial or complete lack of adherence to medication had an effect on patients and their families in terms of personal suffering with severity of psychotic symptoms[9-11] and increased risk for relapse leading to re-hospitalization. Furthermore, the length of hospital stay is also extended which also increases the average hospital costs.[12] From qualitative study and integrative reviews, it was found that patient-related factors of adherence indicated that perceptions about illness and medications, favorable attitudes toward medications, and family support are very important factors to influence medication adherence.[6,13-17] Therefore, intervention aiming at enhancing these elements would lead to promising adherence.

Research in the past two decades showed the interventions for promoting medication adherence among patients with schizophrenia can be classified into 3 groups. First, psychoeducation programs are interventions based on the psychoeducational model of patient care. This intervention was the least successful in improving adherence to antipsychotic medication.[6,12,18] The second group was based on Cognitive-Behavioral Therapy (CBT) for modifying inaccurate beliefs and negative perceptions about medications and emphasizing the need for treatment. CBT is often used in conjunction with Motivational Interviewing (MI) to resolve ambivalence about taking medications and address perceptions about the importance of taking medications and confidence in the ability to adhere to a medication regimen. Currently, the World Health Organization (WHO) also emphasizes the importance of family caregivers for care of patients with schizophrenia in order to promote adherence behavior. This leads to a third group of interventions that incorporates family intervention.[6,12,14,18,19] However, nursing interventions using family intervention program alone showed no considerable effects to significance patient related-factors of non-adherence.[6,12,18]

Adherence Therapy (AT) was mentioned in the update adherence guidelines postulated by the National Institute for Health and Care Excellence (NICE) and the WHO, especially for patients with schizophrenia. AT is a brief psychological intervention developed by Gray and colleagues derived from the application of the principles of Motivational Interviewing (MI) and CBT.[20,21] AT is a patient-centered approach by key therapy techniques include challenging beliefs, exchanging information, restructuring medication problem solving, and exploring ambivalence to promote positive change. Theoretically, these techniques amplify the personally relevant benefits of treatment, modify illness and treatment beliefs, and resolve ambivalence towards taking medication which could further reduce symptom severity, increase positive attitude towards medication, and increase adherence behavior. However, a systematic review recommended that nursing intervention which was derived from AT was effective in symptom control and showed significant improvement in attitudes towards medication and adherence behavior in medium term and long term (> 3 months – 1 year).[12] Conversely, when considering sustainable medication adherence more than 1 year follow-up, no significant difference was found because behavior and attitude can change overtime.[12] It is recommended that healthcare providers should involve family members for encouraging and facilitating patients to appropriate adherence behavior.[12] Thus, the Motivational Interview based Adherence Therapy (MIAT) with family support program was developed and tested for feasibility in our pilot study. For the actual outcomes, we aimed to preliminarily determine how much the intervention

could improve scores of related indicators of medication adherence namely insight into illness, adherence attitude, and adherence behavior. The results from this pilot study could be useful to for further study to alleviate non-adherence to medications among patients with schizophrenia. Specifically we hypothesized that mean score of each of the three indicators of medication adherence at post intervention (week 6) and at follow-up (week 10) from baseline or pre-intervention. We also hypothesized that the MIAT with family support program was feasible.

Study conceptual framework

The conceptual framework of this study was based on Adherence Therapy (AT), family support concept, and empirical findings. AT is a patient-centered approach based on therapeutic applications of CBT in conjunction with MI. CBT requires that the patients review his or her ideas about the illness in order to initiate the process of cognitive restructuring. By challenging the patient to come up with an evidence to prove that their beliefs are real or not and modify the faulty thoughts with more realistic and positive ones, it leads to appropriate thoughts and behaviors as well.[14,19] MI are eliciting and selectively reinforcing "change talk," by developing discrepancies between the present behavior and the patient's own future goals and encourage patients' opportunities to engage and discuss their ambivalent attitudes towards their illness behaviors, treatments, and possible consequences of non-adherence. Therefore, AT could help the patient to recognize true benefit for themselves, and to maintain the medication regimen.[3,22] Moreover, family is the key to promote medication adherence among patients with schizophrenia. In Thai context with collectivism culture, when the patient received positive support, these could help the patient enhance self-esteem and lead patients to maintain a goal in their life.[7] So, in this study the researcher integrated the concept of family support as recommended from several previous studies which showed that family support helps patients' compliance with treatment regimens.[6,17] The conceptual framework of this study is illustrated in Figure 1.

