# MODELING THERAPY ON MEDICATION ADHERENCE IN SCHIZOPHRENIA PATIENTS

**Siti Sholikhah[1], Widya Hary Cahyati[2], Oktia Woro Kasmini Handayani[3], Yuni Wijayanti[4], Eram Tunggul Pawenang[5]**

[1,2,3,4,5] Universitas Negeri Semarang

Corresponding author: sitisholikhahumla@students.unnes.ac.id

**Abstract**: Non-adherence to medication is very prevalent in people with schizophrenia. This contributes to a high number of relapses, increasing the burden of care on the family. Many therapies have been applied to improve patient medication adherence. The purpose of the study was to analyze the effect of modeling therapy on medication adherence in patients with schizophrenia. The study employed a pre-experimental design with one-group pre-test post-test approach. A total of 30 schizophrenia patients who were not adherent in taking medication were given modeling therapy intervention in accordance with SOP. The data were collected using questionnaires and observation sheets. The results showed that before being given modeling therapy, almost all samples were at a low level of adherence of 25 patients. However, after being given modeling therapy there was an increase in patients' adherence, in which 11 patients were at a moderate level of adherence, and 19 patients were at a high level of adherence. There is an effect of modeling therapy on medication adherence in schizophrenia patients in the Lamongan Health Center area.

**Keywords:** modeling, medication adherence, patients with schizophrenia.

## INTRODUCTION

Schizophrenia is a mental health problem ranking the highest among all mental disorders (Viswanath & Chaturvedi, 2012). It is among the top ten most severely disabling conditions worldwide, and thus the global burden is estimated to increase as cases of schizophrenia rise (Charlson et al., 2018). Approximately 75% of schizophrenia patients discontinue their antipsychotic drug treatment within 18 months.

There are 21 million people suffering from schizophrenia worldwide, which is 0.24 cases per 1000 population (Verity et al., 2021). Schizophrenia disorder in Indonesia increased from 1.3 cases to seven cases per 1000 population in 2018 (Ministry of Health of the Republic of Indonesia, 2018). Meanwhile, the relapse rate of schizophrenia patients worldwide in the last 3 years has also

increased from 28.0% to 43.0% to 54.0% (Pothimas et al., 2020). In Indonesia, in 2018, data on the treatment of patients with schizophrenia psychosis mental disorders showed that there were 15.1% of patients who did not receive treatment while 84.9% of patients received treatment, 48.9% of those who received treatment routinely took medication, but 51.1% of them did not routinely take medication because 36.1% felt they were healthy, 33.7% did not receive routine treatment, 23.6% could not afford routine medication, 7% could not stand ESO, 6.1% forgot very often, 6.1% felt the dose was not appropriate, 2.4% of drugs were not available, and 32% were with other reasons. Approximately 2.3% of the population of East Java suffered from schizophrenia in 2013, and in 2018 it increased to 5.5% of the population of East Java with schizophrenia.

According to an initial survey conducted by the researchers at the Lamongan Health Center area, 58% schizophrenia patients were not adherent in taking medication for various reasons. This occurred due to a lack of family knowledge about how to administer drugs in accordance with the doctor's instructions. Also, the family stopped or reduced the dose of drugs. From the survey data, it can be concluded that there are a lot of patients with mental disorders who are not adherent in taking medication so that alternative therapies are needed to increase adherence in taking medication, especially for schizophrenia patients.

Factors affecting adherence to taking medication including individual knowledge, health workers, negative symptoms, and family support (Faizatur et al., 2022). In terms of individual, the knowledge about the disease and its treatment affects the treatment program to be undertaken, while in case of health workers, they are in charge in providing clear and complete information about the disease, the drugs which the patient will take, and the side effects. Besides, schizophrenia patients frequently experience negative symptoms. Finally, family as the closest person to the patients can be a determining factor whether the patient will be adherent or not (Rohmi et al., 2022).

