# Self–Management Family Participation Program for Medication Adherence among Indonesian People with Schizophrenia: A Randomised Controlled Trial Study

*Sri Padma Sari, Wandee Suttharangsee, Weena Chanchong, Sue Turale*

**Abstract :** This study examined the effect of the Self-management Family Participation Program for Medication Adherence, focusing on behavior and attitudes toward medication among people with schizophrenia. Medication adherence is essential for people with schizophrenia to prevent relapse and re-hospitalization. Studies have shown that self-management, based on a self-tailoring strategy, can enhance medication adherence, and that the role of the family is very important for caring people with schizophrenia and dealing with problems associated with medication taking.

Fifty participants diagnosed with schizophrenia and living in the community, and their caregivers, were assigned to either a control group or an experimental group using block randomization (25 participants and caregivers per group). The experimental group received a one-month program which involved a mental health education and counselling session, an illness and medication management booklet, two telephone follow-ups, and face-to-face follow-up with participants and their caregivers. The control group received usual care during the study and a mental health education and counselling session, as well as the booklet after the study period. Data were collected with the Medication Adherence Behavior Questionnaire and the Drug Attitude Inventory, and analyzed using paired t-test and independent t-test.

Results showed that there were significant differences in adherence behavior and attitudes toward medication between the experimental and the control group. This study offers evidence that the Program could be used in nursing practice to enhance adherence behavior and attitudes toward medication among people with schizophrenia in Indonesia. Further Program testing with other populations is recommended. Nurses need to be closely involved in assisting people with schizophrenia, and their families, to avoid relapse and better manage their condition.

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**Keywords:** Self-Management, Family participation, Medication adherence, Schizophrenia, Caregivers, Mental health, Education, Attitudes, Medication behaviour

## Introduction

Schizophrenia is a common mental illness, for statistics released in 2014 show that at least 24 million people worldwide are affected.[1] In 2010, according to the Central Statistics Agency in Indonesia, the prevalence of people with schizophrenia (PWS) was estimated to have increased to around 2 million

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people, about 1% to 2% of the total population.[2] Currently, the main treatment for people with psychotic disorders, including PWS, is pharmacotherapy.[3] However, many PWS are non-adherent with their medications. The non-adherence rate in globally ranges from 40-50%,[4] while in Indonesia this has been reported to be around 41.7%[5]; and the majority (64%) were at a moderate level of adherence.[6] Non-adherence to medication has several serious impacts on PWS: relapse, re-hospitalization, difficulty experienced in achieving remission, suicide attempts, clinical burden, and cost.[7] In consideration of these impacts of non-adherence, this study was directed at developing an intervention to improve medication adherence in PWS.

A meta-analysis investigating interventions to improve medication compliance in PWS found that that there was a significant improvement in medication adherence when patient-tailored strategies were used.[8] Self-tailoring is based on the principles of learning for behaviour change and self-management program skills that include decision-making and problem-solving.[9] Prior research also suggests that a self-management program can enhance PWS' adherance to medication.[10,11] Self-management not only requires an individual's ability but also needs collaboration with family to control their health condition.[12,13] A meta-analysis of studies has demonstrated that educational programs which include family members have a better outcome in reducing symptoms and preventing relapse than educational programs that only involve PWS.[14]

In Indonesia, after discharge from a psychiatric hospital, the family often needs to take care of PWS at home and take them for regular check-ups to get medication. This can be challenging for there are only a few community health centers which stock and provide the psychiatric medications, or have self-help groups. Therefore, the role of family, especially the main caregiver, is very important, and the family needs to be reminded to assist with continuous and consistent medication adharence. One study has revealed a lack of family support regarding medication adherence among PWS in Indonesia,[15] but overall there is a lack of research in the area.

As mentioned, self-management programs involving family support have been reported as very beneficial for PWS, but such programs have not been undertaken in Indonesia. Hence, this study examined the effect of the Self-management Family Participation Program (SMFPP) for medication adherence among PWS.

## Review of Literature

In Indonesia, around 55-75% of PWS in psychiatric hospitals have been found to have relapsed with their mental illness[16] and findings indicated a significant correlation with non-adherence to medication. The commonest causes of this has been identified as socio-economic status, attitude, memory problems, and family support.[17] Moreover, several groups of factors influencing medication adherence among PWS have been identified relating to the people themselves, illness, treatment, environment, and health care systems. Patient-related factors include age, employment, beliefs, knowledge about illness, treatment and self-efficacy.[18,19,20,21] Most of these factors have an inconsistent relationship with medication adherence, except self-efficacy, which is the cornerstone of medication adherence.[21] Illness-related factors are illness history, severity of illness, insight, cognition, co-morbid substance use, and depressive symptoms.[18,20] Treatment-related factors include the type of antipsychotic and the significant, sometimes profound, side effects of medication. Previous studies have shown that the PWS who use typical antipsychotic drugs are more likely to be non-adherent to medication since these have more negative side effects than atypical antipsychotic drugs.[20,22] Environmental factors include family support, culture and stigma. Studies in Africa[18] and Korea[23] revealed that perceived social support influences PWS to take their medication. These factors might be different from western countries, or in instances where many PWS

live separately from their family. The stigma of mental illness and environment is a predictor for medication adherence in schizophrenia.[18] Health care system factors include that the physician-patient relationship and access to health care services can contribute to medication adherence.[18,24]

