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# Impacts of the Recovery Movement on Treatment Adherence for Individuals with Schizophrenia Spectrum Disorders

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Philadelphia College of Osteopathic Medicine

Department of Psychology

IMPACTS OF THE RECOVERY MOVEMENT ON TREATMENT ADHERENCE  
FOR INDIVIDUALS WITH SCHIZOPHRENIA SPECTRUM DISORDERS

Kelly J. Campanile

Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Psychology

June 2014

PHILADELPHIA COLLEGE OF OSTEOPATHIC MEDICINE  
DEPARTMENT OF PSYCHOLOGY

**Dissertation Approval**

This is to certify that the thesis presented to us by Kelly Campanile  
on the 22nd day of April, 2014, in partial fulfillment of the  
requirements for the degree of Doctor of Psychology, has been examined and is  
acceptable in both scholarship and literary quality.

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## Abstract

The recovery movement presents a shift in the treatment of severe mental illness to a more person-centered approach. The current researcher hypothesized that the more recovery-oriented a treatment was perceived to be, the more participants would have attended appointments and adhered to their psychiatric medication regimen. The variables of empowerment, recovery assessment, attitudes toward treatment, and participatory decision-making were explored in relation to their possible correlation with increased treatment adherence. An archival data set was used. Participants included 215 adults who met criteria for a schizophrenia spectrum disorder. The participants generally rated their treatment as high on all four of the recovery measures, and treatment nonadherence was not particularly problematic for the sample explored in the current study. Participants' reports of increased symptom severity and reports of positive quality of life were found to be associated with higher reported levels of appointment attendance. Participants' reports of positive attitudes toward psychiatric treatment were found to be associated with reports of better quality and frequency of medication adherence. Measuring whether treatment is recovery-oriented may not be predictive of patients' levels of service engagement. Recommendations for future research include using additional and qualitative measures to capture the full construct of service engagement, beyond measures of treatment adherence. Additionally, recovery-oriented treatment is aimed to be individualized; therefore, studies measuring the recovery-orientation of a treatment provider should include alternative treatments used to enrich the lives of the patients.

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## **Chapter 1: Introduction**

Nonadherence to treatment is a widespread problem in general medical populations, as well as among individuals with mental-health problems (DiMatteo, Giordani, Lepper, & Croghan, 2002), and especially among those who have been diagnosed with a schizophrenia spectrum disorder (Coldham, Addington, & Addington, 2002). There are different types of treatment adherence, such as taking medication as prescribed, attending scheduled appointments, and complying with recommendations made by clinicians (Dolder, et al., 2004; Valenstein et al., 2002).

Nonadherence to psychiatric medication and mental-health appointments has been found to be associated with increased and longer psychiatric hospitalizations in people with schizophrenia spectrum disorders (Dolder et al., 2004; Valenstein et al., 2002). Dolder et al. (2004) found that nonadherence was also associated with increased hospitalizations for medical reasons in this population. Consequently, identifying transformable predictors associated with nonadherence is important in order to increase the likelihood that people with schizophrenia spectrum disorders will find mental-health treatment a viable means of decreasing their symptoms and increasing their quality of life.

Many variables have been examined regarding nonadherence to psychiatric medication, including patient-, environment-, physician-, and treatment-related variables (Oehl, Hummer, & Fleischhacker, 2000). Examples of patient factors include socioeconomic status and other demographic variables. Environmental factors can include social stigma toward psychiatric treatment surrounding the mentally ill individual and the stigma surrounding the specific illness. Examples of physician factors are the

doctor-patient relationship and how such relationships have been affected by the physician's dedication of time to discuss the subjective needs of the patient, including possible side effects of medication. Examples of treatment factors include those associated with medication, for example, the severity of possible side effects, the delayed beneficial effect of the medication, the route of medication administration, and the complexity of the regimen (Oehl et al., 2000). The investigation into the correlates of treatment adherence has shifted over the years towards variables more representative of social and physician factors rather than of the historically predominant focus on patient factors. This shift occurred concurrent with the growth of patient-centered care approaches in general medicine and the transformation of mental-healthcare systems towards recovery-oriented care.

The recovery movement in mental-healthcare has provided a framework for a person-centered treatment approach in which the focus of treatment is to be inclusive of the patients' preferences and personally relevant goals. The recovery framework involves a shift away from a medical treatment model to a treatment philosophy that involves individuals, their families, and communities. This framework focuses on instilling hope, encourages advocacy, and provides education about all available treatment approaches (Glynn, Cohen, Dixon, & Niv, 2006).

The recovery-oriented variables examined in this study are empowerment, participatory decision-making (PDM), attitudes toward treatment, and other factors measured by the recovery assessment scale (eg., hope, willingness to ask for help, importance of support networks, and desire and ability to accomplish goals). These

variables are explored in relation to their possible correlation with increased treatment adherence.

The purpose of the current study is to examine variables that reflect a person-centered approach to psychological care that are predictive of higher levels of treatment adherence for people with schizophrenia spectrum disorders. The variables associated with the recovery movement, empowerment, and PDM have been found to be associated with reductions in positive symptomatology and rehospitalization and with better overall outcomes (Deegan & Drake, 2006; Dickerson, 1998). Recovery-oriented variables, including attitudes toward treatment, recovery assessment, empowerment, and PDM, are examined to determine if they are associated with greater medication adherence and higher levels of consistency with attending psychiatric appointments. If these variables are found to be associated with increased treatment adherence, this information can be utilized to improve mental-health treatment for people with schizophrenia spectrum disorders by directing treatment to be oriented more towards recovery principles and by informing physicians, psychiatrists, families of consumers, and consumers themselves of the benefits associated with this treatment approach.

### **Definition of Treatment Nonadherence**

Nonadherence to treatment regimens is a vast problem in general healthcare, as well as in psychiatric healthcare. Increasing treatment adherence has been identified as one of the most direct ways to eliminate symptom exacerbation, rehospitalization, and relapse, and to improve overall prognoses for chronic conditions, including psychotic disorders (Coldham et al., 2002). Treatment adherence is a broad term that has been used across healthcare disciplines with varying definitions. Types of treatment adherence are

medication adherence, appointment attendance, and following other recommendations made by clinicians. Attendance at scheduled appointments and frequency of taking medications as they are prescribed are also commonly used domains to measure adherence. However, even within the same domain, thresholds differ regarding what is considered to be adherent. For example, attending the first scheduled appointment versus attending five consecutive appointments or taking prescribed medications a certain percentage of the time are different means for measuring the same adherence-related variable. The problem with such diverse definitions for a construct is that the clinical implications because of meta-analyses are limited, as they are difficult to interpret (Nose, Barbui, Gray, & Tansella, 2003).

The definition of medication compliance also varies throughout the literature.

Coldham et al. (2002) defined medication adherence on a continuous measure as follows: Good adherence: rarely or never missed doses of medication, inadequate adherence: taking medication irregularly (skipped doses but never longer than a few weeks at a time in the 1-year time period), non-adherence: dropped out of the program before 1 year (without good reason), and/or took their medication erratically (ie: stopped for months at a time), or not at all. (Coldham et al., 2002, p. 287).

Generally speaking, treatment adherence has been defined as “the extent to which a patient’s behavior (in terms of taking medication, following a diet, modifying habits, or attending clinics) coincides with medical or health advice” (McDonald, Garg, & Haynes, 2002, p. 2868).

Service engagement has also been defined in many ways throughout the literature. The Center on Treatment Adherence and Self-Determination (2010) defined service engagement by emphasizing two crucial aspects of treatment: (a) consumers are included in their healthcare decisions along with providers and (b) service engagement includes other treatment-related consumer services, such as peer support, alternative therapies, and other nontraditional mental-health services. Thinking about individuals' engagement has expanded the construct of treatment adherence from a solely quantitative measure to qualitative domains, such as treatment satisfaction (Tetley, Jinks, Huband, & Howells, 2011). Treatment adherence is a necessary, but not defining, domain for an individual to become truly engaged in his or her services. For purposes of this study, service disengagement refers to the number of missed mental-health appointments that had been scheduled in the previous 6 months. Also the purpose of the current study, psychiatric appointment attendance and medication adherence, which are two indicators of service engagement, are the measured variables. Although varying definitions of treatment adherence are in the literature, for the purposes of this study, the definition of service engagement is limited to psychiatric appointment attendance and medication adherence. The population included consists of people diagnosed with schizophrenia spectrum disorders.

Medication adherence and appointment attendance have been researched in the psychiatric literature, as well as in general medical literature. Several overarching theories about people's behaviors in relation to their healthcare have been developed from the research in an attempt to explain the complicated problem of treatment nonadherence.

### **Theories of Nonadherence**

The most prominent theories of health behavior include the health belief model, theory of reasoned action, protection motivation theory, and subjective expected utility theory (Ronis, 1992; Weinstein, 1993). These four theories have many commonalities, including the assumption that people anticipating negative health outcomes will experience an increase in their motivation to engage in health-protective behaviors, their perception of the likelihood that the negative outcomes will occur increases their motivation, and peoples' motivation to engage in health-protective behaviors increases as their expectation that their action will reduce their likelihood of being harmed increases (Weinstein, 1993). A full review of these theories is beyond the scope of the current study.

Although widely adopted and well researched in the medical field, these models do not fully explain service disengagement and antipsychotic medication nonadherence, especially of people with schizophrenia spectrum disorders. Furthermore, the existing models are underresearched in the mental-health-field, and they do not seem to comprehensively capture all domains that may impact a person's healthcare decision-making. Some of the questions that remain unanswered by these health models are the importance of emotional experiences; the roles of self-esteem, social stigma, and empowerment; consumers' beliefs of treatment effectiveness related to their past treatment experiences; complexities of actions that need to be taken; and other attributes of precautions aside from beliefs about effectiveness (eg., attitudes toward psychiatric treatment; Weinstein, 1993). Several of these variables have not been addressed by traditional health behavior models.

Although current behavioral-health theories have provided explanations for treatment gaps and some interventions have been effective in increasing treatment adherence, nonadherence remains problematic. Possibly the existing interventions for increasing adherence are not widely used, or they do not comprehensively address the problem a given consumer has with being adherent to his or her treatment. The amount of treatment nonadherence is such a widespread problem that researching the factors affecting existing interventions not being sufficiently adhered to is important, especially for people with psychotic disorders.

### **Treatment Nonadherence Rates**

Researchers have found that about 25% of patients do not adhere to their medical treatment regimens (DiMatteo, 2004). Patients with the highest rates of nonadherence are those with chronic diseases, as opposed to those with acute conditions (Sabaté, 2003). The population of the current study consists of people with schizophrenia spectrum disorders, which are often considered to be chronic conditions.

About two thirds of people with schizophrenia spectrum disorders have been estimated to not adhere to their psychiatric treatment regimens. Only about one third of people with schizophrenia are fully adherent to their medication regimens (Oehl et al., 2000), which has been found to be related to poor overall treatment outcomes (Coldham et al., 2002). Another third of them do not take their medication at all, and the remaining third are somewhat adherent, either by failing to take all of their medication doses or by reducing the dosage amounts without doctors' orders (Oehl et al., 2000).

People have been found to be at higher risk for medication nonadherence closer to the onset of their psychotic condition. Mitchell and Selmes (2007) reported a 75%



discontinuation rate of psychotropic medication within 1 year of starting a new prescription, often without reporting such discontinuation to the prescribing physician. Other researchers have found about 40% of people stop taking their prescribed medication within the first year of the onset of their schizophrenia, and about 75% stop within the first 2 years (Coldham et al., 2002).

A systematic review of 103 published studies was conducted to obtain an overall estimate of psychiatric treatment nonadherence, and the researchers found that almost 26% of patients with schizophrenia spectrum disorders did not adhere to their medication regimens and did not attend scheduled appointments (Nose et al., 2003). Improvements in medication adherence rates have been found when clinicians are able to regularly monitor patients' medications at attended mental-health appointments (Mitchell & Selmes, 2007). Unfortunately, attendance rates for mental-health appointments in general are also poor.