There are various kinds of drugs used in psychopharmacology therapy, each of which has its own advantages and disadvantages and side effects (Robinson, 2018). Schizophrenia patients who regularly and routinely undergo treatment have a 40% risk of relapse, while those who do not regularly and routinely take medication have a risk of relapse of 65% - 80%. Non-adherence to medication in schizophrenia patients can be at greater risk of relapse than those who are adherent to taking medication. The problem of mental disorders will continue to increase if not immediately addressed. The impact of the relapse of schizophrenia patients is that it can cause an increase in

the burden on families in caring for patients. For this reason, adherence in taking medication in schizophrenia patients is very much needed (Kurdyak et al., 2018).

One of the roles of nurses in psychopharmacology is the administration of drugs with the 6 correct principles to overcome non-adherence in taking medication. Healing process of schizophrenia patients can be performed with psychopharmaceutical therapy, psychotherapy, psychosocial therapy, and psychoreligious therapy (Lin et al., 2022). Furthermore, there are also several alternative therapies available to increase medication adherence in schizophrenia patients, including family therapy, cognitive therapy, behavioral therapy, and modeling therapy. Cognitive therapy changes the negative mindset of schizophrenia patients, behavioral therapy improves compliance skills, and modeling therapy is a method of learning new behaviors through observation of models to produce a change in behavior according to what is modeled (Becker et al., 2018). In the case of modeling therapy, the counselor can serve as a model for the patients to imitate in addition to the treatment they received (Cahaya et al., 2022). According to the above background, the authors are interested in conducting research on medication adherence problems in patients with schizophrenia using modeling therapy. Therefore, this research was entitled “Modeling Therapy on Medication Adherence in Schizophrenia Patients”.

## METHOD

This study was conducted to examine the effect of Modeling therapy intervention, which is an action of providing therapy to modify behavior through the example of a model conducted by the researchers. It utilized pre-experimental research and a one group pretest-posttest design approach, in which there was no control or comparison group. This research sample was obtained using accidental sampling. The sample of this study were schizophrenia patients who were not adherent to taking medication in the Lamongan Health Center area from June to August 2023 of 30 patients. The instrument used was a drug adherence questionnaire and an observation sheet given before and after the intervention. The collected data were then processed and analyzed for differences before and after the intervention using the Wilcoxon signed-rank test with a significance level of $\alpha < 0.05$.

## RESULTS

In this study, the variable was medication adherence in schizophrenia patients before and after modeling therapy. All data obtained was then carried out the data input process and data analysis using a data analysis program to get results. Then, a frequency distribution was obtained before and after being given modeling therapy with a total of 30 respondents of schizophrenia patients who were not adherent in taking medication.

**Table 1**. Characteristics of Respondents

| Characteristics | Category | Total | Percentage |
|---|---|---|---|
| Age | <25 | 3 | 10.0% |
| | 26-39 | 19 | 63.3% |
| | >39 | 8 | 26.7% |
| Gender | Male | 17 | 56.7% |
| | Female | 13 | 43.3% |
| Education | | | |
| | Elementary School | 9 | 30.0% |
| | Junior High School | 16 | 53.3% |
| | Senior High School | 5 | 16.7% |
| Total | 30 | 30 | 100% |

In Table 1, it can be described that of the 30 schizophrenia patients, most of them were male (56.7%), and the rest was female (43.3%). Meanwhile, the education category showed that 16 (53.3%) patients were junior high school graduates, 9 (30.0%) patients were elementary school graduates, and 5 (16.7%) patients were senior high school graduates.

**Table 2**. The Level of Medication Adherence before Modeling Therapy

| No. | Level of Adherence | Total | Percentage (%) |
|---|---|---|---|
| 1. | Low | 25 | 83.3% |
| 2. | Moderate | 5 | 16.7% |
| 3. | High | 0 | 0% |
| | **Total** | 30 | 100% |

Based on table 2, it can be explained that of the 30 schizophrenia patients, almost all of them (83.3%) were still at a low level of adherence, a small proportion (16.7%) were at a moderate level of adherence, and none (0%) of the schizophrenia patients had high adherence. In conclusion, medication adherence in schizophrenia patients in Lamongan Health Center area was very low.