In our study, the Motivational Interview based Adherence Therapy (MIAT) with family support program referred to a set of systematically activities obtained from the integration the concept of Adherence Therapy (AT), family support concept, and empirical findings. It aimed to enhance related indicators of medication adherence including insight into illness,
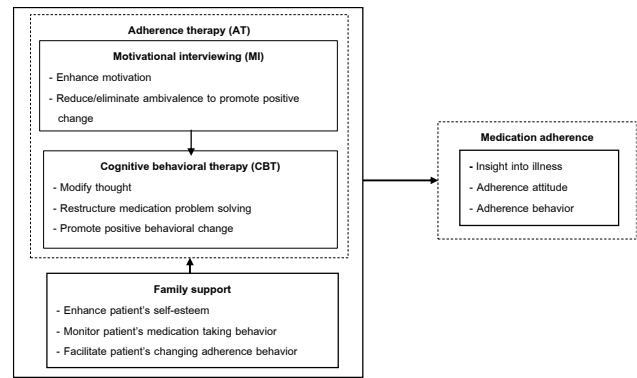
Figure 1 Study conceptual framework of the Motivational Interview based Adherence Therapy (MIAT) with family support program on medication adherence.

adherence attitude, and adherence behavior. This program was developed by the researcher. It consisted of three steps based on the key therapeutic applications of AT and these three steps were covered within 6 sessions. Each session took about 60 minutes and was executed by the group process. Each session had specific objective and had family members to participate in this program in sessions 3 and 6.

In terms of the study outcomes, medication adherence was defined as the patient's understanding and acceptance of illness leading to sustainable medication taking as prescribed. Three components of medication adherence were insight into illness, adherence attitude and adherence behavior. Insight into illness was referred to the patient's awareness of having a mental illness, recognition of psychotic symptoms, and understanding the need for treatment and its compliance. It was measured by the Insight and Treatment Attitude Questionnaire (ITAQ). Adherence attitude was defined as a perspective of persons with schizophrenia which reflects the recognition need of medication and importance of taking the prescribed medication by perceived benefits of medication on controlling psychotic symptom. It was measured by Hogan Drug Attitude Inventory (DAI). Adherence behavior was defined as the patient's action by taking medication in accordance with prescription and medication plan. It was measured by Medication Adherence Questionnaire (MAQ).

Feasibility of the program was determined by program effectiveness as reflected by medication adherence and suitability of the actual implementation. Sustainability consisted of the retention of participants, duration, frequency, and length of activity, the document sheets and individual work assignment completion, and satisfaction of the participants.

Methods

The pilot study used a quasi-experimental, one-group pretest-posttest with follow-up design. Study population was patients with schizophrenia who received outpatient treatment at the mental health and psychiatric department, Abhakorn Kiattiwong Hospital, Sattahip Naval Base, Chon Buri province. The researcher (P. Sudjai) asked permission from the Abhakorn Kiattiwong Hospital to see the list of patients with schizophrenia who had this diagnosis not more than 5 years from the medical records to evaluate the eligibility of the sample. To be eligible, the participant had to (a) be diagnosed with schizophrenia disorder within 5 years, (b) be between 20 and 59 years old, (c) have no co-morbidities of learning disability, organic brain disease, severe cognitive impairments, drug dependence, or severe depression, (d) have a previous history of medication non-compliance, (e) have one significant family caregiver whose age ranged from 20 years and over and able to participate in the program in 3rd and 6th week, and (f) be able to read, write, and speak Thai. Patients with evidence of increased psychiatric symptoms severity which impede their abilities to participate in the program were excluded from the study. The researcher selected participants from the group of eligible patients, using the simple random sampling method to recruit a total of 8 participants, specifically 8 patients with their 8 family caregivers.