Appointment attendance is a widely noted problem among psychiatric patients who are discharged from inpatient facilities. Kruse, Rohland, and Wu (2002) found 18% of people discharged from a psychiatric hospital did not attend their follow-up outpatient appointments. Researchers examined missed appointments among 342 outpatients diagnosed with Schizophrenia, Schizoaffective Disorder, or Delusional Disorder for a period of 2 years. The researchers found 22.2% of the total appointments for this population were not attended (as cited in Kruse et al., 2002). Agyapong, Rogers, MacHale, and Cotter (2010) found 44% of people who were seen by psychiatrists at a hospital emergency room did not attend their follow-up appointments at outpatient mental-health clinics. Even higher rates of appointment nonadherence have been found in urban areas with people who have severe and persistent mental illness. Compton,

Rudisch, Craw, Thompson, and Owens (2006) reviewed charts of people who were discharged from a community inpatient hospital and crisis stabilization unit who had follow-up appointments scheduled at either a community mental-health outpatient clinic or an intensive outpatient program in the area. Their sample consisted of 221 patients, 64 % of whom did not attend their follow-up appointments (Compton et al., 2006).

Lapses or delays in interventions seem to be problematic for outpatient appointment attendance rates. Killaspy, Banerjee, King, and Lloyd (2000) found patients are significantly more likely to continue to attend outpatient mental-health appointments 6 months after their first visit if they attended their first follow-up appointment. They concluded that a single missed appointment can predict service disengagement from an outpatient mental-health-clinic (Killaspy et al., 2000). These findings highlight the importance of continued contact with patients and of discussing with them the reasons for their missed appointments.

Although the research outcomes on rates of treatment nonadherence vary, clearly that at least one quarter to three quarters of people with schizophrenia neither take their medication as prescribed nor attend their scheduled mental-health appointments. Given this vast number of people with schizophrenia spectrum disorders who do not adhere to their treatment regimens, poor prognoses for them can be expected, as well as negative effects on their environment, on the lives of people who care for the mentally ill, on results of treatment efficacy research, and on the healthcare system in general.

### **Consequences of Nonadherence**

Consequences of nonadherence to mental-health treatment for people with schizophrenia include psychiatric symptom exacerbation and readmission to inpatient psychiatric hospitalizations, as well as becoming homeless, occasionally violent toward other people, and suicidal (Kreyenbuhl, Nossell, & Dixon, 2009). When people with schizophrenia spectrum disorders are not taking their prescribed medication, they have been found to have higher hospitalization rates, poorer outcomes, and increased relapse of psychotic episodes (Coldham et al., 2002). Additional factors that have been found to be affected by nonadherence include reductions in the possible benefits of treatment, biased assessment of treatment efficacy, and overall worse prognoses (McDonald & Haynes, 2002).

Medical-possession-ratios (MPR) are a measure of medication treatment adherence, with a perfect ratio being equivalent to 100% medication adherence as prescribed. Specifically with regards to inpatient hospitalization rates, veterans with schizophrenia who have close-to-perfect MPRs have been found to have the lowest inpatient hospital admission rates. Furthermore, as the patients' MPRs declined, hospitalization significantly increased, and the veterans also spent more days spent in the hospital during their inpatient admissions. Further research has found that patients who follow their psychiatric medication regimens less than 80% of the time were almost 2 ½ times more likely to be hospitalized than those with higher levels of adherence (Valenstein et al., 2002).

Hospitalization rates for medical and psychiatric reasons rise significantly for consumers who are nonadherent. Consumers who are partially adherent to their

antipsychotic medication regimens were found to be 2 ½ times more likely to be hospitalized for psychiatric reasons than those who are adherent. Moreover, medical hospitalization rates increase with antipsychotic treatment nonadherence. Consumers with schizophrenia have been found to have worse overall physical health than people with depression or no mental illness. Consumers who are nonadherent, partially adherent, or take their medications more than prescribed are more likely to be hospitalized for medical reasons. People with schizophrenia who are nonadherent to their treatment are likely more symptomatic, which makes them less capable of attending to their medical and physical needs, including attending medical appointments. Other behaviors that promote poor health can be assumed to occur more frequently in those who are less adherent to mental-health treatment and are therefore more symptomatic. Healthcare costs increase in association with these issues related to mental-health treatment nonadherence. Conversely, healthcare costs are not significantly increased when consumers with schizophrenia adhere to their mental-health treatment, and the treatments are cost effective (Dolder et al., 2004).

People who are nonadherent within the first year of the onset of their schizophrenia have been found to have higher relapse rates and increased frequency and severity of positive psychotic symptoms (eg., hallucination, delusions, disorganized speech and behavior) than medication-adherent individuals with schizophrenia (Coldham et al., 2002). Discontinuation of psychiatric medications without attending appointments does not allow for the patients to receive medical advice about their options, which makes them more likely to make an uninformed decision to discontinue their medications (Mitchell & Selmes, 2007). Attending regular mental-health appointments seems

essential for adherence to prescribed medications and to avoid the negative consequences that are associated with treatment nonadherence.

Significant evidence suggests that missed mental-health appointments are often an indication that the patient's psychiatric health is deteriorating and sometimes that their overall quality of life is declining (Mitchell & Selmes, 2007). Killaspy et al. (2007) conducted a study of 365 mental-healthcare out-patients, in which they found patients who missed their appointments after their initial visit were more functionally impaired than patients who attended appointments. Specifically, the patients who did not attend appointments had decreased social functioning, more severe psychiatric symptoms, and significantly increased chances of having been admitted to a psychiatric hospital in the previous year than did those who attended their appointments (Killaspy et al., 2000).

Consequences of appointment nonadherence sometimes influence clinicians' attitudes, which can negatively affect the care patients receive. In studies of the effects that patients' missed appointments can have on healthcare providers have revealed higher levels of frustration, negative attitudes toward patients (Husain-Gambles, Neal, & Dempsey, 2004), decreased empathy for the patients, and lower quality of communication between the patient and the provider (Pesata, Pallija, & Webb, 1999). Furthermore, missed appointments create financial losses for outpatient mental-health clinics and can create a more challenging situation for quality services to be provided (Gallucci, Swartz, & Hackerman, 2005).

The negative impact that treatment nonadherence has on people with schizophrenia is well researched, as are factors that correlate with nonadherence.

### **Correlates of Nonadherence**

Treatment nonadherence has been researched in populations suffering from schizophrenia spectrum disorders, and results have revealed several correlates and predictor variables. Many factors have been theoretically linked to treatment nonadherence among individuals with schizophrenia, such as psychosocial factors, culturally influenced attitudes toward psychiatric treatment, access to care, and biologically determined ethnic differences in medication and treatment response rates.

The bulk of research on treatment nonadherence has looked at psychosocial factors, such as patient demographics, and illness variables in the prediction of treatment nonadherence. Researchers have found factors correlated with nonadherence, including impaired insight, presence of positive symptoms, younger age, male gender, unemployment, poor social functioning, lack of family involvement, premorbid substance abuse, poor premorbid functioning, and low levels of quality-of-life indicators (Coldham et al., 2002; Nose et al., 2003).

Additional patient-related factors of nonadherence include the patients' beliefs about illness and their knowledge of medication, which is especially true for people prescribed antipsychotic medications. Patients' misunderstanding of their prescription instructions, misunderstanding of why they are taking medication, general lack of understanding of their illness, feelings of not being involved in treatment decisions, and inability to give informed consent for treatment because of lack of insight are all patient-related factors related to treatment nonadherence. Furthermore, misconception of the severity of the illness, dysfunctional attitudes regarding health, inability to communicate

with treatment providers, and negative attitudes about treatment in general are variables that have been found to be correlated with nonadherence (Mitchell & Selmes, 2007).

Certain personality traits and social factors have also been identified as predictors of nonadherence. Specifically, low levels of neuroticism and high levels of agreeableness are predictors of poor service engagement (Kreyenbuhl et al., 2009). The researchers who found these results explained that agreeableness is a personality trait that makes people more susceptible to peer pressure to avoid stigmatization associated with receiving mental-health treatment. Socially, poor service engagement related to avoiding stigmatization is likely more problematic in people who are early in their experience with psychosis because of their desire to be accepted by peers and fear of being ostracized because of the stigma associated with psychiatric treatment. Consumers who were being made more aware of the possible social stigma accompanying mental-healthcare were found to have higher service disengagement rates (Kreyenbuhl et al., 2009). People who have recently received a diagnosis of a schizophrenia spectrum disorder may be more unaware of treatment benefits and are more likely to have increased denial regarding their illness; therefore, psychoeducation is critical. Identification of high rates of mental-health treatment nonadherence allows for a more comprehensive understanding of how widespread and pervasive this problem is for consumers and their families.

Additional environmental and social issues, such as lack of access to transportation, forgetting appointments, moving away from their provider's location, and not having enough time to attend appointments, have also been cited as reasons for nonadherence (Kreyenbuhl et al., 2009).

Reports of mental-health consumers have provided researchers with additional patient-related factors of nonadherence. Patients most commonly reported the desire to solve their own problems as one of the reasons for their treatment nonadherence. Other explanations provided by consumers included being dissatisfied with the treatment they were receiving, feeling their illness had improved, believing treatment would not help them, feeling that they were too sick to be treated, feeling a loss of control because of the effects and side effects of the medication, and wanting to feel independent (Kreyenbuhl et al., 2009). Additional correlates of treatment nonadherence identified by consumers were related to treatment constraints of non-recovery-oriented interventions. Consumers reported feeling that the treatment providers were not sympathetic, not listening to them, and not allowing them to participate in the decision-making process and expressed general dissatisfaction with the services being provided to them (Kreyenbuhl et al., 2009). Poor service engagement has been found to be associated with a lack of psychoeducation regarding consumer rights, which is likely the result of misperceptions of mental-healthcare (Lecomte et al., 2008).

Physician-related correlates of nonadherence, such as mistrust of healthcare professionals and poor therapeutic alliance, have also been identified by researchers. Kreyenbuhl, Nossel, and Dixon (2009) identified a childhood history of being the victim of physical or sexual abuse as the strongest predictor of service disengagement for people with schizophrenia. Having a sexual-abuse history has been suggested to negatively affect treatment adherence because it creates mistrust of authority figures, which would include mental-health professionals. The second strongest predictor of nonadherence found in this study was determined to be poor therapeutic alliance with the therapist.



People with histories of childhood physical abuse were found to have poorer therapeutic alliances with their mental-health service providers than were people without such histories (Kreyenbuhl et al., 2009).

Additional physician-related factors of nonadherence include involuntary or mandated treatment. Swartz, Swanson, and Hannon (2003) found that people diagnosed with schizophrenia and the clinicians who treat them generally have differing views about treatment options, such as involuntary hospitalization. More than three quarters of the clinicians surveyed believed that mandated treatment makes the consumers more likely to remain in treatment. Conversely, more than one third of the consumers with schizophrenia reported fear of involuntary commitments and being coerced into treatment as barriers to seeking mental-health treatment. The authors referred to this phenomenon as “mandated-treatment-related barriers to care” (Swartz et al., 2003, p. 470). More specifically, they found that people with a history of involuntary hospitalizations, court-mandated treatment, and having representatives as their payees are more reluctant to seek outpatient treatment out of fear of coercion than are their counterparts who do not have such histories. Furthermore, recent inpatient hospitalizations and recent warnings about the potential consequences associated with treatment nonadherence were found to be significantly correlated with mandated-treatment-related barriers to care. The authors acknowledged that people with a history of involuntary commitments may have been more reluctant to seek treatment in the first place, were more severely ill, and were more mistrustful of treatment. However, they concluded that coercive treatment tactics are a deterrent to voluntarily seeking treatment (Swartz et al., 2003).

Mitchell and Selmes (2007) distinguished between intentional and unintentional nonadherence. Unintentional nonadherence would include such obstacles as forgetting to take a dose of medication. The researchers found that predictors of intentional nonadherence include feeling less ill, the desire to manage the illness independently, mistrust of clinicians, and lack of information from the treating clinicians. They referred to the utility theory of health beliefs to explain that consumers base their decisions to intentionally nonadhere by forming a balance between their reasons for and against adhering to their treatment (Mitchell & Selmes, 2007).