**Table 3.** The Level of Medication Adherence after Modeling Therapy

| No. | Level of Adherence | Total | Percentage (%) |
|---|---|---|---|
| 1. | Low | 0 | 0% |

| | | | |
|---|---|---|---|
| 2. | Moderate | 11 | 36,7% |
| 3. | High | 19 | 63,3% |
| | **Total** | 30 | 100% |

Based on Table 3, it can be perceived that after being given modeling therapy, 19 out of 30 (63.3%) schizophrenia patients who were initially non-adherent to taking medication turned to have high adherence level, 11 (36.7%) patients were at a moderate level, and none (0%) of the them had low adherence.

**Table 4**. The Results of Wilcoxon-singed Rank Test Analysis of the Effect of Modeling Therapy on Medication Adherence in Schizophrenia Patients

| No. | Classification | Level of Adherence | | | |
|---|---|---|---|---|---|
| | | Before | | After | |
| | | ∑ | Percentage | ∑ | Percentage |
| 1. | Low | 25 | 83.3 % | 0 | 0 % |
| 2. | Moderate | 5 | 16.7 % | 11 | 36.7 % |
| 3. | High | 0 | 0 % | 19 | 63.3 % |
| | Total | 30 | 100 % | 30 | 100 % |
| | Sig(2-tailed) | 0.000 ($p$= <0.05) | | | |

Based on Table 4, it can be perceived that before modeling therapy, the average adherence to taking medication for schizophrenia patients was low, while the average after given modeling therapy, the average adherence to taking medication was high. The results of the analysis of the effect of modeling therapy on adherence to taking medication in schizophrenia patients in this study using the Wilcoxon-singed rank test showed a p value = 0.000 where the p value <0.05. Thus, H1 was accepted, meaning that there was an effect of modeling therapy on medication adherence in schizophrenia patients.

## DISCUSSION

This study aims to determine the effect of modeling therapy on medication adherence in patients with schizophrenia. Schizophrenia is a severe mental disorder of psychosis caused by a breakdown between cognition, affection, and behavior, causing a lack of compatibility between thoughts and emotions or between a person's perception of reality that occurs (Orsolini et al., 2022). There are two treatments for schizophrenia patients, including pharmacological therapy and non-pharmacological therapy (Orsolini et al., 2022).

Schizophrenia patients need proper care and treatment with a long time. Because of the long treatment, many patients are not adherent in taking medication for various reasons such as boredom, fear of side effects, and others. There are several alternative therapies which can be applied to improve medication compliance in schizophrenia patients including family therapy, cognitive therapy, behavioral therapy, and modeling therapy (Morrison et al., 2021). Modeling is an exact demonstration of the desired behavior. According to the theory, we learn not only by doing but by observing what others do. In a therapeutic environment, behavioral modeling is purposeful and positive, teaching the patients for healthier behaviors (Chakrabarti, 2014).

The results of this study indicate an increase medication adherence between pre-test and post-test values. Table 4 identifies that the results of the Wilcoxon test show a significance values (sig) 0.000, which is smaller than the threshold of 0.005 significance value between medication adherence values before and after receive modeling therapy. Adherence to treatment is an individual behavior that shows how obedient the individual is in following the recommendations which have been delivered according to the needs of each individual in terms of health or disease treatment (Chakrabarti, 2014).

Adherence to taking medication for schizophrenia patients can be affected by several factors, such as drug factors, disease factors, personal characteristics, behavior, low income, and low quality of life. In addition, family support can be an influential factor in adherence to treatment in schizophrenia patients, as well as family protective support and treatment behavior (Dong et al., 2020). Regarding the level of support, both family members and social support will improve treatment adherence in schizophrenia patients and also reduce patient stigma to a certain extent, especially for patients who are recovering from their illness. Positive treatment attitudes and behaviors including seeing a doctor when the illness occurs (Dong et al., 2020). This helps medication adherence, and at the same time, better guarantees the exertion of drug effects.

Regarding the level of support, both family and social members. support will increase treatment compliance in schizophrenia patients and also reduce patient stigma to a certain extent, especially for patients who have just recovered from their illness (Glick et al., 2011). Positive attitude and treatment behavior, including checking with a doctor when the disease occurs, emphasizing psychological intervention and actively learning related knowledge, etc. This helps with medication compliance, and at the same time, better ensures the effect of the medication (Molina-mula & Gallo-estrada, 2020).