Research instruments

Three sets of tools were use in this study, data collection form and questionnaires and experiment intervention. In the first set of instruments, the first part collected demographic and health status characteristics of the participants including gender, age, marital status, educational level, occupation and income, and duration of illness. The second part asked about insight into illness using the Insight and Treatment Attitude Questionnaire (ITAQ) and translated into Thai by back transiation method modified from Brislin's back translation model. This 11-item ITAQ was developed by McEvoy et al[23] and are rated on a 3-point rating scale ranging from 0-no, to 1-not sure, and 2-yes. With a possible total score of 0 – 22 points, higher scores indicate higher insight. Insight levels could be poor, fair and good with the total scores of 0 - 7, 8 - 14 and 15 - 22 points, respectively. It was reported to have an acceptable internal consistency reliability with a Cronbach's alpha coefficient of 0.82.[3]

The third part of the first set of tools asked about adherence attitude using Hogan Drug Attitude Inventory (DAI). The 30-item DAI was originally developed by Hogan et al.[24] The DAI was translated into Thai by Maneesakorn et al.[25] It is a self-report scale with true or false question. The possible scores range from 0 - 30 points and attitude toward medications could be classified as negative, moderate and positive ones, with 0 – 17, 18 – 23, and 24 - 30 points, respectively. The DAI-Thai version had an acceptable internal consistency reliability with a Kuder-Richardson coefficient of 0.81.[25]

In the fourth part of the first tool set, adherence behavior was measured using the 4-item Medication Adherence Questionnaire (MAQ) developed by Wongsuwan.[26] Items are scored as either 0 (yes) or 1 (no), and previous investigations typically summed all items to report a total score. With possible total scores of 0 to 4 points, 4 points indicate adherence behavior while 0 – 3 points indicate non-adherence ones. Internal consistency reliability of the MAQ was acceptable with a Kuder-Richardson coefficient of 0.81.[27]

The second set of the research instruments was the intervention called the Motivational Interview based Adherence Therapy (MIAT) with family support program. The MIAT with family support program was a set of nursing interventions developed by the researcher. It aimed to promote patients with schizophrenia to continue with medication adherence by emphasizing significant attributes of medication adherence included insight into illness, adherence attitude, and adherence behavior. This intervention was developed based on the concept of Adherence Therapy (AT), family support, and related literature reviews. The prime strategy used was the key therapeutic applications of AT in three steps as follows. The first step was challenging belief for assessing the thought process that affects medication adherence and modification the pattern of thought. The second step involved educating and exchanging information and knowledge about schizophrenia and its treatment, followed by restructuring medication problem solving for identifying barriers with medication adherence and developing coping strategies. The third step was exploring ambivalence in order to promote positive change, reduce stigma, and create a commitment to maintain medication adherence. This program was implemented for participants in group and divided into the 6 weekly sessions. The brief details of the MIAT with family support program were as follows.

In these 6 weekly sessions, the patients attended every session while their caregivers joined them in sessions 3 and 6. In session 1, orientation and reviews about patients' medication taking pattern was held. The researcher introduced the MIAT with family support program to the patient, reviewed patients' past and present state of medication taking pattern, and gave feedback towards patients' medication taking associated with the recurrence of psychiatric symptoms. In session 2, the researcher promoted the patient's knowledge and understanding towards association between thinking process and medication taking. The researcher assessed the patients' thought process related to knowledge, attitude, and believes that could affect to the patient's medication adherence and restructured or modified pattern of thought related to illness and medication taking to be more appropriate. In session 3, patients and family caregivers were promoted with knowledge and understanding towards facts about schizophrenia disorder and its treatment. The researcher provided psycho-education about schizophrenia disorder and its care.

Session 4 of the MIAT with family support program aimed to enhance effective solution for coping with medication problems. The researcher identified barriers impeding medication adherence, developed patients' effective coping strategies in dealing with practical problems of medication taking, and built patients' confidence in promoting self-problem solving. Session 5 aimed to reduce and eliminate ambivalence to promote medication adherence. The researcher gave feedback about progress of the patient's medication adherence, explored and eradicated ambivalence related to medication adherence. In session 6, the researcher aimed to reduce patients and family caregivers' stigma, enhance family support, and create commitment to maintain medication adherence. The researcher eliminated the patient's feelings of self-stigma in having schizophrenia, eliminated family caregivers' negative feelings associated with schizophrenia, promoted family caregivers' caring patients with schizophrenia, and enhanced social support and commitment to maintain the medication adherence.