Biologically determined differences in medication and treatment response rates constitute another category of correlates of nonadherence. Side effects of antipsychotic medication have been identified as an area of concern that is associated with nonadherence. Specifically, weight gain and sexual dysfunction are two of the most significant side effects reported to affect adherence rates. Fakhoury et al. (1999) found subjective distress and medication nonadherence to be associated with weight gain caused by medication. Furthermore, weight gain associated with antipsychotic medication was the most frequently reported side effect to be extremely distressing (more than 70% of consumers prescribed antipsychotics; Fakhoury, 1999). Sexual dysfunction has also been linked to significant levels of subjective distress and lower ratings on quality-of-life measures (Rosenberg, Bleiberg, Koscis, & Gross, C., 2003).

The literature has not found any consistent psychosocial predictors, but some research has noted some association between younger age, male gender, ethnic minority background, and low social functioning. However, even the correlations of these variables and treatment nonadherence have not been consistently reported in all studies

that have investigated them (Kreyenbuhl et al., 2009; O'Brien, Fahmy, & Swaran, 2009; Vermeire, Hearnshaw, Van Royen, 2001). Researchers have looked at system variables related to treatment adherence, such as continuity of care and, only more recently, patients' perceptions of the services they receive. Psychosocial factors of the pathological symptoms of schizophrenia such as, lack of family support, social isolation, and homelessness, can have a damaging effect on treatment adherence, (Dolder et al., 2004).

Correlates of treatment Nonadherence, including variables in domains of physician-related, environmental, social, patient-related, and biological differences have been extensively researched. However, no consistent results have been found with regard to static illness-related patient-related factors; therefore, research needs to refocus on dynamic patient-related variables, including, PDM, empowerment, perceptions of clinicians' cultural competence, attitudes toward treatment and psychiatric treatment, and other recovery-related constructs. Although consumers' perceptions of provider variables have been highlighted in the literature as important for treatment engagement, research into these correlates has just begun.

Given the wide scope of variables that have been found to be correlated with treatment nonadherence, researchers and clinicians have attempted to ameliorate this problem by developing interventions aimed at increasing adherence.

### **Effective Interventions for Treatment Adherence**

Medication nonadherence has been identified as the most preventable cause of psychiatric hospitalization, acute episode relapse, and overall poor outcomes; however, it

remains one of the largest obstacles to successful treatment of people with schizophrenia (Coldham et al. 2002).

In a systematic review of research on treatment nonadherence, many interventions for increasing treatment adherence in community psychiatric services were determined to be effective (Nose et al., 2003). The authors noted that the effective interventions included using letters and phone calls to remind consumers of their scheduled appointments, psychotherapeutic and family interventions (cognitive and psychodynamic approaches), education about treatment and medication, scheduling follow-up appointments, and implementing treatment adherence contracts prior to hospital discharge. Overall, these interventions were found to increase attendance at scheduled mental-health appointments and adherence to psychotropic medication regimens by more than 50%, 6 months following the intervention. The long-term benefit of these interventions was assessed for effectiveness in only a minority of the studies included in the meta-analysis. The available evidence suggests that with an increase of time following the interventions, the less effective they become (Nose et al., 2003); therefore, longer lasting interventions are needed to increase adherence rates.

Rosotto, Wirshing, and Liberman (2004) conducted a study of a community reentry model to assess its efficacy for increasing outpatient treatment adherence for people diagnosed with schizophrenia after being released from inpatient hospitalization. This model involves four categories of educational components: scheduling and attending appointments, medication management, relapse prevention, and mental-illness symptom identification. The consumers who received the community reintegration intervention had higher rates of outpatient treatment adherence (75%) and lower rates of

rehospitalization (0%), as compared to the group who received only psychoeducation, who had a 33% treatment attendance and 50% rehospitalization rate within 12 months (Rossotto et al., 2004). Although these interventions have shown some improvement in treatment nonadherence, they do not seem to change individuals' health-related behaviors in the long run.

Correlates and consequences of nonadherence have been identified and theories and interventions have been developed, and yet adherence continues to be one of the greatest barriers to effective treatment for these individuals. The health belief theories do not provide explanations for patient-related factors that are important for understanding the individual experience (e.g. emotional experiences, self-esteem, social stigma, empowerment, past treatment experiences, complexities of practical issues of adhering to treatment, and attitudes toward psychiatric treatment). These variables are generally not taken into consideration when examining nonadherence for people with schizophrenia. These variables, however, are related to person-centered care and incorporated into treatment aligned with recovery-oriented care. The recovery paradigm provides a research framework for treatment adherence in which variables that are important to mental-health consumers can be identified and examined.

The recovery principles afford researchers an opportunity to empirically examine consumer-generated variables with regard to their association with treatment adherence.

### **Recovery Movement**

The recovery movement presents a shift in mental-health service provision from a medical model that focuses on medical care and symptom elimination and management to a model that is more holistic in its view of individuals with mental-health problems, is

person centered, and is focused on wellness. This approach emphasizes collaborative decision-making between the consumer and the provider, empowerment of the individual, involvement of community, and family and peer support. The Substance Abuse and Mental-health Services Administration (SAMHSA, 2012) released a press statement announcing the newest version of its evolving definition of recovery: “A process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential.” SAMHSA has published 10 “Guiding Principles of Recovery” to further define the construct of recovery and the associated values. These principles have been identified as follows:

Recovery emerges from hope, is person-driven, occurs via many pathways, is holistic, is supported by peers and allies, is supported through relationship and social networks, is culturally-based and influenced, is supported by addressing trauma, involves individual, family, and community strengths and responsibility, and is based on respect (SAMHSA, 2012).

Resnick, Fontana, Lehman, and Rosenheck (2005) developed empirically derived conceptualizations of recovery that have revealed four domains that encompass the definition of recovery-oriented treatment. The four domains are empowerment, hope and optimism, knowledge, and life satisfaction. Empowerment, in the context of mental-health treatment, was found to be the strongest indicator of recovery-oriented treatment and is defined as feeling the power to take responsibility for one’s treatment and feeling that one’s treatment providers are helping one to achieve personally meaningful goals. Hope and optimism include hope for the future, hope for accomplishing goals, and hope for being around supportive people who foster hope. Knowledge refers to persons’

perceptions of their knowledge about their mental illness and the confidence they have in navigating within the mental-health system. Life satisfaction involves feeling satisfied in the areas of life including family, friendships, housing arrangements, safety, and sense of community (relationships with others and safe housing). Family psychoeducation is important for communication between the consumer and his or her family (Resnick et al., 2005). Aspects of this recovery conceptualization, such as empowerment, life satisfaction, and knowledge, have been applied in interventions that are aimed at involving patients in important decisions and at learning skills needed to achieve their individualized goals.

The community reentry model of treatment was developed to bridge the gap between inpatient and outpatient services for people with schizophrenia. The model involves daily groups while the consumers are in the hospital and weekly groups once they are outpatients. The groups are designed to teach the patients communication and decision-making skills by using motivational interviewing, role play, problem solving, and involvement with community assignments. The components of the program align with the recovery paradigm by involving the patients in their treatment and life decisions and learning the skills needed to achieve their goals. The treatment is conducted through psychoeducation for consumers, encouraging the incorporation of consumers' experiences in the topic being discussed in group, and applying the skills they learn to their individual life situations in outpatient treatment. The results of using the community reentry model have been reduced rehospitalization rates and increased rates of outpatient treatment adherence (Rossotto et al., 2004).

The recovery paradigm helps to reconceptualize the focus of treatment adherence because it shifts treatment focus to factors that have been found to matter to consumers, such as their attitudes, beliefs, and perceptions of mental-health providers and their illness.

### **Participatory Decision-making (PDM)**

PDM was originally defined by Kaplan, Gandek, Greenfield, Rogers, & Ware (1995) as patients' perceptions of their physicians' tendency to include them in the decision-making process. It was measured by a 5-point Likert scale consisting of three questions:

- (1) If there were a choice between treatments, how often would this doctor ask you to help make the decision?
- (2) How often does this doctor give you some control over your treatment?
- And (3) How often does this doctor ask you to take some of the responsibility for your treatment?

(Cooper-Patrick et al., 2009, p. 585). The definition of PDM has evolved to involve the consumer as an equal partner in the decision-making process, which includes being considered a self-expert, given his or her lived experiences and knowledge (Cooper-Patrick et al., 2009). For example, shared decision-making between psychiatrists and consumers of mental-healthcare allows the consumers to share their expertise about how the medications affect them and the advantages and disadvantages the medications provide for their recovery process. The providers are considered experts about the research and clinical experience, and the consumers are viewed as experts on their subjective experiences and preferences. The job of the providers is to assist in proper use of medications and other coping strategies that facilitate management of the



illness, rather than to ensure the patient complies with the medication regimen that is prescribed for them. Shared decision-making involves using language that facilitates recovery, such as “education, working alliance, individual experience, informed choice, collaborative experiments, and self-management of illness” (Deegan & Drake, 2006, p.1638).

PDM requires that psychiatrists involve the patient in a shared decision-making process. The clinician’s communication style is important for the consumer’s satisfaction with his or her treatment. Physicians communicating more effectively with consumers during follow-up visits were found to be predictive of higher rates of medication adherence than for physicians who did not communicate effectively with the consumers. More effective communication involved a collaborative style and enhancement of the consumer’s education regarding his or her illness and the medication (Mitchell & Selmes, 2007).

An abundance of evidence supports the association between PDM and improved medical treatment outcomes (Epstein, Alper, & Quill, 2004). Therefore, more research on PDM and how it may be related to mental-health treatment adherence is warranted.

Loh, Leonhart, Wills, Simon, and Hater (2007) studied PDM in relation to general practitioners treating patients with depression. The researchers reported one of their key findings to be an increase in treatment adherence that was indirectly related to patients’ participation in medical decisions. Their interpretation of the results is based on adherence having a significantly strong influence on the patients’ clinical outcome and the strong influence of patient participation in decision-making on treatment adherence (Loh et al., 2007). These results provide support for improved clinical outcomes for

physicians treating mental-health consumers when the consumers are involved in the decision-making. Furthermore, the researchers determined that “sixty percent of the variance in clinical outcome was attributable to patient adherence” (Loh et al., 2007, p. 69); therefore, treatment adherence may act as a moderator for influencing symptom reduction. This finding provides more support for the need to find ways to increase treatment adherence. Further research is needed to determine if these results can be replicated with a patient population with psychotic disorders.

Loh et al. (2007) published further on the topic of PDM in primary care of patients with depression. They found moderately improved treatment adherence in their group who received the PDM intervention. The intervention included decision aids and informational leaflets that were given to the patients and physicians. The decision aids were used during consultation with the physician, and they consisted of details about symptoms, diagnosis, treatment options, costs and benefits of treatment options, and support for patients’ values. The leaflets added information about health beliefs, coping strategies, family involvement, and tips to foster PDM. The researchers concluded that PDM strategies promote medication adherence in primary care settings. Their findings were consistent with Loh et al.’s (2007) previous conclusions that PDM interventions can be feasibly implemented in primary-care settings, specifically because including patients in the decision-making process does not require longer periods of time for treatment implementation (Loh et al., 2007). The leaflets given to the intervention group contained information that is central to patient-centered care and recovery-oriented care provision, such as addressing beliefs of the consumers, involving supportive people in treatment,

and collaborative decision-making between the consumers and their mental-health treatment providers.

In a survey of almost 200 psychiatrists, more than half reported routinely including their patients with schizophrenia in the decision-making process (Hamann et al., 2009). Patient factors and decision types were identified in relation to whether a PDM was used. Patients who were determined to be insightful, educated about their illness, and expressive of their desire to be involved in decision-making were more commonly chosen for such an approach. Additionally, patients who had a history of noncompliance, or were somewhat resistant to receiving psychiatric treatment, were identified by the psychiatrists as possible candidates for participating in their psychiatric treatment decisions as an attempt to improve their attitudes toward treatment and likelihood of accepting antipsychotic medication. The types of decisions that seem to necessitate a psychiatrist's use of PDM are those related to psychosocial aspects of treatment (Hamann et al., 2009). Certain medical aspects of treatment, such as medication dosage and hospitalization decisions, have been found to be the most frequently disagreed upon topics of decision making between psychiatrists and patients. However, these decisions also lend themselves well to involving both the expert knowledge of the physician and the experiential knowledge of the consumer because of the possible benefits of positive attitudinal changes for the consumers toward their treatment. Specifically, medical decisions that were made by the physicians using a paternalistic approach were more likely to be overturned by the patient once their acute episodes passed, likely resulting in an overall poor prognosis for these patients (Hamann et al., 2009).