Promoting health behaviours in PWS requires strategies for enhancing medication adherence, and helping overcome barriers to changing behaviors, including those factors described above. Interventions such as psycho-education, adherence therapy, patient tailoring, and motivational interviewing, which aim to increase knowledge and skills in medication management, have a significant effect on positive attitudes toward medication[11,25,26] and medication adherence.[27,28,29] Psycho-education, consistently used as an intervention for PWS, includes knowledge about schizophrenia, medication, and managing side-effects.[25] Adherent therapy provides five elements such as medication problem solving; a medication timeline; exploring ambivalence; discussing beliefs and concerns about medication; and using medication in the future.[11]

Treatment with adherent therapy is a detailed intervention that combines therapy tailored for a person; motivational interviewing to explore an individual's perspective and goals; behavioral training to cope with the problems; specific instructions and problem-solving strategies such as reminders, cues, reinforcement; self-monitoring tools; and family or partner support.[30] Tailoring of care or treatment focuses on the person's problems and barriers, and utilizes a facilitator to discuss about how to overcome the barrier also found to be an effective intervention in the self-management programs. Moreover, several studies have found that family participation in an intervention has significant outcomes in developing a positive attitudes toward medication[25] and improving adherence to medication for PWS.[31] Thus, a program that knowledge and skills regarding medications and their management, and family support to enhance medication adherence, is much needed, especially in Indonesia, thus this study.

SMFPP is a strategy for enhancing medication adherence in PWS involving 3 processes to assist individuals in monitoring and managing their condition, and changing their behaviour(s) regarding medication adherence:

(1) Self-monitoring: this involves reflecting on current behavior related to taking medication, side effects management and the barriers in taking medication. The role of the family is to encourage the PWS to take medication correctly;

(2) Self-evaluation: this involves mental health education and counseling session(s) based on the needs of PWS. These are focused on the importance of medication and medication-related side effects and their management. The current behavior of a PWS and the desired activity are compared, and any problems related to medication are identified. The family is expected to helped the PWS in the evaluation of their behavior and problems; and

(3) Self-reinforcement: this is the identification of self-rewards for the person in changing a behavior. It involves developing a therapeutic contract, setting goal(s) and action plans, and assessing self-efficacy. The role of the family is to participate actively and to be a partner for the PWS to help achieve these elements.

When individuals decide to take action, modify or change a behavior, building a contract is needed to facilitate the self-management process. A good contract should include short-range goals, details, and be written,[32] and may also be called goal-setting and action planning.[33] Assessing confidence (self-efficacy) to achieve action is important and this can be measured on a scale ranging from 0 (totally unconfident) to 10 (totally confident). If a person's confidence level is less than 7, then there is a need to discuss problem solving to make the plan more realistic and avoid failure.[9,33]

**Definitions:** The term 'medication adherence' implies both behavior and attitude. However, adherence attitude is distinct from adherence behavior. One's behavior is not always the same as one's attitude toward medication. Adherence attitude is an explicit statement

from the patient regarding overall like or dislike of taking medication.[34] Medication adherence behavior is defined as self-reporting of the extent of a person's actions in taking the medication as prescribed.[7] Medication adherence attitude or attitude toward medication refers to the subjective response of a person in taking medication as prescribed. [34]

## Study Objectives and Hypothesis

These were to compare medication adherence behaviour and attitude towards medication of PWS:

1. before and after receiving the Self-Management with Family Participation Program (SMFPP), and

2. receiving the SMFPP and those receiving usual care.

The hypothesis was that PWS receiving SMFPP would have higher medication adherence behavior and positive attitude toward medication than those receiving usual care.

## Methods

**Design:** A randomized controlled trial.

**Sample and Setting:** After study approval was received, data about PWS and their caregivers were obtained from the out-patient department (OPD) of a regional psychiatric hospital of the Ministry of Health in Indonesia.

Participant inclusion criteria were: diagnosed with schizophrenia based on ICD-10; living at home; aged 18-60 years old; clinically stable with schizophrenia (measured by using BPRS with the score < 36); able to communicate verbally; able to be contacted by phone; willing to participate in this study; and having a caregiver willing to be involved in the program. Exclusion criteria were: development of severe complications that caused PWS to be unable to continue to study participation; becoming hospitalized during the study period; and

having a co-morbid organic disorder/disability or depressive disorder, current substance dependence or cognition problems.

Inclusion criteria of caregivers were: being a spouse, parent, sibling or other family member of PWS; responsible for providing care for at least six months; living with PWS; able to communicate verbally; and willing to participate in the study.