The content and activities of the MIAT with family support program were reviewed and critiqued by three experts, specifically one psychiatrist and two professors of psychiatric-mental health nursing. All of them gave their approval to the MIAT with family support program.

The last part of the instruments asked the participants to evaluate the intervention in 3 main aspects including appropriateness of the content and activities in the MIAT with family support program, time period of the activities in the program, and level of satisfaction with the program.

Protection of human participants

Approval to conduct the study was granted by the Institutional Review Board of Graduate Studies, Faculty of Nursing, Burapha University (IRB #05-07-2562). Permission to collect data was obtained from the director of the Abhakorn Kiattiwong Hospital, Sattahip Naval Base, Chon Buri province. All potential participants and their major family caregivers were informed about the study objectives, intervention program, confidentiality, potential risks, and benefits. They also were told about what their voluntary participation entailed. They could withdraw at any time without repercussions. Participants were asked to sign a consent form.

Study experiment and data collection procedures

After formal ethical approvals and signed consent obtained, data collection was then conducted. Participants completed the demographic data record form, the ITAQ, the DAI, and the MAQ questionnaires as a pretest. The researcher selected patients with schizophrenia who met the inclusion criteria and invited one of their major family caregivers to participate in the program. Then, they received the MIAT with family support program that consisted of six weekly sessions. Every session was conducted in a private room at the mental health and psychiatric department, Abhakorn Kiattiwong Hospital. Each session took about 40 - 60 minutes. After completion of the program at 6th week and follow-up at 10th week, the patients with schizophrenia completed post-test and follow-up measures of the ITAQ, the DAI, and the MAQ questionnaires and program evaluation questionnaire.

Data analysis

Descriptive statistics, i.e., mean with standard deviation (SD) and frequency with percentage, were used to describe the characteristics of the participants and family caregivers. One-way analysis of variance (ANOVA) with repeated measures was used to compare differences in effects of MIAT with family support program on medication adherence consisted of insight into illness, adherence attitude, and adherence behavior across three-time measures (pre-test,

post-test, and one-month follow-up). If homogeneity of variance-covariance matrices tested by Mauchly's sphericity test was not statistically significant, the sphericity of variance-covariance matrices assumption was met and repeated measure ANOVA with assumed sphericity could be proceeded. Bonferroni post-hoc was used for pairwise comparisons for within subject changes of the pilot group. Descriptive analysis was recorded as to what participants felt, thought, and did in each group session. All statistical significance was set at a type I error of 5% or P-value < 0.05. All statistical analyses were performed using software program SPSS for window version 20.

Results

Eight patients with schizophrenia consented to participate in this pilot study and met the inclusion criteria. All of them completed six sessions of the MIAT with family support program and completed all questionnaires at all 3 measurements. Of these 8 participants, their mean age was 33.88 years (SD =11.19). All of them were men and single (100%), and majority of them had high school and vocational school completion (62.5%). All of them worked and had a mean income of 16,750 Baht/month (SD = 6734.77). More than half of them reported having sufficient income (62.5%). Their mean of illness duration was 2.79 years (SD = 1.59) with mean number of times admitted in hospital of 1.38 (SD = 0.92). For family caregivers, 8 family caregivers had a mean age of 59.38 years (SD = 15.62) with number of men and women equally. Most of them were the patient's parents (75%) and had primary school education (75%). Half of them were married (50%) and all of them were labors.

With sphericity of variance-covariance matrices assumption was met, repeated measures ANOVA of scores of each of the three medication adherence aspects with Bonferroni's adjustment for pairwise comparisons was appropriate. Scores of insight into illness, adherence attitude, and adherence behavior at three time points were statistically significant (P-value = 0.009, 0.001 and 0.002, respectively) (Table 1).

Table 1 Mean scores of adherence measures at 3 time points (N = 8).