Hamann et al. (2009) identified several barriers to implementing shared decision-making. Patients who are considered to have impaired decisional capacities have been less likely to be included in PDM by psychiatrists, as professionals have questioned these consumers' competencies to participate in the process. Furthermore, some decisions have medical and legal implications that are in the domain of the expert physician, such as hospitalization, legal guardianship, and using antipsychotic medication, and thus are considered appropriate to be handled only by the professional once PDM has failed. Other medical decisions lend themselves to be handled with both the experiential knowledge of the patient and the expert knowledge of the psychiatrist. These decisions include antipsychotic agent choice, discharge planning, and the use of supplemental antidepressant medications. With patient characteristics and types of decisions taken into consideration, psychiatrists generally expressed a preference to involve patients in treatment decisions, as much as clinically and logistically appropriate (Hamann et al., 2009). Finding ways to overcome the barriers to PDM is needed in research to improve treatment adherence and overall mental-healthcare outcomes. The recovery movement is aimed at involving mental-healthcare consumers in their own treatment; therefore, interventions that are recovery-oriented should produce these more favorable outcomes.

Interventions aimed to increase PDM in treating consumers with schizophrenia have been found to be associated with significant positive treatment changes, such as increases in the uptake of consumers' psychoeducation, increases in their perceived involvement in treatment decisions, and better overall health outcomes related to schizophrenia (Hamann et al., 2006; Hamann et al., 2009). The PDM intervention examined in a randomized controlled trial by Hamann et al. (2006) consisted of

informing patients about their treatment options and teaching planning talk to them to facilitate discussions with their physicians about their treatment decisions. The nurses indicated that most of the patients they encountered were capable of PDM, and the psychiatrists rated 51% of the consumers as able to make reasonable decisions. Although the psychiatrists did not rate the intervention group as having significant changes in psychopathology, in Working Alliance Inventory scores, and in estimated adherence rates compared to the control group; the psychiatrists did report overall greater satisfaction with what the intervention group had achieved during their hospitalizations. The consumers who received the intervention perceived a more positive overall outcome and significantly greater involvement in their medical decisions. Furthermore, the intervention group demonstrated significantly more knowledge about their illness upon discharge, more involvement in psychoeducation and socio therapeutic interventions, and overall more positive attitudes toward medication and toward their mental-health treatment in general. According to the psychiatrists and nurses, the intervention was feasible in common practice because of the timeliness of the intervention and the ability of most consumers to participate in decision-making (Hamann et al., 2006).

Recovery-oriented treatment provision envisions shared decision-making between the consumer and the provider of treatment. Such an approach denotes that both parties have expertise and knowledge that should be considered when making any treatment decision. In the recovery model, shared decision-making between the consumer and the provider is considered to be the most effective treatment approach (Deegan & Drake, 2006).

PDM is an essential aspect of recovery-oriented treatment; however, enhancing empowerment in consumers is another principle of recovery that might be necessary in order for consumers to feel confident in involving themselves in the decision-making process.

### **Empowerment**

Empowerment involves having a sense of control over one's life and having control over decisions. Examples of decisions include whether to participate in treatment, what type of treatment to participate in, and extending control over treatment to other aspects of life (Bellack, 2006). Empowerment has been defined in many ways in the mental-health field. Dickerson (1998) developed a comprehensive definition of the construct consisting of three components of empowerment. The first component is having a sense of personal competence, which refers to the ability of persons demonstrate having a positive attitude about themselves (positive self-esteem), being able to accept that they have a mental-health disability (accepts psychiatric disability), and feeling a sense of personal control over situations in their lives (internal locus of control). Having positive self-esteem comes from feedback from others, as well as from self-appraisal and building self-worth. Self-esteem has been agreed by most researchers to be a core component of empowerment. Accepting one's psychiatric disability involves awareness that fosters personal recovery and protects against self-stigma. Having an internal locus of control allows for people to perceive themselves as active participants in what happens in their lives, so that rewards and punishments are a result of their behavior, rather than luck or other external forces (Dickerson, 1998). The second component included in the definition of the construct of empowerment is self-determination. This component

concerns the consumers' amount of participation in decisions that affect their lives, including determining the course of their mental-health treatment and whether or not they participate in it. The third component of empowerment refers to consumers' ability to value one another, to identify with their peers, and to validate each other. This peer support is considered important because it leads to social activism for improving consumer treatment for the group as a whole (Dickerson, 1998).

Better mental-health outcomes have been found to be associated with people who have a sense of personal power over decisions in their lives. Specifically, interventions that promote empowerment in people with serious mental illness by providers adopting an attitude of recovery, working collaboratively with the consumers, and improving their relationships with consumers have been shown to facilitate goal attainment in mental-health treatment (Corrigan, 2002).

Research on interventions that are aimed at fostering empowerment has produced promising results. More significant decreases in positive symptomatology have been found in individuals with schizophrenia who received treatment that was aimed at fostering empowerment when compared to participants who received non empowerment-focused treatment (Lecomte et al., 1999). The empowerment-focused intervention included activities aimed at developing coping skills, increasing the ability to set goals, and improving self-esteem, self-worth, self-determination, and competence. The researchers concluded that the decrease in the participants' positive symptoms stemmed from the empowering effect of the intervention. The researchers suggested the empowering intervention could be used to enhance and promote a person's recovery

process (Lecomte et al., 1999). Empowerment is directly involved in the recovery model and patient-centered care.

Treatment programs that foster empowerment have many common characteristics, all of which promote person-centered care. These characteristics include having consumers play a large role in the service process; allowing consumers to make personal choices about their participation in the services provided; having staff focus on the strengths of the consumers rather than on their illnesses; encouraging strong collaboration between staff and consumers in an egalitarian manner; encouraging consumers to participate in meaningful life activities, such as employment; and providing vocational training and other life skills training to the consumers (Dickerson, 1998).

Empowering individuals with schizophrenia to be involved in their treatment is undoubtedly important for their overall success. Empower individuals who have negative attitudes toward treatment becomes difficult. Patients' attitudes have been researched, and they are theoretically linked to the recovery movement.

### **Attitudes Toward Treatment**

Consumers' negative attitudes toward mental-health treatment and general medical treatment are problematic for adherence. Consumers with more positive attitudes toward treatment are more likely to attend follow-up appointments and report more satisfaction with their medication after first use (Mitchell & Selmes, 2007).

Nonadherence to antipsychotic medication in people with a schizophrenia spectrum disorder has been found to be significantly affected by their attitudes toward receiving treatment (Day, Lopez Gaston, Furlong, Mural, & Copello, 2005). Patients' attitudes toward receiving antipsychotic medication have been found to be related to



various factors, including the patients' relationships with the prescribing physician, their level of insight to their illness, and the quality of their experience upon admission to psychiatric treatment facilities. Of the factors that influence patients' attitudes toward treatment, the relationship quality between the patient and the physician was found to be the most influential variable affecting medication adherence (Day et al., 2005). The quality of the relationship between the patient and the physician is a factor that is considered to be included in the principles of the recovery paradigm.

Side effects of antipsychotic medications can also have a significant negative effect on patients' adherence levels. Specifically, patients with schizophrenia who were currently experiencing side effects reported being more doubtful that the medication would have a positive effect, being less likely to recommend a family member to take these medications if they needed medication, and having more negative attitudes toward psychiatric medications in general. Furthermore, extrapyramidal side effects and sexual dysfunction side effects were found to have the strongest relationship with negative attitudes toward psychiatric treatment, resulting in later nonadherence. Sedation and vegetative side effects had the least negative effect. Fortunately, patients with a history of experiencing negative side effects were found to have improved attitudes toward psychiatric treatment if their previous side effects had been alleviated (Lambert et al., 2004). These results highlight the importance of clinicians inquiring about patients' attitudes toward psychiatric treatment and using such information to make their treatment more person centered. For example, involving the patient in collaborating with the prescribing physician to find medications with fewer undesirable side effects can increase

treatment adherence and improve the relationship between the provider and the consumer.

Patients' attitudes toward treatment are important because positive attitudes might lead the patients to agree with the rationale, trust the treatment providers, and adhere to the treatment. Patients' attitudes are influenced by how competent they perceive their treatment and the providers of their treatment to be. Providers' cultural competence and providing culturally competent treatment are growing areas of research. In relation to the recovery movement, how competent the mental-healthcare consumers' perceptions of the competency of their treatment providers is influenced by how well they believe they are understood as individuals by their providers.

### **Conclusion**

Interventions that have been aimed at increasing treatment adherence in people with schizophrenia spectrum disorders have fallen short of eradicating the problem of nonadherence. The existing interventions likely do not fully address the whole person and the multiple reasons people do not consistently adhere to treatment. Research has shown that fully involving the consumer in their individualized care and helping them to live lives that are meaningful are crucial to engaging consumers in the treatment process. This type of patient-centered care is the premise for the recovery movement. Recovery-oriented treatment is aimed at addressing individualized aspects of treatment by centering treatment on the consumers and what is important to them. Empowerment, PDM, attitudes toward treatment, and cultural competence of treatment providers are critical aspects of recovery-oriented treatment. Enhancing mental-health treatment by focusing

on these aspects of recovery-oriented care may serve to make mental-healthcare seem more appealing to consumers, thereby increasing treatment adherence.

The recovery movement changed the idea of how to provide treatment by considering the whole person in the process. Many researchers have explored variables they hypothesized to be related to treatment nonadherence in people with schizophrenia. The variables that have been researched cover a broad range of categories, including those related to environmental factors, provider factors, and, most prominently, sociodemographic and illness-related patient factors. However, these patient-related factors found to be correlated with nonadherence are static or largely unchangeable factors, such as gender, age and diagnosis, and the results of studies looking at these factors have been mostly inconsistent. The present study examines fluid or dynamic patient-related variables that are amenable to being addressed and improved if treatment were more patient centered and aligned with the recovery movement.

## Chapter 2: Hypotheses

Research on recovery-oriented principles has contributed to the understanding of how this framework of mental-health treatment provision can contribute to improving the lives of individuals with serious mental illnesses. However, whether recovery-oriented treatment provision makes treatment adherence more desirable to consumers remains unclear. The research question addressed in this study investigated the relationship between recovery-oriented treatment principles and treatment adherence in consumers with a schizophrenia spectrum disorder. It is hypothesized that consumers with a schizophrenia spectrum disorder will attend more mental-health appointments and more often take their prescribed psychotropic medication more often if they perceive their services to be recovery-oriented, if they perceive their treatment to involve empowerment and participatory decision-making, if they perceive their providers as skilled and culturally competent, and if they have positive attitudes toward receiving medical and psychiatric treatment. The following two hypotheses for the current study were derived from this framework:

Higher self-reported participatory decision-making, higher levels of empowerment, higher levels of recovery attitudes, higher levels of perceived provider skills and cultural competence, and positive attitudes towards treatment will predict attendance at outpatient psychiatric appointments.

Higher self-reported participatory decision-making, higher levels of empowerment, higher levels of recovery attitudes, higher levels of perceived provider skills and cultural competence, and positive attitudes towards treatment will predict psychotropic medication adherence.

### **Chapter 3: Methods**

The purpose of this study is to examine variables that reflect a person-centered approach to psychological care that are hypothesized to be predictive of higher levels of treatment adherence for people with a schizophrenia spectrum disorder. The recovery movement in mental-healthcare has provided a framework for a person-centered approach, which focuses treatment on being more inclusive of the patients' preferences and personally relevant goals. Treatment adherence was measured by participants' answers to specific questions pertaining to their psychiatric appointment attendance and the frequency of their taking their psychiatric medications as prescribed.

#### **Design**

This researcher used a longitudinal archival data set comprised of self-report surveys. Archival data were chosen because they contain the de-identified data, which allows for the participants' confidentiality to be upheld and do not require the researcher to obtain individual consents. A correlational design was chosen because it enables researchers to analyze the relationships among numerous variables in one study, it allows for a large sampling size to be used, it allows for prediction of participants' scores on one variable based on their scores on other variables, and it enables researchers to gain and examine information regarding the degree of the relationship between variables. Furthermore, using archival data places fewer burdens on participants, and it allows for the ability to obtain more attitudinal data from a variety of people.

