

Simplifying Adherence in Schizophrenia

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Treatment nonadherence is a formidable challenge in today's clinical practice. Despite decades of focused research, medication adherence continues to be a significant risk factor for poor prognosis in schizophrenia. Studies demonstrate that no single strategy is effective for all patients and that a multidisciplinary approach customized to the patient's individual needs results in improved adherence rates. This Open Forum presents a comprehensive model for organizing and incorporating current and future evidence-based strategies with a focus on educational strategies, psychotherapeutic techniques, and a strong therapeutic alliance. (*Psychiatric Services* 61:405–408, 2010)

Although schizophrenia affects slightly over 1% of the population, the overall cost in the United States equates to that of illnesses affecting a much larger percentage. Numerous studies have identified consistent risk factors for and consequences of treatment nonadherence, while exposing the lack of a consistent definition and a dearth of effective evidence-based interventions. Such studies emphasize the need for further research to define, quantify, and treat nonadherence and point to the need for a systematic approach for organizing evidence-based interven-

tions. This Open Forum presents current prevalence rates, risk factors, and consequences and offers a model for organizing evidence-based strategies into a multidisciplinary approach to improve adherence among patients with schizophrenia.

Prevalence

Across all medical and psychiatric illnesses, studies show that 60% of medications are taken incorrectly or not taken at all (1). Fifty percent of patients with chronic conditions or on long-term medications either do not take medications correctly or stop medications completely (2). Rates of adherence for antipsychotics were found to be lower than those for nonpsychiatric medications. One meta-analysis showed mean adherence rates of 76% for nonpsychiatric medications and 58% for antipsychotics (3).

The Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) project was designed to study all causes of medication discontinuation in schizophrenia. Seventy-four percent of patients discontinued medications within the first 18 months, with similar rates for both first- and second-generation antipsychotics (4). Reasons for discontinuation included patient or advocate decision (30%), lack of efficacy (24%), intolerable side effects (15%), and other reasons (31%) (5). In schizophrenia, medication nonadherence is a primary predictor of relapse and a major contributor to rehospitalization (5). A literature review found that one in four patients who relapsed did not take medication as prescribed (6). After a first-episode of psychosis, 33% to 44% of patients were found to stop medications within six months and 59% stopped within the first year (7).

Risk factors

Risk factors are measurable characteristics statistically associated with a higher risk of developing a condition. More than 200 biopsychosocial risk factors for nonadherence have been identified, but few consistently predict nonadherence (8). In a psychiatrist-reported nonadherence study by Compton and colleagues (9), 22 predictors were identified and developed into an eight-domain predictive model: current score on the Global Assessment of Functioning scale, moderate to severe psychotic symptoms, prior hospitalization, duration of treatment with current psychiatrist, diagnosis of substance abuse, diagnosis of personality disorder, medication side effects, and economic problems. Asher-Svanum and colleagues (10) identified five factors as being highly correlated with nonadherence. These factors in order of significance are history of nonadherence, recent illegal drug use, recent alcohol use, previous treatment with antidepressants, and self-reported, medication-related cognitive impairment. Patient beliefs, although less studied, are also predictive of nonadherence (11). Beliefs and concerns about medication effects are more predictive of nonadherence than beliefs about the necessity of medication (12). Shea (13) noted that patients are not likely to take medication unless they believe they have a problem and want relief, believe medication will provide relief, and believe the benefits of medication outweigh associated risks.

Consequences of nonadherence

Poor adherence to treatment results in worsening of symptoms, relapse, worsening of overall condition, increased utilization of health care facilities, rehospitalization, reduced

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quality of life, social alienation, increased substance abuse, unemployment, violence, high rates of victimization, incarceration, and death (5). Comorbid substance use compounds these problems. Although only 1.1% of the population over age 18 has schizophrenia, the overall cost of schizophrenia in the United States is an estimated \$62.7 billion (14). Unemployment accounts for a large portion of these costs. Schizophrenia is chronic and disabling, and inadequate treatment related to poor adherence lends little to reducing the economic burden (15).

