# Motivational Interviewing Effect on Medication Adherence and Other Outcomes in People with Schizophrenia (PwS): A Review

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**Abstract.** Adherence will have an impact on therapy because schizophrenia is a chronic mental disorder that requires long-term treatment. One strategy to improve adherence to medications is motivational interviewing (MI), although more study is needed to see how well it works and whether it has any other effects on schizophrenia. The study aimed to assess the effectiveness of motivational interviews in improving adherence to medications and other positive impacts on PwS. A literature review using PubMed, Science Direct, Springerlink, and google scholar databases from 2010-2023 focused on keywords adherence, schizophrenia, and motivational interviewing. The results showed that MI has inconsistencies in their effect on improving medication adherence in PwS, but some studies found evidence of an association between MI and other outcomes, such as improvement in psychotic symptoms and decreased hospitalisation rates. Differences in patient characteristics and MI interventions in each study, the to perform MI techniques, and the trusting relationship built by the counsellor with the patient will affect the impact of MI on adherence. MI showed inconsistencies in improving medication adherence in people with schizophrenia. Several factors will affect the effectiveness of MI. However, MI also has the potential to improve psychosis symptoms and reduce hospitalisation rates, although more research is needed.
**Keywords**: schizophrenia, motivational interviewing (MI), adherence, effectiveness, psychosis

## 1 Introduction

Schizophrenia is a chronic mental illness that is influenced not only by genetic, but also by neurobiological factors. It manifests itself as a combination of psychotic symptoms such as hallucinations, delusions, and disorganisation, as well as motivational and cognitive dysfunction [1]. Schizophrenia affects a person's thoughts, feelings, and behaviours, inhibits their ability to assess reality, and isolates them from social interactions [2]. Some symptoms of schizophrenia can make it difficult for the patient to cooperate during the treatment process [3].

People with Schizophrenia (PwS) have been reported to have a poor understanding of how they assess the symptoms of the disease and what they expect from treatment [4]. The lack of motivation is one of the problems faced by PwS [5]. Several studies have identified motivation as a primary negative symptom in schizophrenia that is associated with a poor functional outcome [6, 7]. Motivational deficiencies are common in schizophrenia patients, even in the early phases of the illness, and these deficiencies are one of the most major barriers to persons with schizophrenia achieving functional recovery [6].

Schizophrenia is a chronic and often disabling disease, requiring long-term antipsychotic treatment. Nonadherence to antipsychotic medications is one of the problems in PwS [8]. About 75% of PwS discontinue their antipsychotic drug treatment within 18 months [9]. Difficulties in maintaining a medication regimen may arise from a lack of motivation, in addition to any of the other complicated factors that are often intertwined with the disease process of schizophrenia [10]. This is called a disease-related factor where this factor comes from the symptoms of schizophrenia itself. These are called disease-related factors, where these factors come from the symptoms of schizophrenia itself which affect the adherence to treatment [11].

Non-adherence caused higher readmission rates, more aggressive incidents, more suicides, a significant emotional and social burden for PwS and their families, and higher financial costs [3, 12]. Treatment with antipsychotic drugs reduces the risk of relapse and the risk of readmission [13]. In a systematic review, Higashi et al. [3] found that lack of knowledge of the disease, beliefs about the effectiveness of medications, substance abuse, and the quality of the therapeutic relationship were important factors influencing the relationship. Enhancing patient motivation, taking these factors into account, may be the key to encouraging drug adherence [14].

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Several studies have shown that patient adherence to treatment can be improved by helping them understand and accept their disease and treatment, and dealing with problems related to the drug used and its side effects. Schizophrenics with a better understanding of their disease can show better adherence to treatment [15] .

Motivational interviews were found to be particularly useful for people with addiction or high resistance to treatment or aversion to change their behaviour [16]. This therapeutic approach to behavioural intervention was adopted to improve adherence to treatment in schizophrenia, with early positive evidence of the reduction of psychotic symptoms and relapse rates in patients [5]. The positive results obtained indicate the need for more research on the effects of this motivational and self-empowerment approach (both cognitive and emotional focus) on different patient outcomes in terms of not only the severity of symptoms and recurrence of the disease, but also patient medication adherence, knowledge about the disease. and/or medication, and psychosocial functioning in those with poor adherence to antipsychotic medication [17].