Adherence is a multifactorial phenomenon which can occur and affected by various factors. These factors can be divided into five different dimensions: social and economic factors, therapy-related factors, disease-related factors, patient-related factors, and those related to the health care system. Non-adherence factors are important points for the success of many therapies. Non-adherence in treatment is a widespread problem causing an increase in treatment costs worldwide (Gast & Mathes, 2019). Thus, based on pre- and post-assessments, medication adherence in schizophrenia patients has increased after being given modeling therapy. This is also due to family support in the therapy process, as evidenced when given modeling therapy. Patients who are assisted by their family's pay attention and also apply directly what has been exemplified by the researcher. This is in accordance with the purpose of modeling therapy where patients can apply what the researchers have taught so that the patients' non-adherence behavior changes to being adherent. Thus, the relapse rate of schizophrenia patients can be reduced in number.

## CONCLUSION

Almost all schizophrenia patients in the Lamongan Health Center area were at a low level of medication adherence before being given modeling therapy, while after modeling therapy, most of the patients had a high level of adherence. This is because modeling is an exact demonstration of the desired behavior. The schizophrenia patients can imitate what others' people doing especially in taking medication. Thus, it can be concluded that there is an effect of modeling therapy on medication adherence in schizophrenia patients in the Lamongan Health Center area.

Conclusions explaining about research findings that are in accordance with the objectives of the study

## Conflict of Interest

The authors declare that they have no conflict of interest.

## Acknowledgment

A thank you to the agencies and parties who supported this research

## REFERENCES

Becker, D., van Breda, W., Funk, B., Hoogendoorn, M., Ruwaard, J., & Riper, H., 2018. Predictive Modeling in E-Mental Health: A Common Language Framework. *Internet Interventions*, 12, pp. 57–67. https://doi.org/10.1016/j.invent.2018.03.002.

Cahaya, N., Kristina, S.A., Widayanti, A.W., & Green, J., 2022. Interventions to Improve Medication Adherence in People with Schizophrenia: A Systematic Review. *Patient Preference and Adherence*, 16, pp. 2431–2449. https://doi.org/10.2147/PPA.S378951.

Chakrabarti, S., 2014. What's in a Name? Compliance, Adherence and Concordance in Chronic Psychiatric Disorders. *World Journal of Psychiatry*, 4(2), pp.30. https://doi.org/10.5498/wjp.v4.i2.30.

Charlson, F.J., Ferrari, A.J., Santomauro, D.F., Diminic, S., Stockings, E., Scott, J.G., McGrath, J.J., & Whiteford, H.A., 2018. Global Epidemiology and Burden of Schizophrenia: Findings from the Global Burden of Disease Study 2016. *Schizophrenia Bulletin*, 44(6), pp.1195–1203. https://doi.org/10.1093/schbul/sby058.

Deng, M., Zhai, S., Ouyang, X., Liu, Z., & Ross, B., 2022. Factors Influencing Medication Adherence Among Patients with Severe Mental Disorders from the Perspective of Mental Health Professionals. *BMC Psychiatry*, 22(1). https://doi.org/10.1186/s12888-021-03681-6.

Dong, A., Jong, M.S.Y., & King, R.B., 2020. How Does Prior Knowledge Influence Learning Engagement? The Mediating Roles of Cognitive Load and Help-Seeking. *Frontiers in Psychology*, 11. https://doi.org/10.3389/fpsyg.2020.591203.

Gast, A., & Mathes, T., 2019. Medication Adherence Influencing Factors - An (Updated) Overview of Systematic Reviews. *Systematic Reviews*, 8(1). https://doi.org/10.1186/s13643-019-1014-8.

Glick, I.D., Stekoll, A.H., & Hays, S., 2011. The Role of the Family and Improvement in Treatment Maintenance, Adherence, and Outcome for Schizophrenia. *Journal of Clinical Psychopharmacology*, 31(1), pp.82–85. https://doi.org/10.1097/JCP.0b013e31820597fa.

Guo, J., Lv, X., Liu, Y., Kong, L., Qu, H., & Yue, W., 2023. Influencing Factors of Medication Adherence in Schizophrenic Patients: A Meta-Analysis. *Schizophrenia*, 9(1). https://doi.org/10.1038/s41537-023-00356-x.