The sample size was based on a previous study[3] examining the effects of a medication and symptom management program on medication compliance, and which had an effect size of .98. Since the present study was conducted with individuals and caregivers, and used a different conceptual framework, the larger effect size of .80 was used to calculate the sample size. Thus 26 participants per group were needed. During the study period, 79 participants were assessed for eligibility. Among these, 27 participants were excluded as they did not meet the inclusion criteria of: having a telephone contact; and not having an unstable condition, comorbid depression, current substance dependence or cognitive problems. Fifty two participants were assigned to either the experimental or the control group, using the block randomization method since there were no covariates that needed to be controlled and to ensure that sample sizes across groups over time were balanced.[35] Firstly, the block size was determined, calculating all possible combinations of assignment within the block, and then block randomization used to determine a participant's assignment into the groups. This resulted in 26 participants in both the experimental and the control group. Two participants were later withdrawn from the study; one in the control group was re-hospitalized and one in the experimental group did not have permission from the other family member when the researcher came to the participants' home. Finally a total of 50 participants completed the study (Figure 1).
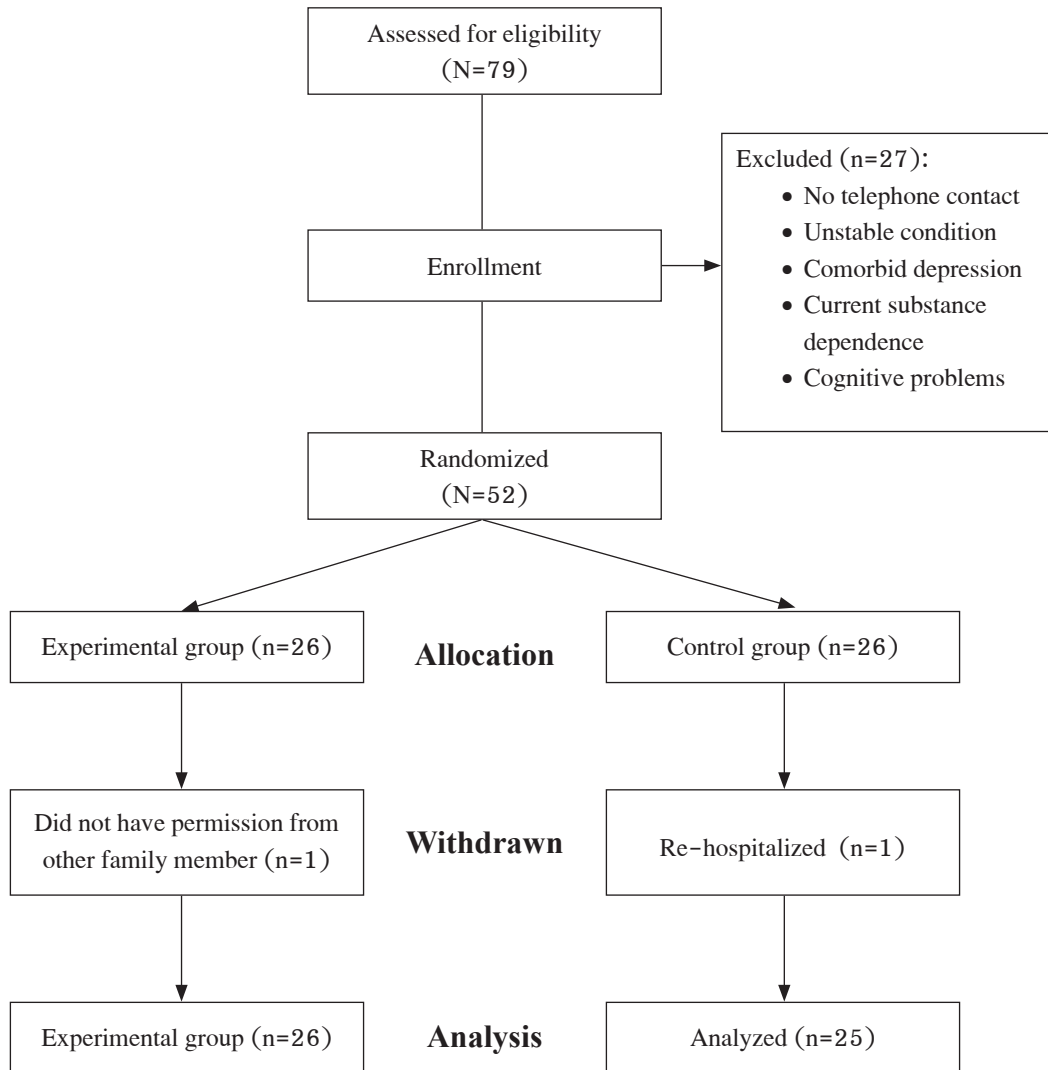
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                    │  Assessed for eligibility │
                    │        (N=79)            │
                    └─────────────────────────┘
                                │
                                │          ┌──────────────────────────────┐
                                │          │ Excluded (n=27):             │
                    ┌───────────────┐      │   • No telephone contact     │
                    │  Enrollment   │─────▶│   • Unstable condition       │
                    └───────────────┘      │   • Comorbid depression      │
                                │          │   • Current substance        │
                                │          │     dependence               │
                                │          │   • Cognitive problems       │
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                    │  Randomized   │
                    │    (N=52)     │
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Figure flow:

- Assessed for eligibility (N=79)
- Enrollment → Excluded (n=27):
  - No telephone contact
  - Unstable condition
  - Comorbid depression
  - Current substance dependence
  - Cognitive problems
- Randomized (N=52)

**Allocation**
- Experimental group (n=26)
- Control group (n=26)

**Withdrawn**
- Did not have permission from other family member (n=1)
- Re-hospitalized (n=1)

**Analysis**
- Experimental group (n=26)
- Analyzed (n=25)

**Figure 1** The Recruiting Process and the Progress during the Study

**Ethical Considerations:** Study approval was obtained from the Research Ethics Committee of Faculty of Nursing, Prince of Songkla University, and the psychiatric hospital where the study had taken place. Eligible participants were approached and asked about their interest and willingness to participate. They received verbal explanations about the study purpose and procedures, the possible benefits and risks of the study, assurances of confidentiality and anonymity, and the ability to withdraw from the study at any time without any effect on their treatment or care. Written informed consent was obtained from all participants to whom it was emphasised that true responses were vital to the study outcomes.