This review evaluates the effectiveness of motivational interviewing on medication adherence and the other effect on clinical outcomes in people with schizophrenia.

## 2 Methods

We searched all studies published in 2010-2023 reporting on motivational interview-based adherence therapy as an intervention in PwS. Search literature using several databases such as PubMed, Science Direct, Scopus, and Google Scholar. A comprehensive search combined key terms using Boolean operators (e.g. AND, OR). The search terms were schizophrenia AND motivational interviewing OR motivational interviewing OR compliance therapy OR adherence therapy AND adherence OR compliance.

The first author (NC) independently extracted the following information: study question or aims; characteristics of participants, and details of interventions. Two authors (SAK and AWW) checked all the extracted data, and discussion between the two authors resolved any disagreement; with the help of the fourth author (JG) when necessary.

## 3 Results

### 3.1 Study Selection

The total of studies found in the database was 1,900 studies. The extraction articles were done by reading the title of the article and the abstract. From the selection process, the articles will be decided according to the purpose of this review. In the screening stage, 26 studies were obtained and entered the eligibility stage. At this stage, 26 studies were read in full text to assess their suitability to inclusion and exclusion criteria. Of the 26 studies, several were excluded for the following reasons: Not measure adherence (n = 11), not English language (n = 3), not MI (n = 3), protocol (n = 2) and no complete article found (n=3). The number of articles reviewed and discussed was 4 articles.

### 3.2 Study Characteristics

The characteristics of the included studies are described in Table 1. The four studies were conducted between 2013 and 2019 and involved a total of 466 participants who had been diagnosed with schizophrenia spectrum disorders such as schizophrenia or schizoaffective disorders. Of the four included studies, three of the studies were carried out in Asia [18–20] and the rest were carried out in Europe [21]. Participants in two of the studies were in community setting [18, 20]. One study in a hospital and community setting [21], and the rest in a hospital setting [19].

**Table 1.** Characteristics of included studies

| **Authors (year)** | **Country** | Study design | Setting |
|---|---|---|---|
| Barkhof et al, (2013) [21] | Netherland | RCT | Hospital and Community |
| Chien et al., (2015) [18] | China | RCT | Community |
| Ertem & Duman, (2019) [19] | Turkey | RCT | Hospital |
| Chien et al., (2019) [20] | China | RCT | Community |

### 3.3 Characteristics of the Participants

All patients have a diagnosis of schizophrenia. The age of the participants ranged from 18 to 65 years old. Three studies established inclusion criteria for patients to be recruited as participants, one of them being patients who were poor adherence [18, 20, 21]. The characteristics of the participants are described in Table 2.

The determination of adherence or nonadherence to taking medication is based on measurements using the Drug Attitude Inventory or having a history of previous nonadherence to taking medication as assessed by adherence to coming to see a psychiatrist or a self-reported method carried out by the patient himself.

However, for the rest there was no information on the inclusion of patients with non-adherent conditions (19). One study has exclusion criteria for participants who were dependent on substances or drugs (19), one study excludes patients who had experienced relapse (21), three studies exclude patients with organic disturbances (18,20,21) and all studies exclude patients with intellectual dysfunction or cognitive impairment.

### 3.4 Characteristics of the MI intervention

The MI interventions used in these studies (Table 3) each have their own characteristics. MI intervention was carried out in several sessions with a range of 5-8 sessions and a different duration for each session. In a study conducted by Barkhof et al. (2013) [21], the MI intervention was carried out in 5-8 sessions with the duration of the intervention sessions varying between