#### **Participants**

The original eligibility criteria for the participants of the current study included primary diagnosis of a schizophrenia spectrum disorder, age of 18 years and older, and

currently receiving psychiatric medication prescriptions from a mental-health agency. Participants' eligibility was verified through chart reviews to ensure their status on inclusion criteria had not changed.

Data were obtained from the *SAMHSA/ Mental-health Disparities Multisite Research Initiative* through a data-sharing agreement. According to researchers from the Disparities Initiatives, their data were obtained from four mental-health agencies in the Philadelphia area. Each agency produced a complete list of its consumers who met the study's eligibility criteria. The majority of the consumers were Medicare and Medicaid recipients (Salzer, Brusilovskiy, Rothbard, & Haley, 2007).

The participants included in the original dataset had primary psychiatric diagnoses of either major depressive disorder or a schizophrenia spectrum disorder. According to the researchers from the Mental-health Disparities Initiative, the included diagnostic from the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> edition, text revision are as follows: 296.3x, 295.30, 295.10, 295.20, 295.90, 295.60, and 295.70 (Salzer et al, 2007).

For purposes of the current study, the participants with a depressive disorder were excluded (296.3x). This researcher was interested in a homogeneous population of people with psychotic disorders. The rationale is that people with psychotic disorders can have a more severe symptomatic presentation, and they are likely more stigmatized by the general public and, potentially, by treatment providers.

Schizophrenia spectrum disorders include the DSM-IV-TR diagnoses of schizophrenia, schizoaffective disorder, and psychotic disorder not otherwise specified. These disorders are characterized by thought disturbances, most commonly manifesting

as hallucinations and delusions. Other common symptoms for people with schizophrenia spectrum disorders are disorganized speech, disorganized or catatonic behavior, and gross impairment in reality testing. In order for these symptoms to be diagnosed as a psychotic disorder, they must result in significant functional impairment in one or more major areas of one's life, including social, occupational, and interpersonal functioning (4<sup>th</sup> ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000).

### **Measures**

Four predictor variables and three outcome variables were used, as measured by the scales described as follows.

The Recovery Assessment Scale-Short Form (RAS-SF; Corrigan, Salzer, Ralph, Sangster, & Keck, 2004) was developed from the original Recovery Assessment Scale (RAS; Corrigan et al., 2004). The RAS was developed to operationalize the construct of recovery, which includes elements of hope, empowerment, and quality and meaning of life. The RAS has been used to measure levels of perceived recovery-oriented services that people with serious mental illness were receiving and to measure recovery variables as outcome measures for mental-health consumers in Australia. "The RAS was factor analyzed, and the five factors identified included personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, and no domination by symptoms" (Corrigan et al., 2004, p.1038). Each factor was found to have satisfactory internal reliability. Each factor was also found to have convergent validity with regard to accurately measuring the construct of recovery. Furthermore, the RAS was found to be reliable and valid overall and theoretically adequate for measuring the components that comprise the construct of recovery (McNaught, Caputi, Oades, &

Deane, 2007). The RAS-SF is comprised of all five factors, but only five of the nine original questions from Factor 1 were incorporated into the short form. The RAS-SF consists of 20 questions on a Likert scale, with five possible responses ranging from *strongly disagree* to *strongly agree*.

The *Participatory Decision-making Scale* (PDMS) was developed by Kaplan et al. (1995) to measure the amount of involvement patients have in their treatment-related decision-making process with their physicians (Cooper-Patrick, Gallo et al., 2009). The scale consists of three items: “If there were a choice between treatments, how often would this psychiatrist ask you to help make this decision?” “How often does this psychiatrist give you some control over your treatment?”, and “How often does this psychiatrist ask you to take some of the responsibility for your treatment?” These questions can be responded to on a scale of 1 to 4, ranging from *never* to *very often*. This scale has been used in studies to determine differences in the quality of mental-health service delivery in relation to physician race and gender (Cooper-Patrick et al., 2009). To date, no reliability and validity information is available for this scale.

The Empowerment (POW) scale is a consumer-constructed scale for measuring the construct of empowerment. It has been tested for reliability and validity and factor analyzed (Rogers, Chamberlin, Ellison, & Crean, 1997). This scale was developed to operationalize the construct of empowerment, which has been found to be positively related to quality of life and community activism. It consists of 28 questions on a Likert scale, ranging from *strongly agree* to *strongly disagree*. The factor analysis revealed five distinct factors measured by this scale: “self-efficacy and self-esteem, powerlessness, community activism, righteous anger, and optimism-control over the



future” (Rogers et al., 1997, p. 1042). The researchers concluded that the scale is internally consistent and there is evidence supporting its validity (Rogers et al., 1997).

Attitudes Toward Treatment (ATT) scale is a measure that was derived from the Perceived Coercion Scale and the Admission Experience Survey (Gardner et al., 1993). This measure is based on patients’ perceptions of being coerced into receiving mental-health treatment. The researchers used a correlation analysis to develop this survey. These scales have been used to assess perceptions of coercion of mental-hospital inpatients (Gardner et al., 1993). The questionnaire asks participants to self-report levels of how much choice, influence, freedom, and control they feel they had regarding their admission to mental-health hospitals. The researchers found patients’ responses to be internally consistent and robust throughout a variety of locations, patient populations, questionnaire formats, and interview procedures. The ATT scale consists of five items in a true-or-false format. The questions read as follows:

1. I felt free to do what I wanted about going to mental-health treatment?
2. I chose to go to mental-health treatment?
3. It was my idea to go to mental-health treatment?
4. I had a lot of control over whether I went to mental-health treatment?
5. I had more influence than anyone else on whether I went to mental-health treatment?

(Mental-health Disparities Initiative Protocol Version 1.8, 2004, p. 21).

These questions were adopted verbatim from the Perceived Coercion Scale, except for the words “mental-health treatment” replacing the word “hospital” in the original format (Gardner et al., 1993).

Two items from the interview protocol were used to measure the outcome of appointment adherence: “How many mental-health appointments (with your psychiatrist) have been scheduled for you in the past six months?” and “How many of these appointments have you missed in the past six months?” A variable was created to determine the percentage of scheduled appointments attended per participant.

Adherence to psychotropic medication was measured by two separate questions from the interview protocol: “In general, how well do you currently take medications as they are prescribed for you by your doctor?” and “How often have you taken your antipsychotic medication as prescribed by the doctor over the last four months?” The range of the Likert scale measuring medication adherence was *Extremely Well* to *I rarely take my medications*.

### **Procedure**

The following procedural information from the original study was obtained through personal communication with the Mental-health Disparities Initiative researchers:

Research staff directed agency staff at each agency to approach their clients to inform them about the study and gain their permission for research staff to contact them. Agency staff completed a ‘Consent-to-Contact’ (CTC) form that was then returned to the research staff. All clients who consented to speak to the research staff were contacted and informed about the study. If they agreed to participate, they provided written consent, completed baseline measures, and were randomized to either the experimental or control condition. Each participant enrolled in the study was assigned a sequential Participant ID#. . . Participants

assigned to the experimental condition were referred to the interventionists at their agency for the self-care intervention. Additional follow-up interviews were conducted at 6 and 12 months after the baseline interview. Each participant received 20 dollars for completion of each individual interview and an additional 20 dollars if they completed all three interviews” (Salzer et al., 2007, pp. 5-6).

The treatment administered in the study from which these data were originally obtained showed no significant effects; therefore, the data is appropriate to be used to explore the presence of other hypothesized correlations (Salzer et al., 2007). The original researchers reported the following information regarding their participant recruitment:

We were able to maintain good retention rates at each of the follow-up points as indicated by rates above 80%. We used a strategy that included obtaining locator information for each client at the time of consent. This information was reviewed and updated in each meeting with the participant at the 4-month & 10-month phone contact points that we used to maintain contact with a highly mobile population. In addition to personal contact information, collateral contact information was also collected, including participant identification of collateral contacts who could be called if we were unable to find the participant at the time another interview needed to be conducted (Salzer et al., 2007, pp. 5-6).

See Table 2 for multimatrix correlations of independent and dependent variables.

Table 1

*Distribution of Participant Recruitment*

| Agency | <i>N</i> = Baseline | <i>N</i> = 6 month | Retention rate | <i>N</i> = 12 month | Retention rate |
|--------|---------------------|--------------------|----------------|---------------------|----------------|
| A      | 104                 | 95                 | 91%            | 88                  | 85%            |
| B      | 109                 | 101                | 93%            | 87                  | 80%            |
| C      | 88                  | 68                 | 90%*           | 30                  | 89%            |
| D      | 95                  | 84                 | 88%            | 79                  | 83%            |

*Note.* Adapted from “A Randomized, Controlled Study of a Telephone-based intervention to Reduce Disparities Through Enhanced Self-care, Patient-Physician Communication, and Motivation to Participate in Treatment,” by M.S. Salzer, E. Brusilovskiy, A. Rothbard, and T. Hadley is due to date.” (p. 5-6, Salzer, Brusilovskiy, Rothbard, 2007, pp. 5-6. Copyright 2007.

### **Analytic Strategy and Statistical Methods**

In his article, “a Power Primer,” Cohen (1992) suggested .15 as a medium effect size for multiple and multiple partial correlations. Conventionally, a medium effect size is selected if previous studies have not reported effect sizes or if no previous research on a specific research domain for a multiple regression analysis exists (Faul & Erdfelder, 1992); therefore, .15 as a medium effect size was used in the current study. No meta-analysis on appointment treatment adherence could be located. Using four substantive predictors,  $\alpha = .05$ ,  $f^2 = .15$ , and power set at .80, a sample size of 215 participants was considered acceptable for this model. However, the final regression analysis included four substantive predictors and three control variables that were determined by bivariate correlations with the respective outcome variables.

The primary goal of the present study was to determine if four predictor variables were correlated with three outcome variables. Each of two hypotheses was tested using a regression analysis. Each hypothesis had one outcome variable that was continuous. The outcome variables were quality of medication adherence, frequency of medication adherence, and mental-health appointment attendance. The outcome variables were self-reported responses of how often the participants missed an appointment, how well they believed they adhered to their medication regimen, and how frequently they adhered to their psychotropic medication regimen. The four predictor variables were also continuous variables. They were scales aimed to measure constructs of interest that are theoretically linked to the recovery movement. The predictors were hypothesized to be positively correlated with each outcome variable.

First, the data were checked to ensure they met all of the assumptions needed for multiple regressions. For example, a correlation matrix was run between each predictor variable (4 x 4 design) to rule out multicollinearity among the predictors. The correlations between the predictor variables should not exceed 0.9. If two of the predictor variables are determined to be measuring the same construct, both would not be needed. Next, additional data screening was conducted to ensure the data met all of the assumptions required for running regression analyses. The assumptions were met by conducting all of the tests recommended by Osborne and Waters (2002), including assuring that all of the variables were normally distributed, there was a linear relationship between the independent and dependent variables, the variables were measured reliably, and there was homoscedasticity.

The third step was entering the values from the scales that measure the predictor variables. This step was the completion of the multiple regressions to test the hypotheses that consumers with schizophrenia spectrum disorders will attend more mental-health appointments and take their prescribed psychotropic medication more often if they perceive their services to be recovery-oriented, if they perceive their treatment to involve PDM and empowerment, if they perceive their providers as skilled and culturally competent, and if they have positive attitudes toward receiving medical and psychiatric treatment at the baseline time measurement point.

The first multiple regression was conducted where PDM, higher levels of empowerment, higher levels of recovery attitudes, higher levels of perceived provider skills and cultural competence, and positive attitudes towards treatment were predictor variables and mental-health appointment attendance was the outcome variable.

A second multiple regression was conducted where PDM, higher levels of empowerment, higher levels of recovery attitudes, higher levels of perceived provider skills and cultural competence, and positive attitudes towards treatment were predictor variables and quality and frequency of medication adherence were the outcome variables.