**Instruments:** Five instruments were used, all described below:

The *Demographic Data Questionnaire (DDQ),* developed by the researchers, consists of general data of PWS (age, gender, religion, marital status, educational level, occupation, income, distance, type of transportation);

clinical information (age of onset, length of illness, number of hospitalization, type of medication, barriers (such as forgetfulness and budgets) and side effects (e.g., drowsiness and muscle spasm); and general data of caregivers (age, gender, education level, occupation, family relationship and duration of caring).

*The Brief Psychiatric Rating Scale* (BPRS) is a widely used instrument[36] for assessing the positive, negative and affective symptoms of people with psychosis, especially schizophrenia. It consists of 18 items about symptoms such as hostility, suspiciousness and hallucinations. Scoring is done on a Likert scale, ranging from 1 (not present) to 7 (extremely severe). The total score is the summed score of 18 items; a higher total score indicates severe problems. Inter-rater reliabilities of the BPRS between .87 and .97 have been reported.[36]

*The Beck Cognitive Insight Scale* (BCIS) is used to measure cognitive insight. It was developed by Beck[37] and is a 15-item self-report instrument with two subscales, self-reflectiveness (e.g., "I have jumped to conclusions too fast") and self-certainty (e.g., "I know better than anyone else what my problems are"), with answers given on a 3-point Likert scale from 0 (do not agree at all) to 3 (agree completely). The total score is calculated self-reflectiveness minus self-certainty. A lower total score means poorer cognitive insight.

*The Prior Knowledge Regarding Medication Questionnaire* (PKRMQ) has 10 items with true/false answers (e.g., "Anti-psychotic medication can be stopped if the symptoms are less or disappear"). It was developed by researchers and the results were used to guide in designing the content of mental health educational session. It was validated by experts and tested for reliability before use. The possible score ranges from 0-10, with a higher score indicating better prior knowledge.

*The Medication Adherence Behavior Questionnaire* (MABQ) was developed by the principal researcher, and validated, and tested for reliability in 20 PWS. The Cronbach's alpha coefficient was .70 and intraclass correlation coefficient (ICC) reliability was .79. It has 10 items (e.g., "I stop taking antipsychotic medication when I feel better"). It uses a Likert-type rating scale (4 = all the time, 3 = usually, 2 = sometimes, 1 = never). The total score ranges from 10-40. A higher score indicates higher medication adherence behavior.

*The Drug Attitude Inventory* (DAI) is self-reported questionnaire to evaluate the subjective effect of antipsychotic drugs on schizophrenia patients (e.g., "Medication makes me feel tired and sluggish"). It was developed by Hogan et al. and the internal consistency was .93 and test-retest reliability was .82.[34] The DAI has 30 items with true and false answers (+1 and -1). The DAI has 15 items that score as true and 15 items score as false. The correct answer is scored as +1 and incorrect answer scored as -1. The final score is the sum of the total of pluses and minuses. A positive total score indicates positive subjective responses.

**Instrument validity:** The content validity of the instruments, (including the intervention program, the teaching plan and a booklet, the PKRMQ and MABQ) were validated by three experts who are lecturers in psychiatric nursing; two experts were from Thailand and the other was an expert in PWS and community mental health nursing in Indonesia. The PKRMQ and the MABQ had a good content validity index (.90 and 1.00, respectively).

**Translation of the Instruments:** The DAI and BCIS instruments were translated after the original authors gave permission for use and translation into the Indonesian language. The instruments were then back-translated and three translators identified any discrepancies in the items' translation, and adjustments were undertaken.

**Reliability:** The PKRMQ, the MABQ and the Indonesian version of the BCIS, and the DAI were examined for reliability (internal consistency and stability) by testing with 20 PWS. The internal consistency of the PKRMQ using KR-20 was .36. Cronbach's alpha coefficients for the BCIS, MABQ, DAI were .67, .70, and .77, respectively. The Interclass Correlation Coefficient reliability, retested after one week, yielded .69, .74, .79, and .86, respectively. In

the present study, the reliability of the PKRMQ, BCIS, MABQ, DAI were .21, .58, .66, and.72, respectively.

**Intervention Program**: The SMFPP (or the Program) is a one−month program based on the self−management method of Kanfer and Gaelick−Buys and involves the PWS and their caregivers performing self−monitoring, self−evaluation and self−reinforcement.[32] The Program involves a mental health education and counselling session, an information booklet about the illness and medication management, two telephone follow−ups, and face−to−face follow−up with both participants and their caregivers (see Table 1).