**Table 2.** Characteristics of the Participants

| Characteristics | Study Author (year) | | | |
|---|---|---|---|---|
| | Barkhof et al. (2013) [21] | Chien et al. (2015) [18] | Ertem and Duman (2015) [19] | Chien et al. (2019) [20] |
| Age (years) | 18-65 | 18-60 | 18-65 | 18-65 |
| Diagnosis of schizophrenia | Yes, | Yes, | Yes, | Yes, |
| Poor adherence | Yes, | Yes, | NA | Yes, |
| Drug or substance use | NA | NA | No | NA |
| Had experience psychotic relapse | Yes, | NA | NA | NA |
| Had an organic disturbance | No | No | NA | No |
| Cognitive impairment | No | No | No | No |

over a period of 26 weeks. Chien et al. (2019) [20] study administered the intervention in 6 sessions in 24 weeks. Each session lasted 2 hours and was held once every 2 weeks. Therefore, the total duration of the intervention was 12 weeks, or approximately 3 months. Unlike other studies, the intervention was carried out with patients in the intervention group throughout the study period. Each interview lasted 40-60 minutes and the process was completed in a total of six interviews held every two weeks [19]. Another study that was also conducted by Chien et al. (2015) [18], the intervention was administered once every two weeks for four months. Each session lasted two hours.

The professionals who delivered MI and act as therapists include psychologists, psychiatrists, mental health nurses, and also individually by researchers who have been trained in MI techniques.

**Table 3.** Characteristics of MI in studies

| Characteristics | Study Author (year) | | | |
|---|---|---|---|---|
| | Barkhof et al. (2013) [21] | Chien et al. (2015) [18] | Ertem and Duman (2015) [19] | Chien et al. (2019) [20] |
| Ways of delivery: | | | | |
| Individual interview | Yes, | Yes, | Yes, | Yes, |
| Number of sessions | 5-8 | 8 | 6 | 6 |
| Professional(s) who delivered the intervention: | | | | |
| Psychologist | Yes, | | | Yes, |
| Psychiatrist | Yes, | Yes, | | Yes, |
| Nurse | Yes, | Yes, | | Yes, |
| Researcher | | | Yes, | |
| Duration of the session (minutes) | 20-45 | 120 | 40-60 | 120 |
| Frequency of interview | NA | Every 2 weeks | Weekly | NA |
| Duration of intervention | 26 weeks | 16 weeks | 24 weeks | 48 weeks |

### 3.5 Effect of MI intervention on adherence to medications, rehospitalisation, and severity of symptoms

Intervention with a motivational interview approach has an effect on several outcome parameters for people with schizophrenia who are undergoing antipsychotic therapy. The effects of MI intervention are described in Table 4.

Based on the results of a study conducted by Barkhof et al. [21], the MI intervention was shown not to be effective in improving therapy adherence in patients with multiepisode schizophrenia who were not adherent to medication, while the study results obtained from Chien et al. [18, 20], MI-based adherence therapy (AT) can improve the adherence of schizophrenia patients to their antipsychotic drugs and improve their treatment results. AT can also improve psychosocial functioning and quality of life in patients with schizophrenia. AT can improve patients' understanding of the disease and treatment and reduce rehospitalisation rates. Motivational interview-based adhesion therapy (AT) can improve patient adherence to their antipsychotic medications and reduce psychotic symptoms. In addition, this approach can also help reduce treatment-resistant negative symptoms, such as amotivation, anhedonia, and social withdrawal [18]. The study also showed that adherence therapy can provide benefits at a low incremental cost, especially in improving outcomes at 12 months of follow-up [20].

The study by Ertem et al. [19] also concluded that the use of motivational interviewing (MI) is effective in improving the level of adherence to medication and understanding of patients with schizophrenia. Patients who received the MI intervention showed a significant improvement in the level of adherence to medications and insight compared to the control group. Furthermore, follow-up after the MI programme also improved the mean scores for the insight and medication adherence levels of the intervention group.

## 4 Discussion

Motivational interviewing is defined as "a collaborative conversational style for enhancing an individual's motivation and commitment to change". It involves four essential interactive elements consisting of participation, goal setting, motivation, and planning, each of which must be reviewed and adapted as the patient's condition in a treatment process [22]. Motivational interviewing (MI) is an effective intervention to increase motivation for behavioural change [23–25].