## Chapter 4: Results

### Participants

#### Excluded Participants.

All of the data were checked for accurate entry. The original sample was comprised of 238 participants. Data from participants who did not complete at least 90% of each scale included in the main analyses were excluded because they were considered incomplete and likely invalid (Schlomer, Bauman, & Card, 2010). Ten participants were excluded because they did not complete the PDMS scale, five more were eliminated for incomplete POW scales, three additional participants were eliminated for incomplete RAS-SF scales, and four were eliminated for incomplete ATT scales. In total, 22 participants' data were excluded because those participants had not completed at least 90% of each predictor scale. One participant failed to answer the questions regarding medication adherence, and this person's data were excluded from the analyses. The final number of participants with valid data was 215. The eliminated participants' data were checked against the included participants' data for significant differences on each of the independent variables (POW, PDMS, ATT, RAS-SF), the dependent variables (appointment attendance, medication adherence quality and frequency), and the variables from the literature that had previously been found to be associated with treatment adherence (i.e., age, gender, substance abuse, symptom severity, quality of life, attitudes toward psychiatric treatment, and length of treatment). There were no significant differences between the 215 participants and the 23 participants who were excluded for incomplete questionnaire entries.



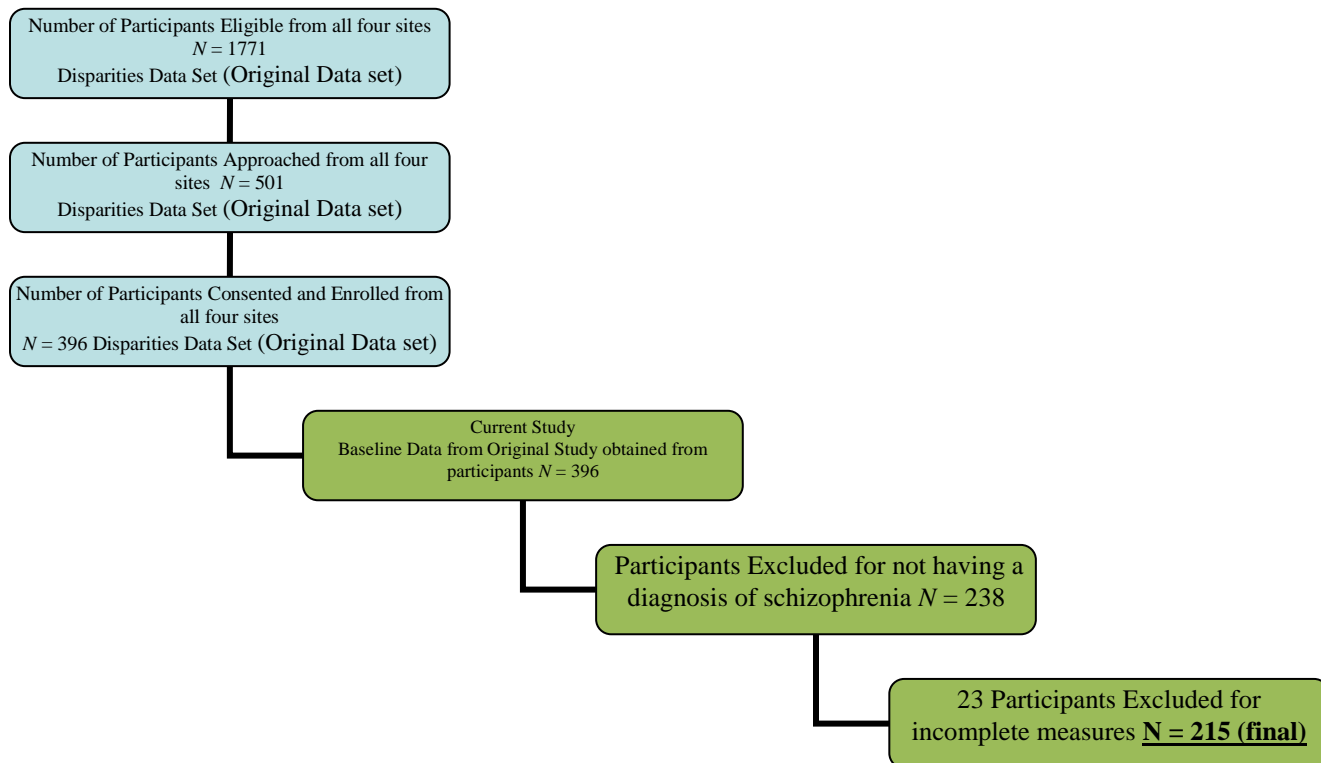
**Overall Background.**

The final sample was comprised of 215 participants. Of these participants, 100 (46.5 %) were female and 115 (53.5%) were male. Participants described their ethnicity as White 31.2% ( $N = 67$ ), Black 68.4% ( $N = 147$ ), Latino or Hispanic 0.9% ( $N = 2$ ), Native American 16.7% ( $N = 36$ ), Native Hawaiian or other Pacific Islander 0.5% ( $N = 1$ ), Asian 1.9% ( $N = 4$ ), and any other ethnicity 4.7% ( $N = 10$ ). The majority of the participants had never been married (69.8%,  $N = 150$ ), 8.8% ( $N = 19$ ) were widowed, and 17.2% ( $N = 37$ ) had significant others to whom they were not married at the time of the interview. Some of the participants had natural, adopted, or stepchildren under the age of 18 years (16.8%,  $N = 36$ ); however, only about half of those participants reported having responsibility for caring for those children (9.4%,  $N = 20$ ). Almost half of the participants completed between 9 to 12 years of school (30.7%,  $N = 66$ ), and 13.0% ( $N = 28$ ) completed fewer than 9 years of school. About one third of the participants graduated from high school or received a GED (33.5%,  $N = 72$ ), and 18.3% ( $N = 40$ ) attended some college or vocational, trade, or business school. Five participants (2.3%) graduated from college, and one (0.5%) had some master's-level education. Many of the participants reported working in some capacity (full time,  $N = 7$  [3.3%]; part-time,  $N = 20$  [9.3%]), or that they were students ( $N = 24$ , 11.2%) or retired ( $N = 37$ , 17.2%). However, some of these same participants considered themselves to be disabled, as 168 (78.1%) total participants endorsed being disabled, and 180 (83.7%) unemployed.

The length of time participants had been with the agency that was providing their mental-health treatment at the time of data collection ranged from 3 to 441 months. The average length of time participants' had been receiving treatment was 98.50 months (8.21

years;  $M = 98.50$ ,  $SD \pm 95.65$ ). Participants rated their general satisfaction levels with the mental-health program they were currently attending by responding to the question, “In general, I am satisfied with this/ these program[s],” on a Likert scale, with 1 = *strongly agree*, and 5 = *strongly disagree*, ( $M = 1.70$ ,  $SD = .834$ ). This result showed that, overall, participants felt very positive about their experience/s with their current providers. See Figure 1 for a flow chart regarding participant retention.

Figure 1. Participant Recruitment and Exclusion



## Dependent Variables

### Background characteristics of appointment attendance

Of the 215 individuals in the current study, all reported that they had scheduled at least one appointment in the previous 6 months. The range of scheduled appointments per participant was 1 to 24 ( $M = 5.84$ ,  $SD = 2.67$ ). The percentages of missed appointments per participant ranged from 0 to 100% ( $M = 9.3\%$ ,  $SD = 19\%$ ). No significant differences were noted for appointment adherence due to age, gender, attitudes toward psychiatric treatment, substance abuse history, or length of treatment at the current provider at the time the baseline data were gathered. After preliminary analyses of all of the variables noted in the literature to be associated with the outcome variables, two variables were determined to be significantly associated with the outcome variable of appointment attendance in the current data set. The variables of symptom severity and quality of life were significantly correlated with appointment attendance  $r(213) = .173$ ,  $p < .05$ ; and  $r = -.167$ ,  $p < .05$ , respectively. These variables were used in the main analysis of appointment adherence to control for their effects. See Table 2 for percentages and statistical tests between variables that were found to be significantly associated with outcome variables. There was no significant correlation between the predictor scales (RAS-SF, PDMS, ATT, POW) and appointment adherence.

### Background characteristics of medication adherence

Medication adherence was measured by two self-report items from the questionnaire. Quality of adherence to prescribed medication was measured by the question, "In general, how well do you currently take medications as they are prescribed by your doctor?" The

range of the Likert scale measuring quality of medication adherence was 1 = *Extremely Well* to 5 = *I rarely Take my medications* ( $M = 1.64, SD = .814$ ).

A significant correlation found was between the predictor scales and quality of medication adherence. The POW scale was found to be positively correlated with quality of medication adherence,  $r(213) = .148, p < .05$ . The more empowered participants rated themselves, the higher the quality of medication adherence they reported. See Table 1 for bivariate correlations of predictor variables and quality of medication adherence.

Table 2

*Multimatrix Correlations of Independent and Dependent Variables*

| Measure   | 1       | 2      | 3       | 4       | 5      | 6      | 7      | 8       | 9       | 10      |
|-----------|---------|--------|---------|---------|--------|--------|--------|---------|---------|---------|
| 1. POW    | 1       | -.157* | -.208** | -.633   | -.02   | .088   | .040   | .130    | -.246** | .228    |
| 2. PDMS   | -.157*  | 1      | .087    | .213**  | .012   | -.103  | -.013  | -.019   | .111    | -.243** |
| 3. ATT    | -.208** | .087   | 1       | .146*   | -.002  | -.069  | -.073  | -.030   | .121    | -.177** |
| 4. RAS-SF | -.633** | .213** | .146*   | 1       | -.095  | -.069  | -.060  | -.309** | .473**  | -.268** |
| 5. APPT   | .088    | .012   | -.002   | -.095   | 1      | .154*  | .208** | .173*   | -.167*  | .069    |
| 6. MEDQ   | .148*   | -.157* | -.069   | -.069   | .154*  | 1      | .466** | .094    | .065    | .334**  |
| 7. MEDF   | .040    | -.013  | -.073   | -.060   | .208** | .466** | 1      | .102    | -.114   | .251**  |
| 8. CSI    | .130    | -.019  | -.030   | -.309   | .173*  | .094   | .102   | 1       | -.309** | .103    |
| 9. QOL    | -.246** | .111   | .121    | .473**  | -.167  | .065   | -.114  | -.309** | 1       | -.175*  |
| 10. ATPT  | .228**  | -.243  | -.177** | -.268** | .069   | .334** | .251** | .103    | -.175   | 1       |

*Note.* POW = Empowerment; PDMS = Participatory Decision-making; ATT = Attitudes Toward Treatment scale; RAS-SF = Recovery Assessment Scale-Short Form; APPT = Appointment Nonadherence; MEDQ = Medication Adherence Quality; MEDF = Medication Adherence Frequency; CSI = Colorado Symptom Index (symptom severity); QOL = Quality of Life; ATPT = attitudes toward psychiatric treatment.

\* $p < .05$ . \*\* $p < .01$ .

The ATT scale was found to be significantly correlated with quality of medication adherence,  $r(213) = -.334, p < .01$ . The more positive the attitude toward treatment the participants reported, the higher quality of medication adherence they reported. No

significant differences were found for quality of medication adherence due to age, gender, symptom severity, substance use, length of treatment at the current mental-health agency, or quality of life at the time of administration of the baseline questionnaire. See Table 2 for percentages and statistical tests between variables that were found to be significantly associated with self-reported quality of medication usage.

Frequency of medication adherence was measured on a Likert scale by one item on the questionnaire: “How often have you taken your antipsychotic medication as prescribed by the doctor over the last four months?” Responses ranged from, 1 = *I never miss taking my medication* to 5 = *I stopped taking my medication altogether*. The scores on the frequency of medication item had a range of 4 ( $M = 1.50$ ,  $SD = .791$ ).

No significant differences were noted for frequency of medication adherence due to age, gender, symptom severity, substance abuse history, length of treatment at the current mental-health agency, or quality of life at the time of administration of the baseline questionnaire.

See Table 1 for percentages and statistical tests between variables that were found to be significantly associated with self-reported frequency of medication usage.

No significant correlations were found between the predictor scales and frequency of medication adherence.