**Table 1** Description of Self−Management with Family Participation Program

| Week (Duration) | Content objectives | Nurse activities |
|---|---|---|
| 1ˢᵗ week (90 minutes) | Share and reflect on current behaviour | Ask participants and caregivers about current medication behaviour. |
| | Provide mental health education and counselling session | Provide information on schizophrenia and medication and clarify any misunderstandings. Give booklet. |
| | Compare participant's current behavior and desired/ ideal behaviour, identify any problems | Ask participant and caregiver: a. Whether current medication behavior is related to ideal behavior in terms of knowledge, medication adherence behavior and attitude toward medication, and b. identify any problem(s). |
| | Setting weekly goal, action plans and self−reward | a. Assist participant and the caregiver to develop goal, and action plan and set self−reinforcement if participant can achieve the goal(s). b. Assess participant's confidence in implementing goal and action plan on scale ranging from 0 (totally lacking confidence) to 10 (totally confident). |
| 2ⁿᵈ and 3ʳᵈ weeks (10–15 minutes) | Evaluate goal and action planning by telephone follow−up | a. Enquire re goal accomplishment, action planning and self−reinforcement; discuss any barriers and alternative strategies to overcome problem(s). |
| 4ᵗʰ week (30 minutes) | Evaluate goal and action planning in face−to−face follow−up | b. Discuss further plan to maintain medication adherence. |

**Usual care**: The activities/services usually provided by health care services/ professionals at the target hospital were deemed to be usual care. In general, these services included regular check−ups, medication, and unstructured health education provided by a nurse or physician in response to outpatient and family needs.

**Data Collection**: Two research assistant (RAs) were responsible for data collection with both the PWS and their caregivers. Participants were introduced to the RAs to complete the pre−test questionnaires at the OPD which took around 15−20 Then, the first researcher conducted the Program at their home. After this the RAs completed the post−test questionnaires,

but they did not know which participants were in the experimental group or in the control group.

**Data Analysis:** Participant and caregiver characteristics were analysed and described using frequency, mean, standard deviation, and median and quartile deviation. The Chi-square, Fisher's exact test, Likelihood Ratio, independent t-test, and Mann Whitney U test, were applied to test the different data between the experimental and control groups.

## Results

Findings showed no significant differences in participant characteristics between both groups. Moreover, of the eight clinical characteristics of the PWS examined there was no significant difference between the groups (Table 2). Similarly, all caregiver characteristics between two groups showed no significant difference (Table 3).

**Table 2** Frequencies and Percentages of Participants' Characteristics (N = 50)

| Participant Characteristic | Experimental Group (n = 25) | | Control Group (n = 25) | | Statistics | p |
|---|---|---|---|---|---|---|
| | N | % | n | % | | |
| Age[a] | M (SD) | | M (SD) | | −0.98 | .33 |
| | 32.20 (8.68) | | 35.52 (8.05) | | | |
| Gender[b] | | | | | | |
| Male | 18 | 72 | 15 | 60 | 0.80 | .37 |
| Female | 7 | 28 | 10 | 40 | | |
| Religion[c] | | | | | | |
| Moslem | 25 | 100 | 24 | 96 | 1.02 | 1.00 |
| Christian | | | 1 | 4 | | |
| Level of Education[d] | | | | | | |
| Elementary school | 6 | 24 | 8 | 32 | 5.44 | .15 |
| Junior high school | 12 | 48 | 7 | 28 | | |
| Senior high school | 7 | 28 | 8 | 32 | | |
| Bachelor degree/higher | | | 2 | 8 | | |
| Marital status[d] | | | | | | |
| Single | 17 | 68 | 14 | 56 | 2.22 | .53 |
| Married | 6 | 24 | 6 | 24 | | |
| Widowed | 1 | 4 | 4 | 16 | | |
| Separated | 1 | 4 | 1 | 4 | | |
| Occupation[d] | | | | | | |
| No occupation | 9 | 36 | 10 | 40 | 0.57 | .97 |
| Had occupation | 16 | 64 | 15 | 60 | | |
| Income[d] (in Indonesian Rupiah) | | | | | | |
| None | 13 | 52 | 13 | 52 | 1.43 | .70 |
| < 500.000 | 1 | 4 | 0 | 0 | | |
| 500.000 – 1.000.000 | 10 | 40 | 11 | 44 | | |
| >1.000.000 | 1 | 4 | 1 | 4 | | |
| Income sufficiency[b] | | | | | | |
| Enough | 15 | 60 | 15 | 60 | 0.00 | 1.00 |
| Not enough | 10 | 40 | 10 | 40 | | |