Most patients take at least some portion of prescribed medication, and such partial adherence is difficult to estimate. Partial adherence, and inaccurate or underestimation of patient adherence by providers, may result in complicated treatments and polypharmacy, leading to increased risks of side effects and unnecessary expense. This, in turn, may increase nonadherence.

Strategies to improve treatment adherence

Adherence is not an all-or-nothing issue. Patients increasingly take a hands-on approach to their care, accepting some aspects of treatment and refusing others. Additionally, without adequate definition and measures for adherence, partial adherence can be construed as nonadherence. Clearly more research is needed to provide standards for measuring adherence, as well as evidence-based strategies for improving adherence.

Quantitative meta-analyses demonstrate that no one strategy is consistently effective. Improving adherence requires a dynamic, individualized, multidisciplinary, and comprehensive approach (16). A narrative review by Atreja and colleagues (17) examined studies related to strategies to improve adherence across medical and psychiatric conditions. They delineated six broad categories based on the type of intervention used and identified the categories with the acronym SIMPLE: Simplify the treatment regimen, Impart knowledge, Modify patient beliefs, Patient and family communication, Leave

the bias, and Evaluate adherence. These categories encompass methodologies pertinent to both medical and psychiatric conditions.

Simplify the treatment regimen

Multiple medications with frequent administration times negatively affect adherence. In schizophrenia, cognitive dysfunction has a significant impact on a patient's capacity to follow complicated medication regimens. Extended-release, long-acting, or depot preparations simplify medication regimens and ensure that medication is administered. Memory aids—such as reminder alarms, pill boxes, Medication Event Monitoring Systems, calendars, notes in conspicuous places, or behavioral prompts associating medication with routine behavior—make medication taking a part of the patient's daily routine. Patients with cell phones, personal digital assistants, or computers can take advantage of alarms and reminders associated with these devices. Administration time may need to be adjusted, as in the situation of a night worker whose bedtime dose would need to be taken in the morning.

Impart knowledge

Studies demonstrate that patients who understand their illness, medications, and treatment expectations consistently demonstrate better adherence (6). Educational approaches in schizophrenia need to be simple and adapted to the patient's cognitive ability. Repeating information and clarifying understanding is essential. Because lack of insight is often a problem in schizophrenia, education must be aimed at improving insight, garnering cooperation, and associating the information to what is important to the patient. Psychoeducation programs for patients, families, and caregivers aimed at coping with schizophrenia have been shown to improve adherence, reduce substance abuse, reduce relapse, and shorten hospital stays (18,19). Motivational techniques and concrete problem solving were also found to be helpful components in psychoeducational programs for persons with schizophrenia (20).

Modify patient beliefs

As care trends have changed, patients' attitudes and beliefs have captured more attention. Health beliefs models have proven helpful in addressing adherence in medical illness. However, health belief models must be used cautiously among persons with schizophrenia. Few studies have been done, but one small study demonstrated that patients with schizophrenia lack consistently coherent beliefs about their health, and beliefs may vary with mental status (21). Persons with medical illnesses distinguish between themselves and their illness, whereas persons with schizophrenia often describe psychotic symptoms as part of themselves (21). It is also thought that patients who are psychotic do not have a valid concept of illness and that as they improve, psychotic episodes are conceptualized as a divergence from their usual experiences (21). Although many may not believe that they are ill, patients who acknowledge mental illness often do not view themselves as an entity separate from their mental illness. Kinderman and colleagues (21) noted that patients may see the illness as an actor in their life's drama rather than a course of illness. Recovery models, which address adherence, fall short because patients may not be able to conceptualize recovery or the need to recover because they cannot conceptualize their illness or a need to be well. Kinderman and colleagues advocated more research into health beliefs in schizophrenia and speculated that assessing the patient's concept of psychotic episodes may be beneficial and fit better with the patient's concept of his or her difficulties.