The results obtained from studies reviewed, MI interventions still show inconsistencies in their effect on improving medication adherence in people with schizophrenia. Similarly, a systematic review study conducted by Palacio et al. (2016) [29] also found that

**Table 4.** MI Effects

| Authors (year) | Adherence to medication | Re-hospitalisation | severity of the symptoms |
|---|---|---|---|
| Barkhof et al. (2013) [21] | MI did not improve medication adherence in people with multiepisode schizophrenia who did not adhere to therapy. | MI did not have a significant effect on rehospitalisation in patients who were previously nonadherent and experienced a psychotic relapse. | MI did not affect overall symptom severity in previously non-adherent patients who experienced psychotic relapse |
| Chien et al. (2015) [18] | Motivational interview-based adherence therapy interventions had a positive effect on medication adherence in patients with schizophrenia spectrum disorders. | Motivational interviews-based adherence therapy interventions had a positive effect on rehospitalisation rates in patients with schizophrenia spectrum disorders. | There was a significant improvement in symptom severity as measured by PANSS scores after the motivational interviewing-based adherence therapy intervention. |
| Ertem & Duman (2019) [19] | There was a significant increase in the mean adherence score before and after the MI intervention. | NA | NA |
| Chien et al. (2019) [20] | Adherence therapy that involves motivational interviewing techniques can improve patient adherence to antipsychotic medications. | Adherence therapy can reduce rehospitalisation rates in patients with schizophrenia | The positive and negative syndrome scale was significantly reduced between the intervention and routine care group |

MI improved medication adherence only in some populations, thus showing inconsistent results on improving medication adherence. MI had no statistically significant impact on chronic disease, eating disorder behaviour, marijuana abstinence, medication adherence, and others [23]. A review study mentioned that most studies did not support a direct relationship between motivational interviewing and adherence to medications [26].

The inconsistent effect of MI on medication adherence appears to be influenced by various factors. Based on the studies in this review, there are differences in the characteristics of the MI intervention such as the number of sessions, as well as the duration of each session, the frequency of interviews, the intervention period, and the professionals who provide the intervention. An interesting finding relates to the duration of MI exposure; it was stated that the number of MI sessions was not related to the outcome, but the total amount of time participants received MI interventions showed a relationship with the outcome, a longer time in one MI visit could give better results [27].

As also described in a systematic review and meta-analysis, MI is stated to improve adherence to medications at different delivery modes, exposure times and level of therapist education. Not only frequency or duration of exposure to MI, but also the interactions between the therapist and the patient influence the mechanism of change in MI for the adherence to medications [28].

As found in the study conducted by Dobber et al. (2018), there are three factors that influence the success of MI in improving treatment motivation in schizophrenia patients. The first factor is a trusting relationship that will be promoted in the engagement process. The second factor is the therapist's ability to adapt MI strategies to the patient's process. Finally, the third factor is the explicit conversation delivered by the therapist about the patient's values or goals in relation to adherence to treatment, which will hopefully increase the intrinsic motivation of the patient [5].

A mixed-method study conducted by Dobber et al. [29] found that the trusting and empathic relationship between the therapist and the patient, the ability of the therapist to perform MI techniques adapted to the patient's condition, and should be factors that will also affect the effectiveness of MI [5]. Health professionals face several obstacles in performing MI, which are identified as barriers. These barriers include practitioner-related factors, client-related factors, lack of continuous training and supervision, and workplace-related factors. Factors related to work were identified as management and time as barriers.

Motivational interviewing has the potential to be administered by healthcare practitioners with diverse backgrounds, including mental health, medicine, nursing, pharmacy, psychology, and allied health disciplines [23, 30]. Therefore, to provide MI, healthcare professionals need to develop the skills essential to guide the individual through the process. This is achievable through training, practise, and experience. Practitioners with negative attitudes towards MI did not practise MI correctly [31, 32]. When administered by trained professionals in addition to routine care, MI can help patients have a positive attitude toward adherence to medication [33].

However, some studies found evidence of an association between motivational interviewing and other results, such as improvement in psychotic symptoms and decreased hospitalisation rates [26].

## 5 Conclusions

Lack of motivation, insight and poor treatment adherence are common in PwS that have a major impact on treatment, course and outcome. MI is an effective therapeutic approach to explore the personal goals of

PwS and allows them to develop their willingness to participate more actively in the treatment.

The results of the study show inconsistent MI interventions in improving medication adherence in people with schizophrenia. However, MI also has the potential to improve psychosis symptoms and reduce hospitalisation rates, although further research is needed.

Several factors will affect the effectiveness of MI and these factors must be modified appropriately according to the specific needs of the patient, so that additional alternative therapies are needed as additional therapy with MI for people with schizophrenia.

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