| Participant Characteristic | Experimental Group (n = 25) | | Control Group (n = 25) | | Statistics | p |
|---|---|---|---|---|---|---|
| | N | % | n | % | | |
| Distance from hospital[e] | M (SD) | | M (SD) | | −1.00 | .32 |
| | 26.78 (29.42) | | 28.58 (16.83) | | | |
| | Md (QD) | | Md (QD) | | | |
| | 19.40 (5.40) | | 28.20 (14.55) | | | |
| Transportation[b] | | | | | | |
| Public | 12 | 48 | 15 | 60 | 0.73 | .40 |
| Private | 13 | 52 | 10 | 40 | | |
| Age of onset[a] | M (SD) | | M (SD) | | −0.93 | .36 |
| | 24.08 (7.02) | | 25.96 (7.37) | | | |
| Length of illness[c] | M (SD) | | M (SD) | | −0.06 | .95 |
| | 9.04 (6.48) | | 9.44 (7.50) | | | |
| | Md (QD) | | Md (QD) | | | |
| | 8.00 (4.75) | | 8.00 (3.75) | | | |
| Number of hospitalization[a] | M (SD) | | M (SD) | | −0.39 | .70 |
| | 1.12 (1.79) | | 2.32 (1.84) | | | |
| Type of medication[b] | | | | | | |
| 1. Typical antipsychotics | 17 | 68 | 22 | 88 | 4.16 | .25 |
| 2. Atypical antipsychotics | 4 | 16 | 1 | 4 | | |
| 3. Typical + Amitriptyline | 3 | 12 | 2 | 8 | | |
| 4. Atypical + Amitriptyline | 1 | 4 | 0 | 0 | | |
| Medication taking barriers | | | | | | |
| 1. Perceived barriers | 25 | 100 | 25 | 100 | 0.00 | 1.00 |
| 2. Nil barriers | 0 | 0 | 0 | 0 | | |
| Problems/side−effects[c] | | | | | | |
| 1. None | 0 | 0 | 2 | 8 | 2.08 | .49 |
| 2. Had side−effects | 25 | 100 | 23 | 92 | | |
| BPRS[a] | M (SD) | | M (SD) | | 0.22 | .83 |
| | 20.8 (1.76) | | 20.68 (2.08) | | | |
| BCIS[a] | M (SD) | | M (SD) | | −1.32 | .19 |
| | 5.32 (4.36) | | 6.68 (3.77) | | | |

[a] = Independent t−test, b = Chi−Square, c = Fisher's Exact test, d= Likelihood Ratio,

[e] = Mann Whitney U test.

**Table 3**  Frequencies and Percentages of Caregivers' Characteristics (N = 50)

| Caregiver Information | Experimental Group (n = 25) | | Control Group (n = 25) | | Statistics | p |
|---|---|---|---|---|---|---|
| | n | % | n | % | | |
| Age[a] | M (SD) | | M (SD) | | −0.79 | .43 |
| | 45.96 ± 12.36 | | 48.68 ± 11.89 | | | |
| Gender[b] | | | | | | |
|    Male | 10 | 40 | 7 | 28 | 0.80 | .37 |
|    Female | 15 | 60 | 18 | 72 | | |
| Occupation[c] | | | | | | |
|    None | 0 | 0 | 1 | 4 | 6.23 | .29 |
|    Government employee | 1 | 4 | 2 | 8 | | |
|    Private employee | 15 | 60 | 13 | 52 | | |
|    Housewife | 5 | 20 | 2 | 8 | | |
|    Farmer | 3 | 12 | 7 | 28 | | |
|    Other | 1 | 4 | 0 | 0 | | |
| Level of Education[c] | | | | | | |
|    None | 2 | 8 | 1 | 4 | 4.23 | .38 |
|    Elementary school | 10 | 40 | 16 | 64 | | |
|    Junior high school | 5 | 20 | 3 | 12 | | |
|    Senior high school | 7 | 28 | 3 | 12 | | |
|    Bachelor degree/higher | 1 | 4 | 2 | 8 | | |
| Family relationship[c] | | | | | | |
|    Spouse | 3 | 12 | 5 | 20 | 1.28 | .73 |
|    Parent | 14 | 56 | 15 | 60 | | |
|    Sibling | 6 | 24 | 4 | 16 | | |
|    Other family member | 2 | 8 | 1 | 4 | | |
| Duration of caring[d] | M (SD) | | M (SD) | | −0.30 | .76 |
| | 8.40 (5.49) | | 8.00 (5.10) | | | |
| | Md (QD) | | Md (QD) | | | |
| | 8.00 (4.75) | | 8.00 (3.00) | | | |

[a] = Independent t test, [b] = Chi-Square Fisher exact test, [c] = Likelihood Ratio,
[d] = Mann Whitney U test

At baseline, there were no significant differences of prior knowledge regarding medication, medication adherence behaviour, and attitude toward medication between the groups. After attending the SMFPP, the mean score of medication adherence behavior and the mean of attitude toward medication in the experimental group were significantly higher than the medication adherence behavior (t = 6.08, p <.01) and attitude toward medication (t = 3.05, p < .01) in the control group (Table 4).

**Table 4** Comparison of Medication Adherence Behavior and Attitude toward Medication between Control Group and Experimental Group before and after the Intervention (N=50)

| | Experimental Group (n = 25) M (SD) | Control Group (n = 25) M (SD) | T | p |
|---|---|---|---|---|
| **Before Intervention** | | | | |
| Medication adherence behavior | 30.08 (4.02) | 31.88 (3.30) | −1.73 | .09 |
| Attitude to medication | 15.44 (7.20) | 16.00 (7.64) | −0.27 | .79 |
| **After Intervention** | | | | |
| Medication Adherence Behavior | 37.24 (2.70) | 31.96 (3.40) | 6.08 | .00 |
| Attitude to Medication | 21.52 (4.09) | 15.76 (8.51) | 3.05 | .00 |

## Discussion

Self-management is an individual's ability to manage their symptoms, medication and the consequences of their condition in conjunction with the family, community and health care professionals.[12,13,38] Our study revealed that participants receiving the SMFPP had higher levels of medication adherence behavior and attitude toward medication than participants in the control group. There are several reasons underpinning the positive outcomes of this study.