Adherence measures	Scores, mean ± SD			Repeated measures ANOVA		
	Pre-test	Post-test	Follow-up	F	d.f.	P-value
Insight into illness (ITAQ)	12.8 ± 4.46	17.1 ± 4.76	19.5 ± 2.83	6.801	2,14	0.009
Adherence attitude (DAI)	13.0 ± 9.77	26.3 ± 3.28	27.5 ± 3.12	13.123	2,14	0.001
Adherence behavior (MAQ)	0.75 ± 0.89	2.75 ± 1.58	3.37 ± 1.06	10.321	2,14	0.002

For changes over time, for pairwise comparisons showed similar trends among the three adherence measures. The increase in either insight into illness, adherence attitude, or adherence behavior was found from pre-test to post-test with statistical significance (P-value = 0.043, 0.008, and 0.018, respectively) (Table 2). For each of the three measures, further increase from post-test to follow-up with smaller extent than that from pre-test to post-test was found with no statistical significance (P-value = 0.205, 0.451, and 0.388, respectively). With the increase in two consecutive measurements (i.e., post-test and follow-up), the largest increase for each of the three measures of adherence was from pre-test to follow-up, as expected, with statistical significance (P-value = 0.014, 0.006, and 0.001, respectively).

Table 2 Pairwise comparisons of mean differences of adherence measures at 3 time points (N = 8).

Measures	Time	Time	Mean difference	SE	P-value*
Insight into illness (ITAQ)					
	pre-test	post-test	4.375	1.772	0.043
		follow-up	6.750	2.077	0.014
	post-test	follow-up	2.375	1.700	0.205
Adherence attitude (DAI)					
	pre-test	post-test	13.250	3.584	0.008
		follow-up	14.500	3.770	0.006
	post-test	follow-up	1.250	1.567	0.451
Adherence behavior (MAQ)					
	pre-test	post-test	2.000	0.655	0.018
		follow-up	2.625	0.460	0.001
	post-test	follow-up	0.625	0.680	0.388

* Repeated measures ANOVA with Bonferroni adjustment for pairwise comparisons.

Feasibility of the MIAT with family support

The first objective indicator of program feasibility was the retention rate of participants. During the six weekly sessions and a follow-up one month after the last session, none of the participants or family caregivers withdrew, hence a 100% retention rate. However, the burden on participating the sessions was obvious and reflected by the participants. They reported that the number of activities should be reduced into

3 sessions instead of 6 to reflect three treatment steps (i.e. initial step, middle step, and termination step). These three sessions could be done by holding the existing sessions 1 and 2, 3 and 4 and 5 and 6 together. To be less intense on learning and less burden on travel time and expenses, these newly proposed 3 sessions could be held every other week, instead of every week. In addition, less frequent sessions would interfere their working and daily life less since all patients and caregivers still worked and they could participate with less struggle. They also proposed that if psychiatric appointment and the sessions were scheduled at the same day, it would be more convenient, less travel, less job absence and less costly for them. As a result, for the future research, the researcher modified the content of the MIAT with family support program into 3 treatment steps with 3 sessions held every other week, and would schedule the session on the same day as the patient's psychiatric appointment.

Burden on document completion was obvious. In each session, the participants took a large amount of time to complete the activity sheets. They proposed that activity sheet completion should be done by a collective effort of the group not individual patients to save time. In the future, the researcher would encourage all members to participate in the group activity, give opinions, and exchange experiences. At the end, the researcher would complete the activity sheet by summarizing all information provided by group members. The participants reported that it would be a waste of time to travel to the hospital for follow-up survey. The researcher changed mode of survey from in-person interview to telephone interview. This mode of survey was feasible and reliable since to questions were easy to understand and took only 15 minutes to complete.

In terms of acceptability, all participants accepted and were satisfied with the MIAT with family support program. For example, in the process of establishing a commitment to maintain medication adherence, one patient said "I like the activities that I attended because they made me feel not lonely, they enhanced my self-esteem, and encouraged me to improve myself in a better way" as well as a patients' caregiver who said, "These activities were very good, they made me know what the patients want and how I can help the patients correctly."