### **Empowerment, PDM, Attitudes Toward Treatment, and Recovery Assessment**

Significant correlations were found among the predictor scales. The POW scale was found to be negatively correlated with the ATT scale, the RAS-SF, and the PDM scale  $r(213) = -.208, p < .01$ ; ,  $r(213) = -.633, p < .01$ ;  $r(213) = -.157, p < .05$ ; respectively. This was expected, as a lower score on the POW scale indicates the person self-reports as

more empowered. Higher scores on the PDMS, ATT, and RAS-SF indicate increased participatory decision-making, more positive attitudes, and higher on recovery measures. Additionally, the Recovery Assessment Scale was found to be positively correlated with the PDM scale and the ATT scale  $r(213) = .213, p < .01$ ;  $r(213) = -.146, p < .05$ ; respectively.

See Table 3 for means and standard deviations for treatment adherence and recovery measures.

Table 3

*Means and Standard Deviations for Treatment Adherence and Recovery Measures*

| Measure | <i>M</i> | <i>SD</i> |
|---------|----------|-----------|
| POW     | 2.06     | .33       |
| PDMS    | 8.16     | 2.28      |
| ATT     | .75      | .29       |
| RAS-SF  | 3.98     | .49       |
| APPT    | .09      | .19       |
| MEDQ    | 1.64     | .81       |
| MEDF    | 1.50     | .79       |

*Note.* POW = Empowerment; PDMS = Participatory Decision-making; ATT = Attitudes Toward Treatment; RAS-SF = Recovery Assessment Scale-Short Form; APPT = Appointment Nonadherence; MEDQ = Medication Adherence Quality; MEDF = Medication Adherence Frequency.

### **Assumptions for Multiple Regression**

The data were tested for meeting the assumptions for multiple regression analysis. Each independent and dependent variable was quantitatively measured, and they had some variation in value. No multicollinearity was found among the predictor variables (0.9 or higher). The highest correlation found between any two of the five predictors was between the RAS-SF and the POW scale,  $r(213) = -0.71$ . Preliminary analyses determined that the variables had homoscedasticity. The residuals were found to have the same variance at each level of the predictor variables. The residuals were also found to be random and normally distributed. (The differences between the model and the data



were found to be zero). The final assumption for which the data were checked was linearity. The relationships between the mean values of the outcome variables were found to be linear. (The mean values of the outcome variables lay upon a straight line for each increment of the predictor variable.)

### **Dependent Variables Multivariate Analyses**

**Predicting appointment adherence.** The first hypothesis tested the predictive power of variables theoretically selected to encompass recovery principles to examine if these variables could account for an individual's likelihood to adhere to scheduled mental-health appointments. Variables that were found to be significant in the initial data analyses symptom severity and quality of life were entered to control for possible confounding effects variables on the first step of the hierarchical multiple regression analysis.

The variables for the recovery principles (empowerment, recovery attitudes, attitudes toward treatment, PDM) were entered on the second step of the hierarchical regression analysis. Results indicated that participants' self-reported levels of the degree to which their mental-health treatment aligned with recovery principles was not a significant predictor of the appointment attendance. Results showed that the first block containing the identified confounding variables was significant ( $p < .008$ ); however, it accounted for only 4.4% of the variance in appointment adherence. Adding the recovery predictor variables on Step 2 of the model resulted in an insignificant increase of 0.5%, to a total of 4.9% of the variance in appointment attendance being accounted for by all variables in the models. However, this second model did not remain significant. Further inspection of the results indicated that in both models, quality of life and symptom

severity ( $p > .085$  and  $p > .060$ , respectively) contributed most to appointment adherence. No other variables contributed in a statistically significant way to appointment attendance.

**Predicting medication adherence.** The second hypothesis tested the predictive validity of the recovery principle scales on participants' adherence to their psychotropic medication regimen. Two items from the interview protocol were used to measure the outcome of medication adherence. One was determined to measure quality of medication adherence: "In general, how well do you currently take medications as they are prescribed by your doctor?" The second question was determined to measure frequency of medication adherence: "How often have you taken your antipsychotic medication as prescribed by the doctor over the past four months?" The second hypothesis tested the predictive power of variables theoretically selected to encompass recovery principles (empowerment, recovery assessment, attitudes toward treatment, PDM) to examine if these variables could account for an individual's likelihood to adhere to his or her medication regimen.

**Multivariate Analysis Quality of Medication Adherence.** The variable that was found to be significantly correlated with quality of medication adherence in the initial data analyses (attitudes toward psychiatric treatment) was entered to control for possible confounding effects on the first step of the hierarchical multiple regression analysis. The variables for the recovery principles (empowerment, recovery attitudes, attitudes toward treatment, PDM) were entered on the second step of the hierarchical regression analysis, and results indicated that participants' self-reported levels of the degree to which their mental-health treatment aligned with recovery principles was not a

significant predictor of the quality of medication adherence. Results showed that the first block containing the identified confounding variables was significant ( $p < .000$ ); however, accounted for only 1.1% of the variance in quality of medication adherence. Adding the recovery predictor variables on step 2 of the model resulted in an insignificant increase of 0.1% to a total of 1.2% of the variance explained in appointment attendance by all variables in the models. This second model remained significant at the  $p < .000$ . Further inspection of the results indicated that in both models attitudes toward psychiatric treatment ( $p > .000$ ) contributed to the variance in the quality of medication adherence. No other variables contributed in a statically significant way to quality of medication adherence.

#### **Multivariate Analysis Frequency of Medication Adherence.**

The variable that was found to be significantly correlated with frequency of medication adherence in the initial data analyses (attitudes toward psychiatric treatment) was entered to control for possible confounding effects on the first step of the multiple regression analysis (ATPT). The variables for the recovery principles (empowerment, recovery attitudes, attitudes toward treatment, PDM) were entered on the second step of the regression analysis. Results showed that the first block containing the identified confounding variables was significant ( $p < .000$ ) and accounted for 6.3% of the variance in frequency of medication adherence. Adding the recovery predictor variables on step 2 of the model resulted in an insignificant increase of 0.4%, to a total of 6.7% of the variance explained in frequency of medication adherence by all variables in the models. This second model remained significant ( $p > .012$ ). Further inspection of the results indicated that in both models, attitudes toward psychiatric treatment ( $p > .000$ )

contributed to frequency of medication adherence. No other variables contributed in a statically significant way to frequency of medication adherence. Table 4 displays the sequential regression results.

Table 4

*Sequential for Logistic Regression of the Recovery Model and Treatment Adherence*

| Model | <i>R Square</i> | <i>df</i> | <i>p</i> | Model                   | Model             | Model            |
|-------|-----------------|-----------|----------|-------------------------|-------------------|------------------|
|       |                 |           |          | changed <i>r square</i> | changed <i>df</i> | changed <i>p</i> |
| APPT  | .044            | 214       | .008*    | .049                    | 214               | .104             |
| MEDQ  | .111            | 214       | .000**   | .124                    | 214               | .000**           |
| MEDF  | .063            | 214       | .012*    | .067                    | 214               | .012*            |

*Note.* APPT = Appointment Nonadherence; MEDQ = Medication Adherence Quality; MEDF = Medication Adherence Frequency.

\* $p < .05$ . \*\* $p < .01$ .

### Additional Analyses

The three outcome measures (appointment attendance, quality of medication adherence, and frequency of medication adherence) were found to be positively correlated with each other. The more often patients took their medication (frequency of medication adherence), the more often they attended appointments,  $r(213) = .208, p < .01$ . The higher the quality of medication adherence the patients reported (quality of medication adherence), the more often they attended appointments,  $r(213) = .154, p < .05$ . Quality and frequency of medication adherence were also found to be positively correlated,  $r(213) = .466, p < .01$ .

A question was provided to determine why the participants did not take their medications. Participants were asked, "Which of the following were reasons for not

taking your medications?” The options for responses that were provided by the questionnaire were as follows: “Not understanding the instructions from the physician” ( $N = 7, 2.3\%$ ); “Disagreeing with recommendations of the doctor” ( $N = 8, 2.7\%$ ); “Forgetting” ( $N = 91, 30.4\%$ ); “Having too many side effects” ( $N = 16, 5.4\%$ ); “Side effects too severe” ( $N = 18, 6\%$ ); “Running out of meds and not yet refilled” ( $N = 32, 10.7\%$ ); “Medication too expensive” ( $N = 7, 2.3\%$ ); “Not needing them” ( $N = 17, 5.7\%$ ); “Feeling better” ( $N = 22, 7.4\%$ ); “Symptoms being too severe” ( $N = 11, 3.7\%$ ); “Others telling me not to” ( $N = 4, 1.3\%$ ); “Not wanting symptoms to go away” ( $N = 3, 1.0\%$ ). An open-ended question was also provided for participants to explain why they did not take their medications. Among the qualitative responses provided were statements such as “having an empty stomach,” “having health concerns,” “not wanting to fall asleep,” “getting tired of taking the medications,” and “having issues with timing of the dosages.”

The participants were also asked, “Which of the following are reasons for missing any appointments? Did you miss appointments because....” The options for responses that were provided by the questionnaire were as follows: “You forgot” ( $N = 26, 12.1\%$ ); “You have a negative relationship with physician” ( $N = 4, 1.9\%$ ); “You had no Transportation” ( $N = 12, 5.6\%$ ); “Family/friend told you not to go” ( $N = 0, 0\%$ ); “You felt embarrassed about going” ( $N = 4, 1.9\%$ ); “You didn’t feel like going” ( $N = 13, 6.0\%$ ); “You don’t have a mental illness” ( $N = 2, 0.9\%$ ); “You didn’t want your medications/shot” ( $N = 4, 1.9\%$ ). An open-ended option was also provided. A total of 30 participants provided an answer, and some of those responses were as follows: being tired, sick, or not feeling well; oversleeping; having a conflicting appointment; having a

family member in the hospital; or having other conflicts with their schedule. The most common open-ended response was that the participant had been in the hospital.

## **Chapter 5: Discussion**

The current study investigated if constructs aligned with the recovery model of mental-health treatment were predictive of treatment engagement. Increasing treatment engagement is at least partially associated with reduced exacerbation of psychiatric symptoms, reduced readmission to inpatient psychiatric and medical hospitalizations, decreased homelessness, less violence toward other people, and reduced healthcare costs (Dolder et al., 2004; Valenstein et al., 2002).

The current research investigated if recovery-aligned constructs have predictive validity to provide an explanatory framework for psychotropic medication adherence and psychiatric appointment attendance for individuals diagnosed with schizophrenia. Four predictor scales, which were theoretically linked to the principles of the recovery model, were used to determine the extent to which participants perceived their treatment to be aligned with the recovery model. The model was tested separately for each outcome variable.

### **Appointment Attendance**

The model tested in the current study was not found to be predictive of appointment attendance. Two possible explanations for the lack of significant effect could be the levels of self-reported adherence to appointments were generally high and that the majority of the study participants had a long treatment history with their current providers. On average, the participants had been with their providers for 8 years. This amount of time constitutes an unusual sample to investigate regarding treatment adherence, given that individuals who may have initial treatment engagement problems likely would have long ago stopped attending the program. The majority of research on



treatment engagement has focused on gaps and problems with service linkages (inpatient to outpatient) or with initial engagement in outpatient services (first appointment or engagement over the first several appointments). Studies on the prediction of reasons for appointment attendance in populations with serious mental-health problems over the long term are less often conducted. However, the predictors of appointment adherence have been shown to be multifaceted, linked to medication adherence, and can be improved when perceived PDM and satisfaction for treatment are low (Mitchell & Selmes, 2007).

In the current investigation, participants reported being very satisfied with their treatment, regardless of how recovery-oriented they perceived it to be, which provides further indication that the sample is mostly adherent to their treatment. Many barriers that have been linked in the literature to appointment attendance probably had already been addressed, including transportation, insurance reimbursement, and other financial and scheduling concerns. The current treatment received by the participants was likely part of their routine, and they likely had established relationships with the providers (Killapsy et al., 2000). Furthermore, the participants generally reported high levels of quality of life when they were attending appointments, which further suggests that they were satisfied with their current treatment providers.

