Interventions to Improve Adherence to Antipsychotic Medications

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New ways to address medication adherence problems in patients with schizophrenia offer the hope of better treatment outcomes. Two new and promising approaches for individuals with schizophrenia are the use of environmental supports and cognitive adaptation training and cognitive-behavioral therapy.

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Nonadherence to antipsychotic medication regimens is a common problem with serious consequences. As many as 60% of patients with schizophrenia do not take medications as prescribed.1-6 The consequences of poor adherence are particularly severe in schizophrenia; they can lead to hospitalization, derail the process of recovery, and contribute to the high cost of treating the illness.5,7,8

Compliance problems complicate the treatment picture for prescribers. Psychiatrists may unnecessarily discontinue medications, increase doses, or add concomitant medications to address what appears to be a poor medication response in a patient who actually has an adherence problem.4,9,10

Nonadherence can be viewed as either inadvertent or intentional. Inadvertent nonadherence occurs when signs or symptoms get in the way of taking medication (eg, cognitive deficits prevent the organization necessary to maintain compliance). Intentional nonadherence results from a conscious decision on the part of the patient to discontinue his or her medication. Different interventions may be needed to address these different types of nonadherence.

A number of review articles have summarized the data on interventions to improve adherence to medications.2,11-13 In this article, we describe 2 new and promising approaches for individuals with schizophrenia: first, the use of environmental supports and cognitive adaptation training and, second, cognitive-behavioral therapy.

Environmental supports and cognitive adaptation training

Using environmental supports to cue and reinforce the taking of medication has been found to be among the most effective strategies for persons with physical illnesses.13-15 Supportive devices are designed to promote regular adherence in those who have problems following their regimen because of cognitive impairments, environmental distractions, negative symptoms, or disorganization (unintentional nonadherence).

Our research group has developed a systematic approach to using environmental supports for patients with schizophrenia, known as cognitive adaptation training (CAT).16-18 CAT uses alarms, signs, checklists, and the organization of belongings to cue and sequence adaptive behavior in the community. CAT treatment plans are based on a comprehensive assessment of cognitive functioning, adaptive functioning, and the environment. CAT interventions for medication adherence include large calendars with pens attached to track appointments; signs; medication containers with alarms to prompt the taking of medication; labeled single-dose containers to prevent the taking of extra medication doses; bus passes to assist patients in getting to the clinic for scheduled appointments; and notebooks for recording side effects for discussion with the doctor at the next clinic visit (Table).

In a number of reports, CAT has been found to improve symptomatology and adaptive functioning and to reduce rates of relapse for schizophrenic outpatients in comparison with standard care and control conditions.16,17 In a recent study, we assessed adherence in 42 patients with schizophrenia at baseline and following randomization to 1 of 3 treatments: full-CAT (CAT focused on many aspects of functioning, including medication adherence), pharmCAT (CAT focused only on medication and appointment adherence), and assessment only. As shown in Figure 1, irrespective of the level of baseline adherence (nonadherent, partially adherent, adherent), patients randomized to the CAT
treatment groups were significantly more likely to be adherent at the end of 6 months of treatment than were those in the control condition ($P < .04$).\textsuperscript{19}

Environmental supports also include advances in technology such as the development of highly sophisticated pill containers. For example, a recent invention known as the Med-eMonitor (InforMedix, Rockville, Md), is capable of storing a month's supply of up to 5 different medications.\textsuperscript{20} The device prompts users to take medication at the appropriate times, reminds them of the goal of taking each medication, alerts them if they are taking the wrong medication or taking it at the wrong time, records when containers are opened, and automatically downloads data to a secure Web site when placed into a cradle connected to a telephone line. The monitor can also ask a number of questions about side effects or symptoms on a regular basis by displaying questions on an LCD screen. The patient can respond to either multiple-choice or yes/no questions by pushing labeled buttons on the side of the monitor. Moreover, if a problem in adherence is identified by providers who are monitoring the Web site, they can contact the patient to identify barriers to adherence, apply problem-solving techniques, and remind the patient of important personal goals achieved by taking medication as prescribed.\textsuperscript{21}

In a recent pilot study, the Med-eMonitor device significantly improved adherence to oral medication regimens in a sample of 15 patients with schizophrenia, who went from a mean of 52.11\% (SD, 34.46) to a mean of 94.57\% (SD, 7.33) adherence to oral medications over a 2-month period ($P < .002$). The monitor device is shown in Figure 2.