Kurdyak, P., Vigod, S.N., Newman, A., Giannakeas, V., Mulsant, B.H., & Stukel, T., 2018. Impact of Physician Follow-Up Care on Psychiatric Readmission Rates in a Population-Based Sample of Patients with Schizophrenia. *Psychiatric Services*, 69(1), pp.61–68. https://doi.org/10.1176/appi.ps.201600507.

Lin, Y.Y., Yen, W.J., Hou, W.L., Liao, W.C., & Lin, M.L., 2022. Mental Health Nurses' Tacit Knowledge of Strategies for Improving Medication Adherence for Schizophrenia: A Qualitative Study. *Healthcare (Switzerland)*, 10(3). https://doi.org/10.3390/healthcare10030492.

McDevitt-Petrovic, O., Shevlin, M., & Kirby, K., 2020. Modelling Changes in Anxiety and Depression During Low-Intensity Cognitive Behavioural Therapy: An Application of Growth Mixture Models. *British Journal of Clinical Psychology*, 59(2), pp.169–185. https://doi.org/10.1111/bjc.12237.

Molina-mula, J., & Gallo-estrada, J., 2020. Impact of Nurse-Patient Relationship on Quality of Care and Patient Autonomy in Decision-Making. *International Journal of Environmental Research and Public Health*, 17(3). https://doi.org/10.3390/ijerph17030835.

Morrison, A.P., Pyle, M., Byrne, R., Broome, M., Freeman, D., Johns, L., James, A., Husain, N., Whale, R., MacLennan, G., Norrie, J., Hudson, J., Peters, S., Davies, L., Bowe, S., Smith, J., Shiers, D., Joyce, E., Jones, W., … & Maughan, D., 2021. Psychological Intervention, Antipsychotic Medication or a Combined Treatment for Adolescents with a First Episode of Psychosis: The MAPS Feasibility Three-Arm RCT. *Health Technology Assessment*, 25(4), pp.1–124. https://doi.org/10.3310/HTA25040.

Orsolini, L., Pompili, S., & Volpe, U., 2022. Schizophrenia: A Narrative Review of Etiopathogenetic, Diagnostic and Treatment Aspects. *Journal of Clinical Medicine*, 11(17). https://doi.org/10.3390/jcm11175040.

Pothimas, N., Chanprasit, C., Kitsumban, V., & Tungpunkom, P., 2020. A Cross-sectional Study of Factors Predicting Relapse 448 Pacific Rim Int J Nurs Res • October-December 2020 A Cross-sectional Study of Factors Predicting Relapse in People with Schizophrenia. *Pacific Rim Int J Nurs Res*, 24(4).

Robinson, E., 2018. Psychopharmacology: From Serendipitous Discoveries to Rationale Design, but what Next?. *Brain and Neuroscience Advances*, 2, pp.239821281881262. https://doi.org/10.1177/2398212818812629.

Rohmi, F., Glorino, M., & Pandin, R., 2022. *Factors Affecting Medication Adherence Among patient with Schizophrenia: A Literature Review*. https://doi.org/10.1101/2022.01.12.22269187

Stević, L.I., Repišti, S., Radojičić, T., Sartorius, N., Tomori, S., Kulenović, A.D., Popova, A., Kuzman, M.R., Vlachos, I.I., Statovci, S., Bandati, A., Novotni, A., Bajraktarov, S., Panfil, A.L., Maric, N., Delić, M., & Jovanović, N., 2022. Non-Pharmacological Interventions for

Schizophrenia—Analysis of Treatment Guidelines and Implementation in 12 Southeast European countries. *Schizophrenia*, 8(1). https://doi.org/10.1038/s41537-022-00226-y.

Verity, F., Turiho, A., Mutamba, B.B., & Cappo, D., 2021. Family Care for Persons with Severe Mental Illness: Experiences and Perspectives of Caregivers in Uganda. *International Journal of Mental Health Systems*, 15(1). https://doi.org/10.1186/s13033-021-00470-2.

Viswanath, B., & Chaturvedi, S.K., 2012. Cultural Aspects of Major Mental Disorders: A Critical Review from an Indian Perspective. *Indian Journal of Psychological Medicine*, 34(4), pp. 306–312. https://doi.org/10.4103/0253-7176.108193