The self-management method used in this study involved three processes: self-monitoring or self-observation, self-evaluation and self-reinforcement, and PWS, patients were assisted in these processes. In self-monitoring, the PWS and family caregivers were asked to share and reflect on medication taking behaviour, prior knowledge of medication, barriers in taking medication, perceived side effects of anti-psychotic medication, and attitude toward medication. Result showed that common problems in taking medication in the experimental group were memory problems followed by the side effects of antipsychotic medication. The participants also perceived drowsiness as the most common side effect, followed by weight gain, headaches and dry mouth. The findings about self-monitoring for these common problems, and barriers in medication as a form of self-management in enhancing medication adherence are similar with other previous studies.[11,30]

This study used self-evaluation by giving mental health education and counseling session based on the participants' and their caregivers' needs and then compared the current and ideal behaviors. During the Program, knowledge about illness and medication helped the PWS and their caregivers to understand how medication can control the symptoms and behaviors, thus, changing their attitudes and improving their adherence to medication. These findings are consistent with other studies providing a psycho-education intervention which showed a significant effect on medication adherence.[3,19,39] In this study a booklet was provided containing information regarding schizophrenia, and antipsychotic medications and management of side-effects, to help PWS and their caregivers understand more about these. It has been reported elsewhere that this strategy can enhance medication management skills for PWS.[40]

In self-reinforcement, participants were assisted to give themselves self-rewards if they changed their behaviors. Moreover, the goal-setting and action planning strategy (or therapeutic contract) helped participants to decide their goal(s) for their desired behavior. After setting the goal and action plan in taking medication, self-efficacy was assessed.[9,33] In the first week of the intervention, two participants had a confidence level <7, therefore, the first researcher discussed their problems/ barriers and potential solutions with the participants and their caregivers so

as to enhance the confidence level to at least 7 and later, none of the participants had confidence level <7. This enhanced confidence level helped them achieve their goal(s) and action plan, which in turn enhanced medication adherence.

During the SMFPP, participants discussed their problems in medication taking, and reported that they sometimes forgot to take their medication on time or in the correct dose. They were then assisted to overcome this by being given strategies and choice about how to remember to take medication. Most participants selected the strategy of time setting, for example, taking morning medication at 8.00 am or after breakfast time and also ask their caregiver to remind them of this. The participants also reported drowsiness and weight gain as side effects of antipsychotic medication so were given education related to the management of side effects. They could then better understand that their drug could reduce symptoms but at the same time result in side-effects, and selected strategies such as doing activities to reduce their sleeping time and controlling their food intake. These strategies also helped enhance medication adherence. Our findings are consistent with previous studies that demonstrated that a patient-tailoring strategy forming part of a self-management program can enhance medication compliance in PWS.[8,10]

Our study also involved caregivers in interventions since they could encourage and facilitate medication taking. During the SMFPP caregiver supported PWS to perform self-management tasks, and worked in partnership in making the behavioral contract or action plan. This helped to enhance the commitment from an individual to their caregiver to perform the goal and action plan. These results are consistent with previous studies involving the caregivers in interventions that had a significant improvement in positive attitudes toward medication[25] and improved adherence to medication.[19]

Follow-up sessions by a phone call and face-to-face are also critical for achieving desired outcomes about medication. These weekly discussions in this study also focused on issues or barriers and helped PWS find alternative strategies to overcome their problems as well as motivating them to achieve their medication adherence goals. Again these findings are consistent with previous studies demonstrating a positive significant effect on medication adherence when a follow-up strategy is used[3,10,11], as well having as a significant effect on attitudes toward medication.[26]

## Limitations and Issues in Study

The generalizability of findings might be limited since the participants were recruited with some inclusion criteria such as in a stable condition, taking oral medication and not having comorbid diseases. Additionally, even though the ICC of the instruments in this study revealed good reliability, these had low internal consistency especially the PKRMQ.

Regarding participants' cognition and cooperation in recording, during telephone follow up, when their goal and action plan from the previous week was evaluated, most participants stated that they would remain on implementing same goal and action plan. There was no change in the goals set or the participants' confidence level from the previous week. This needs to be considered in future studies since PWS' thinking may have limitations of cognition, such as dysfunctions in attention, learning and memory. Secondly, the mean pre-test medication adherence behavior in the experimental group and the control group was quite high (30.08 and 31.88, respectively) out from 40. There were some reasons related to this result. Firstly, the measurement used was a self-report questionnaire, which has been criticized to measure medication adherence since adherence is an observable behavior and a can be measured using more objective means.[34] Moreover, timing of measurement of medication adherence behaviors was not tested in the long term condition, and further research using a longitudinal study will assist in knowing the sustainability and long term consequences of the medication adherence behavior.