There are, of course, some limitations in the use of environmental supports with individuals who have serious mental illness; some supports may not be acceptable to some patients. Because of difficulties in generalization of behavior, patients may be best trained in the use of devices and supports in the home environment.\textsuperscript{16} However, home visits can be resource-intensive. In addition, in intervention programs that use devices such as cell phones and pagers, some patients may sell or trade these devices. Despite these limitations, when used appropriately, environmental supports can improve a range of outcomes, including adherence to medication regimens.\textsuperscript{16}

The following case illustrates the use of "smart" pill containers and other environmental supports to improve adherence in a patient with schizophrenia.

**Case 1**

Mary is a 35-year-old woman who had schizophrenia diagnosed about 15 years ago. While she responds to antipsychotic medications, she continues to experience hallucinations many times during the day and remains afraid of people when she is out in public. An in-home assessment of adherence suggested that based upon the most current prescription refill date, she was taking 44\% of her antipsychotic medication. Mary stated that she sometimes forgot to take medication before leaving for her psychosocial treatment program. In addition, she reported that she would sometimes remember her evening dose of medication after she was already in bed and was often too tired to get up and take the dose.

A Med-eMonitor was placed in Mary's home as part of her participation in a research study investigating environmental supports. The monitor was placed by her bed and was set so that the alarm would sound 20 minutes before Mary left for her therapy program and later in the day for her evening dose. Bottled water was placed on the night stand by Mary's bed. If Mary was too tired to leave her bed to take medication when the alarm sounded at night, she had only to reach as far as her nightstand for her medication and the water needed to swallow it. The monitor was programmed to remind Mary to restock the water on her nightstand on a regular basis.

After 2 months of monitor use, along with the simple step of placing the monitor and bottled water near her bed, Mary's adherence improved to 97\%. Treatment providers in her day program noticed a dramatic improvement in her positive symptoms and her willingness to socialize with others. They wanted to know how we had changed her medication regimen to achieve such an effect.

**Cognitive-behavioral therapy for intentional noncompliance**

One of the major challenges in addressing the patient's attitude toward medication is the degree to which patients with schizophrenia avoid acknowledging that they have an illness or need treatment in the first place. This issue may explain, at least in part, the finding that patient psychoeducation alone has little or no effect on improving medication adherence in schizophrenia.\textsuperscript{13} For patients who do not believe they need medication, environmental supports alone will not address the problem. Cognitive-behavioral therapy (CBT) is considered to be an evidence-based practice and is a recommended treatment for schizophrenia in the United Kingdom.\textsuperscript{22} CBT is based on the premise
that thoughts influence one's feelings. For the treatment of anxiety or depressive disorders, CBT often focuses on recognizing unhelpful, self-defeating, or irrational thoughts; challenging them on the basis of evidence from the patient's perspective; and developing a plan to replace them with more rational and health-promoting thoughts. Many of the same CBT principles used for anxiety and depressive disorders have been modified and adapted to the symptoms of schizophrenia. Studies have demonstrated the efficacy of CBT for reducing symptomatology and rates of relapse in patients with schizophrenia.\(^{22}\) Integrating CBT with an adherence intervention is part of an ongoing collaboration between a CBT group in Brooklyn, NY, headed by the second author (PJW) and Dr Douglas Turkington, of the University of Newcastle upon Tyne in England.

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- Large calendars with pens attached to track appointments
- Signs
- Medication containers with alarms to prompt the taking of medication
- Labeled single-dose containers to prevent the taking of extra medication doses
- Bus passes to assist patients in getting to the clinic for scheduled appointments
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CAT, cognitive adaptation training.

**Why would CBT be useful for intentional noncompliance in schizophrenia?**

Because CBT focuses on changing attitudes, it may be ideally suited to addressing adherence problems in patients who do not believe they are ill. Psychoeducational approaches designed to improve adherence in patients with schizophrenia face a catch-22 problem related to the high rates of denial of illness. Patients who do not think they have schizophrenia will not be receptive to an adherence strategy that presupposes acknowledgment of having such an illness. A theoretical advantage of a CBT approach for schizophrenia treatment is that it may be acceptable to those individuals who cannot or will not accept a diagnostic label of schizophrenia. Thus, a CBT-based adherence intervention might be able to bypass the tension inherent in having to acknowledge having a mental illness.