Patient and family communication

Provider-patient communication is critical to patient adherence. Decisions about adherence are particularly influenced by the patient's perception of the provider's interest in him or her, as determined by amount of time spent with the provider (22). Providers must create a caring environment, target the patient's level of functioning, listen to concerns, assess for changes in symptomatology, look

for risk factors, solicit information about medication adherence, and assess for problems associated with nonadherence, such as insurance requirements, financial concerns, transportation issues, administration difficulties, or cognitive impairments. Motivational interviewing was found to be the most effective model for communication (20). Simple and concise communication, clear instructions repeated often, behavioral rehearsal, short-term goals, and unambiguous expectations work best (23).

Communication with family or significant others is helpful and often necessary in treating patients with schizophrenia. A meta-analysis of programs that included families in the comprehensive treatment of schizophrenia showed that education and support training for families reduced relapse and improved adherence up to 20% (24). Programs lasting longer than three months were even more effective. Data support the positive effects of including families in the care of patients and providing them with education and skills to cope with family members who have schizophrenia.

Leave the bias

Disparities in access to and continuity and quality of mental health care continue to exist for minority groups, accounted for, in part, by bias (25). Adherence is correlated to the patient's perception of the provider's opinion of the patient, and mistrust and cultural misunderstanding on either side reduce successful collaboration in care (25). Many of the behaviors resulting from schizophrenia's psychopathology are considered socially unacceptable and easily engender bias, but personal awareness helps providers move beyond the barriers of bias. Studies demonstrate that race, ethnicity, gender, intellectual ability, education, occupational status, and marital status do not have significant effects on adherence (16).

Evaluate adherence

Adherence can be evaluated by direct and indirect methods. Direct methods include blood or urine assays and direct patient observation. Indirect methods, which are less expensive

but less reliable, include chart reviews, monitoring clinical response, patient self-report, pill counts, review of pharmacy refill records, electronic monitoring devices, and assessment tools. Assessment tools may prove helpful in determining beliefs as well as level of adherence, but they must be used with caution among patients with cognitive impairment. No tool consistently captures every aspect of adherence, but regular use of screening tools developed for use in schizophrenia can help detect adherence problems and identify specific reasons for nonadherence, such as cognitive deficits or changes in symptomatology. The Drug Attitude Inventory, designed to measure beliefs and attitudes in schizophrenia, is available in a ten- or 30-question version. The Brief Medication Questionnaire, a self-administered tool, detects levels of adherence and beliefs about medication and identifies barriers to adherence, including inefficacy, forgetting to take medications, side effects, and other troubling symptoms. The Medications Adherence Questionnaire is a four-question tool assessing four reasons why the patient might be nonadherent: forgetting, carelessness, felt better, or felt worse. The Medication Adherence Rating Scale, a ten-question self-administered scale, assesses beliefs and presence of side effects. Finally, a new four-question tool, the Brief Adherence Rating Scale, developed by Byerly and colleagues (26) was adapted from the scale used in the CATIE studies. This scale assesses the patient's knowledge of the medication regimen and the frequency of missed or altered doses of the prescribed medication. Periodic readministration can be used to assess intervention effectiveness.

Conclusions

Clearly research into multimodal strategies specific to adherence in schizophrenia is needed. Even with few tried and true methods, clinicians continue efforts to improve medication adherence with the ultimate goal of optimal quality of life for patients and reduced disease burden for patients and society. Simplified treatment regimens serve to maximize adherence. Establishing re-

spectful communication facilitates accurate identification of barriers and risk factors and evaluation of adherence. Identifying personal and patient bias cultivates treatment planning based on patients' needs, not preconceived notions. Individualized education and support for both patients and families improve insight and knowledge and help modify beliefs. The SIMPLE acronym provides a framework within which to organize evidence-based strategies promoting a comprehensive team approach to adherence.

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