In this study, there was a significant difference between both groups on the confounding variable regarding barriers in taking medication: some participants felt that the distance between their home and the hospital was far, which may have influenced the results. For example, living far away from the hospital, lack of access to a hospital, and the expenses associated with getting to a hospital (such as accommodation costs), have effects on non-adherence to medication.[24]

## Conclusion and Implications for Nursing Practice

Findings showed that self-management within a family participation program had a significantly positive effect on medication adherence behavior and attitude toward medication among PWS. This study provides a self-management model to guide the intervention involving the three process of self-monitoring, self-evaluation, and self-reinforcement, and also a therapeutic contract. The roles of family caregivers were important in working in partnership to give support, encourage and facilitate the PWS to perform self-management tasks in medication taking.

This study's findings can contribute to nursing practice since the SMFPP contains clear intervention guidelines and methods to be applied by nurses to promote medication adherence either in hospitals or community settings. In future in mental health policy development, the distribution of antipsychotic medications in Indonesian communities is critical to ensuring that PWS receive appropriate care to prevent relapse. Nurses need to be involved in this policy making. We suggest that other methods to observe PWS medication adherence and treatment in the community could be to use directly observed treatment (DOT), similar with that used in treatment of people with tuberculosis. This can involve family members, and DOT supporters can be health care providers and/or a community health volunteers as those who encourage and facilitate PWS in their medication taking.

Future studies are needed to determine whether the results can be generalized to the PWS in others population, using objective measurement. To further determine the efficacy of the SMFPP, longer term nursing research regarding medication adherence in the longer term is recommended, for example at 6 monthly intervals up to a two year period. Since block randomization might have unequal confounding variables, applying other techniques such as stratified random sampling is recommended. Lastly, studies using larger sample sizes, in different settings such as in the OPD or the community health centers, are also recommended.

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# โปรแกรมการจัดการตนเองแบบครอบครัวมีส่วนร่วมเพื่อความร่วมมือใน การรับประทานยาของผู้เป็นจิตเภทชาวอินโดนีเซีย: การวิจัยเชิงทดลองแบบสุ่ม

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**บทคัดย่อ :** การศึกษาครั้งนี้เป็นการศึกษาผลของโปรแกรมการจัดการตนเองแบบครอบครัวมีส่วนร่วม ต่อความร่วมมือในการรับประทานยา โดยเน้นที่พฤติกรรมและทัศนคติของคนที่เป็นจิตเภท ความร่วมมือ ในการรับประทานยาเป็นสิ่งสำคัญที่จะช่วยป้องกันการกลับเป็นซ้ำ และการกลับเข้ามารับการรักษาซ้ำใน โรงพยาบาล ผลการวิจัยแสดงให้เห็นว่าการจัดการตนเอง สามารถเพิ่มความร่วมมือในการรับประทานยา และครอบครัวมีบทบาทที่สำคัญในการจัดการปัญหาเกี่ยวกับการรับประทานยาของผู้เป็นจิตเภท

ผู้ร่วมโครงการประกอบด้วยผู้เป็นจิตเภท 50 คนที่อาศัยอยู่ในชุมชน พร้อมผู้ดูแล ซึ่งได้รับการสุ่ม เข้ากลุ่มทดลองหรือกลุ่มควบคุม ด้วยวิธีการสุ่มแบบบล็อค (กลุ่มละ 25 คน) กลุ่มทดลองได้รับ โปรแกรมที่มีระยะเวลา 1 เดือน ซึ่งประกอบด้วยการให้ความรู้และการปรึกษาด้านสุขภาพจิต หนังสือ เกี่ยวกับโรคที่เป็นและยาที่ได้รับ การติดตามทางโทรศัพท์สองครั้ง และการติดตามด้วยตัวนักวิจัยเอง 1 ครั้ง ส่วนกลุ่มควบคุมได้รับการดูแลตามปกติ และจะได้รับเอกสารและกิจกรรมเหมือนกลุ่มทดลอง ภายหลัง การวิจัยเสร็จสิ้นลง ผู้วิจัยเก็บข้อมูลโดยใช้แบบสอบถามพฤติกรรมความร่วมมือในการรับประทานยา ทัศนคติต่อยา วิเคราะห์ข้อมูลด้วยสถิติทีคู่ และทีอิสระ

ผลการวิจัย พบว่ากลุ่มทดลองและกลุ่มควบคุมมีความแตกต่างของพฤติกรรมความร่วมมือใน การรับประทานยา และทัศนคติต่อยาอย่างมีนัยสำคัญทางสถิติ การศึกษาครั้งนี้ถือเป็นหลักฐานเชิงประจักษ์ ที่แสดงให้เห็นว่าโปรแกรมการจัดการตนเองแบบครอบครัวมีส่วนร่วมสามารถนำมาใช้ในการปฏิบัติ การพยาบาลเพื่อส่งเสริมความร่วมมือในการรับประทานยาและทัศนคติต่อยาของผู้เป็นจิตเภทชาวอินโดนีเซีย ข้อเสนอแนะสำหรับการศึกษาต่อไป คือการนำโปรแกรมไปทดสองกับประชากรกลุ่มอื่น พยาบาลควร ทำงานร่วมกับครอบครัวเพื่อป้องกันการกลับเป็นซ้ำและเพื่อการจัดการที่ดียิ่งขึ้น

**คำสำคัญ :** การจัดการตนเอง การมีส่วนร่วมของครอบครัว ความร่วมมือในการรับประทานยา จิตเภท ผู้ดูแล สุขภาพจิต การให้ความรู้ ทัศนคติ พฤติกรรมการรับประทานยา

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