Our research collaboration has developed a preliminary version of a 12-week adherence intervention known as the CBT-adherence intervention (CBT-AI). The CBT-AI platform was based on the structure and techniques used in a brief CBT intervention that was shown to be effective in reducing symptoms in patients with schizophrenia.\(^{23}\) Our group has taken this core CBT material and moved the focus toward adherence. Some of the discussion below is based on the integrative material developed in this collaboration.
One of the cardinal features of CBT as modified for schizophrenia is its focus on subjective and behavioral connections among the patient's beliefs, feelings, and actions—irrespective of whether these beliefs are reality-based. The approach involves collaboration without preconceived ideas through guided discovery and understanding of the patient's experiences and beliefs. This same approach can be applied to beliefs and attitudes about medication. The basic advantage of a CBT approach is that the discussion can take place without forcing the patient to agree with a diagnosis of schizophrenia. Using a CBT model, there is more freedom to attempt to frame the issue of adherence in a way that is most acceptable from the patient's own perspective of the problem and of the treatment options.

We found that a central challenge of integrating an adherence focus into a CBT approach was finding a way to discuss the topic in a manner that remained consistent with the CBT philosophy of following the patient's agenda rather than imposing our agenda on the patient. Patients are usually keenly aware that their clinicians want them to take medication. It would violate basic CBT principles to force a medication agenda that was not in some way a part of the patient's own agenda.

To help clinicians learn how to adapt CBT for assessing adherence attitudes, we have developed a method called the "health belief dialogue." The underlying concept of this interview approach is very simple. We believe attitudes or beliefs cannot be changed before the clinician understands those attitudes and beliefs. All too often, in our experience, the patient's perspective is interrupted by a well-meaning but ineffective lecture about the benefits of medication and the importance of adherence. In contrast, a major goal of the health belief dialogue approach is forcing the clinician to withhold any intervention or comment on adherence attitudes until those attitudes are fully understood. This technique is modeled on the CBT approach of understanding a patient's delusions or hallucinations, in which the primary focus is on understanding these issues from the patient's perspective. An example of CBT using the health belief dialogue is presented below. This case illustrates how medication adherence problems caused by previously undiscovered attitudes and beliefs can be addressed with a CBT approach.

Case 2

A 28-year-old man began an outpatient CBT program (in addition to his outpatient medication management) shortly after being stabilized following a psychotic relapse that required hospitalization. The CBT program consisted of 12 sessions given over the next 3 months by a clinician who was not directly involved in his psychopharmacologic treatment. By history, his medication adherence was haphazard, and nonadherence was a contributing factor to relapses and rehospitalizations. The patient did not consider his pattern of relapse and rehospitalization a problem for him.

During the initial CBT sessions, the patient was eager to discuss his life, with its many hardships. His medication regimen was not initially mentioned as related to any of his problems or his current dissatisfaction with his life. While he needed help focusing, his goals for CBT were ultimately reduced to (1) decreasing his feelings of self-hatred because he considered himself a "failure" and (2) lowering the anxiety caused by his belief that his landlord was persecuting him. These 2 problems were identified as preventing him from completing his high school education.

After these CBT treatment goals were established, a health belief dialogue assessment was carried out, and his attitudes and beliefs about the role of antipsychotic medications in his life were reviewed. The health belief dialogue revealed that he would deliberately withhold important information in his medical evaluations concerning his symptoms and his medication adherence because he could not tolerate the inconsistencies and ambiguities of his doctors' recommendations. He was devastated by the limitations of medications, which he had hoped would give him 100% benefit without any side effects. He decided to follow some of the medication recommendations some of the time, as a kind of compromise to deal with conflicting advice. This information made it much easier to understand his haphazard adherence. On his own, he came to understand the possible benefits that ongoing medication adherence might offer in helping him cope with his feelings of self-hatred and anxiety from his ongoing delusional fears.

As his attitudes about medication changed, the patient finished his GED requirements and, according to his family, was doing the best that he had done in many years. His adherence measures showed that he was consistently getting his antipsychotic prescriptions refilled, and he reported to the independent research assessor that he was much more consistent in taking his medications than he had been in the past.
Conclusion

New ways to address problems with adherence to medication regimens in patients with schizophrenia offer the hope of better treatment outcomes. It will be important to continue to refine the interventions presented here and to develop new ways to address adherence for persons with this illness.

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References


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