Discussions and Conclusion

Findings revealed that this pilot MIAT with family support program supported its effectiveness and feasibility. All participants had higher significant attributes of medication adherence consisting of good insight into illness, positive attitude towards medication adherence, and appropriate adherence behavior. It was hypothesized that the negative or distortion thoughts related illness and psychiatric medication of patients with schizophrenia were modified and restructured to appropriate thoughts by the program's activities, as well as the inappropriate medication taking pattern was modified to be better compliance behavior. The program's initial step focused on challenging belief and assessed the thought process that affects medication adherence and modifies the pattern of thought. This step used medication timeline chart. It helped patients see the relationship between past and present medication taking pattern that was associated with recurrence of severe psychiatric symptoms and re-hospitalization. The researcher and patients coordinated to identify thoughts about illness and its treatment that were distorted and unreasonable. The researcher and patients explored the evidences to contradict these negative beliefs and distorted thoughts and modified them into reasonable thinking. This process was an important therapeutic action obtained from cognitive and behavioral therapy to enhance the good insight into illness and maintain appropriate medication taking behavior.[3,4,12]

The middle step focused on exchanging information for giving facts about schizophrenia disorder and its treatment between the researcher and the patients and their family caregivers combined with restructuring medication problem solving for identify barriers with medication adherence and developing coping strategies. At this step, the individual patient and family caregiver were assigned to analyze the psychodynamics of factors related to his illness, including the predisposing factors, precipitating factors, perpetuating factors, and protective factors. This activity helped patients and family caregivers visualize the history of the illness and pervious self-care behaviors whether that were consistent with the recovery from illness or not.[18] The psychoeducation was given by focusing on the sharing of knowledge between the researcher, patients and their family caregiver. The results of this process led the patients and family caregivers to truly understand themselves and increased awareness of illness and positive attitudes towards treatment.[12,18,19] After patients

understood the problems that occurred with them, especially the problems of psychiatric medications, the researcher developed patients and family caregivers' coping strategies by using the key principles of problem solving obtained from the essence of cognitive and behavioral therapy.[4,12] The effective coping strategy called the SOLVE technique was used by focusing on analyzing the actual problems, setting goal of problem management, exploring alternative methods to solve the problems, practicing to adjust the problems in real situations, and evaluating the outcomes.[14,18,19] Patients were ready to manage medication taking problems, had more confidence to resolve problems and maintain medication taking behavior.[3,4,12]

The termination step was exploring ambivalence to promote positive change for eliminated ambivalence to adhere with medication, stigma reduction, and created a commitment to maintain medication adherence. From the concept of motivation to maintain behavior, a person can change behavior all the time due to barriers or ambivalence thoughts that occur in their life.[3,22] Therefore, the researcher, patients, and their family caregivers sought to find barriers that may occur in everyday life and affect the patient's medication adherence. The researcher pointed out the strengths of patients and their family caregivers according to their actual potentials. Attempt was paid to raise awareness of patients that future goals could be achieved when they were involved in medication adherence.[19] The patient weighed up the motivation to maintain medication adherence and make a commitment between patients and their family caregivers about practices guideline that helped enhance sustainable medication adherence behavior. The patient was motivated to maintain appropriate behavior and had positive attitude towards psychiatric medication.[3,12]

Another strength of this study was the involvement of family caregivers in the therapeutic processes. Pervious evidences revealed that families play an important role to promote medication adherence by giving medication directly, supervision, monitoring the drug intake, and taking the patients to mental health facilities regularly.[6,16,17] Therefore, the researcher developed family caregivers' competence such as ability to giving advice, guidance, suggestions, and useful information to patients when they had medication problems. Based on these activities, family caregivers took an important role in supporting patients to adhere with medication by enhanced patient's self-esteem when they facilitated the patient's medication taking, monitored and provided feedback on the patient's medication taking, and facilitated the patient's to change adherence behavior.[7]

In conclusion, evidence from this pilot study suggests that the MIAT with family support program could be an effective approach to enhance medication adherence for patients with schizophrenia who received treatment care as an outpatient. The MIAT with family support program represents an innovative approach to significant attributes of medication adherence consisting of insight into illness, adherence attitude, and adherence behavior among patients with schizophrenia. This pilot study proved that the MIAT with family support program was feasible and certain modifications could improve the program. Future research with well controlled is recommended to examine the effective of this program.

Acknowledgements

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