Of the total 215 participants, only 60 reported having missed any appointments. Furthermore, 49 of those 60 reported missing only one or two appointments, and the other 11 people missed from three to six appointments. While these 11 individuals may constitute an important subgroup of more significantly nonadherent study participants to investigate, this number of individuals was too small to conduct any meaningful comparisons. In the entire sample, the clinical significance of appointment

nonattendance was low. The mean number of scheduled appointments was close to six, so on average, once-monthly appointments were scheduled, and most people who missed any appointments, missed only one. Missing one or two appointments in a 6-month period of time seems reasonable for any population, especially those with a severe mental illness, and is therefore not necessarily indicative of service disengagement. The researcher should note however, that any missed appointment can be the first warning sign of a possible dropout and subsequent complete treatment disengagement. However, complete disengagement seems not to have been the case in this population, as many individuals who reported missed appointment/s had clearly re-engaged with the provider at the time of the data collection. Previous literature supports the idea that the participants in the study generally reported nonproblematic levels of appointment nonadherence. Results from previous research of treatment nonadherence for people with schizophrenia disorders reported that the appointment nonattendance rate is about 26% (Nose et al., 2003). Appointment adherence rates are slightly better for those recently discharged from inpatient psychiatric hospitalization, at 18% of appointments missed (Kruse et al., 2002). This finding supports the hypothesis that the particular sample used in the current study represents people who have been with the same treatment provider for a long period of time, and therefore were likely to have established and satisfactory relationships and may not have significant concerns about their prescribed medication regimens, or at least may feel that they can address these concerns with their providers.

The qualitative data of this study indicated that only a very small number of individuals ( $N = 4$ ) reported concerns about their medications as a reason for missing any of their appointments. This finding may result in levels of adherence to appointments

that are even better as compared to the average rate of appointment attendance of individuals with medical conditions, found to be at 58% (Mitchell & Selmes, 2007), and is better than the rate for individuals with schizophrenia who are discharged from an inpatient stay, starting out with a new treatment provider, or have been with a provider to whom they do not particularly feel connected.

Most of the variance in participants' appointment attendance was predicted by symptom severity and quality of life. The current study found symptom severity to have a significant positive effect on treatment adherence, which is contradictory to most suggestions in previous literature regarding the relationship between these two variables. Most research on psychiatric treatment adherence has found increased symptomatology to be associated with increased rates of treatment dropout and not attending scheduled appointments (Killaspy et al., 2000). A potential reason for the discrepancy in the findings might again be explained by the characteristics of the sample used in the current study. People who tend to drop out of treatment altogether likely were not captured in this sample, and most of the individuals included likely had a well-established and positive relationship with their treatment providers. Such a relationship limited the amount of variability in the participants' responses to the independent variables used to measure the recovery orientation of the treatment providers. Moreover, the participants generally reported high levels of satisfaction with their treatment providers, and they generally had high frequencies of attending appointments (most missed only one or two appointments in 6 months). Moreover, those participants who had high attendance rates also reported high levels of quality of life. Therefore, the results indicate that treatment nonadherence was not largely problematic in the sample, and this sample may have not

been representative of the larger population of individuals with schizophrenia. Another potential explanation for the effect of symptom severity is that people may believe they benefit more from treatment when they have exacerbations in their symptomatology. People could also be more motivated to attend appointments when their symptoms are exacerbated because their medications are being adjusted, and thus the desire to become stabilized and increase their functioning could be more salient. Another possible explanation is that exacerbated positive symptoms could serve as reminders to attend appointments. The opposite effect of symptom severity on appointment adherence was found by Killapsy et al. (2000). These researchers found that when people failed to attend outpatient appointments, they were more unwell and socially impaired than those who attended their appointments. These researchers found participants with diagnoses of schizophrenia or schizoaffective disorder to be at higher risk of missing follow-up outpatient appointments than those with other diagnoses.

Killapsy et al. suggested that people with schizophrenia spectrum disorders experience more severe social isolation and symptomatology that contributes to nonattendance, such as paranoia, depression, apathy and other negative symptoms, reduced organizational skills, and lack of insight. Their findings are clinically relevant because patients' nonattendance can be addressed early on in treatment in an attempt to prevent future missed appointments. The researchers' outcomes provide support for the effectiveness of intervening upon a patient's first instance of not attending. Forgetting was the most common reason for not attending appointments reported by the psychiatric patients, and was twice the rate of patients who reported forgetting as a reason for missing medical appointments. Forgetting was also mentioned by 26 participants for

missing appointments and by 91 participants for missing medication in the current study. Appointment attendance is an important part of psychiatric treatment, and the forgetfulness can be addressed using technology, such as smart-phone reminders. Recent research has supported the use of digital technology to remind patients to attend appointments and take their medication (Ben-Zeev, Davis, Drake, Kaiser, & Krzsos, 2013). These researchers provided their participants with digital assistant devices such as smart phones or personal digital assistants, and found that the devices helped them adhere to their treatment and to checkin with their providers regarding their progress. Given the quickly developing digital age, research and treatment need to keep up with available technology to help people access and adhere to the available forms of care (Cosgrove et al., 2010). The importance of assisting patients to overcome the pragmatic barriers to appointment attendance is highlighted by the finding of quality of life being positively related to appointment attendance. Participants' quality of life was found to be significantly correlated with appointment adherence. Participants with higher quality of life attended more appointments than participants with lower quality of life. The clinical significance of the quality-of-life finding should be taken into consideration during treatment planning with patients. For example, mental-health providers could highlight the importance of appointment attendance with their patients, and they could reinforce good attendance rates. Furthermore, appointments could be scheduled at times when patient attendance is most viable, and appointments should be scheduled at a frequency that would likely fit into each patient's life. Such an individualized treatment approach is aligned with recovery-oriented treatment principles. Previous research found that people who did not attend their mental-health appointments had decreased social functioning,

had more severe psychiatric symptoms, were more socially impaired, and had significantly increased chances of having been admitted to a psychiatric hospital in the past year than did those who attended their appointments (Killaspy et al., 2000).

Additionally, patients who missed their appointments after their initial visit were more functionally impaired and overall more unwell than patients who attended appointments (Killaspy et al., 2000).

Missing appointments could also be considered a warning sign that the patient might be experiencing symptom exacerbation or other aversive consequences of their mental illness. Previous research supports the notion that missed mental-health appointments can be indicative of deteriorating psychiatric health and that the overall quality of life of the patient is declining (Mitchell & Selmes, 2007). As one would expect, symptom severity was found to be significantly negatively correlated with quality of life, which means the more severe symptomatology the participants were experiencing, the lower the quality of life they reported. Apparently, people who attended more appointments reported higher quality of life, even if they were experiencing exacerbation of their symptoms. People may be less negatively affected by their symptoms when they attend appointments. Perhaps they have a stronger sense of mastery over their symptomatology, and they feel supported when they regularly visit with their treatment providers.

Inconsistent outpatient attendance is problematic in numerous fields of healthcare, in addition to mental-healthcare (Coldham et al., 2002). Adherence has been noted to be a multiply determined construct with related barriers, such as transportation, childcare, being underinsured, financial constraints, lack of knowledge regarding the healthcare

system, fragmented communication among healthcare professionals, and interference in functioning from positive symptomatology (Fenton, Blyler, & Heinssen, 1997). While some individuals in the current sample gave qualitative answers that indicated some of these pragmatic barriers, such as transportation issues, many other barriers to appointment attendance might already have been addressed and worked out with the current provider.

Individuals perceiving their treatment as recovery-oriented may function differently from other people with regards to their appointment attendance. Scoring high on measures of recovery may mean that attending regular appointments is critical to maintaining their recovery. The individuals in the current study may also have been farther along in their recovery journeys or stages; however, this possibility could not be confirmed with the current study design. The scales used to measure the recovery orientation of the treatment providers were analyzed to determine any associations among them. The Empowerment (POW) scale was found to be significantly correlated with the Attitudes toward Treatment scale (ATT) scale, the Recovery Assessment Scale-Short Form (RAS-SF), and the Participatory Decision Making Scale (PDMS). As people's ratings increased regarding how empowered they felt relating to their perspective on life and having to make decisions, their attitudes toward treatment, recovery assessment, and perception of involvement they are with their psychiatric treatment decisions also increased. POW was also found to have a significant correlation with quality of life, meaning that the more empowered participants considered themselves to be, the higher quality of life they reported, thus confirming findings in previous literature (Corrigan, Kleim, Vauth, & Wirtz, 2007).

Medication adherence and appointment attendance have been found to have significant interactions (Dolder et al., 2004). People with schizophrenia who are nonadherent to their treatment are likely more symptomatic, which makes them less capable of attending to their medical and physical needs, including attending medical appointments. Other behaviors that promote poor health can be assumed to occur more frequently in those who are less adherent to mental-health treatment and are therefore more symptomatic (Dolder et al., 2004). The current study found appointment attendance to be significantly positively correlated with medication adherence quality and frequency, although the directionality of these relationships could not be established because of the cross-sectional nature of the design of the study. People who may not take their medication as prescribed may also not attend their mental-health appointments, which may lead to their dropping out of mental-health treatment altogether.

### **Quality of Medication Adherence**

The recovery model examined in the current study was not determined to be significantly predictive of quality of medication adherence. The lack of significant effect is likely related to the long average length of treatment of the participants by their current providers. Previous research supports the theory that beneficial treatment effects of antipsychotic medication are usually delayed for some time after the start of administration (Oehl et al., 2000); therefore, this sample likely experienced the benefits of the medication more saliently than the side effects.

Most of the variance in participants' quality of medication adherence was predicted by attitudes toward psychiatric treatment, as measured by Attitudes Toward Psychiatric Treatment (ATPT) scale. The quality of medication adherence outcome



variable was found to be significantly positively correlated with the ATPT scale, indicating that people who reported having positive attitudes toward psychiatric treatment also reported that they adhered well to their medication regimen. This attitudinal scale seems to have strong predictive validity regarding medication adherence behavior, which is an important finding with clinical implications. Patients can be educated regarding psychiatric medication, and their attitudes toward the medication can be an ongoing part of their treatment. Previous research has also found the patients' level of acceptance of their medication regimens to be the most important factor in determining the effectiveness of their treatment (Fenton, Blyler, & Heinsen, 1997).

The independent variables were tested separately for their predictive validity with regards to the quality of medication adherence variable. The current analysis found that the POW scale was correlated with quality of medication adherence. The more empowered participants rated themselves, the more adherent they considered themselves to be with their medication regimens.

Study participants generally scored high on the measures of how recovery-oriented they perceived their treatment to be. The results suggest that individuals' concepts of being in recovery differ in meaning with regards to how well they believe they adhere to their medication. Some people may attribute successful recovery to taking psychotropic medication. Conversely, other people may believe that since they are doing well with their recovery, they do not need to take their medication. The construct of empowerment can be thought of with regard to the relationship between the aspects of treatment people consider as important to their recovery.

### **Frequency of Medication Adherence**

The variables that were conceptualized to measure the recovery orientation of the treatment were not found to be predictive of medication adherence frequency. The long length of treatment that the participants had been receiving from their treatment providers possibly did not allow for enough variance in the self-report ratings of the recovery orientation of the providers. The participants in the current study generally reported high levels of medication adherence. Research has found that only about one third of people with schizophrenia are fully adherent to their medication regimens (Oehl et al., 2000). Mitchell and Selmes (2007) found that 75% of people discontinue taking their antipsychotic medication in the first year of being prescribed a new prescription. This finding suggests that the closer to onset of the psychotic disorder, the more nonadherence tends to be problematic. Given the average length of treatment was more than eight years, the participants in the current study represented a population farther away from the time they were first prescribed medications for their mental-health problems. When compared to the average medication nonadherence rates for the population of people with schizophrenia (one-third non-adherent), the participants in the current study on average have higher self-reported levels of medication adherence.

Additionally, these participants were likely people who tended to have high levels of adherence in general. The sample examined in the current study did not have a large number of missed appointments. These participants likely had been prescribed many different types of psychotropic medication throughout their years of receiving treatment, and they likely were more aware of which medications were successful for treating their unwanted symptoms and which medications they could tolerate the best. They might also

have been more stable in their treatment and less likely to discontinue their medications because of side effects. Such factors would make this particular sample more likely to adhere to their medications (Coldham et al., 2002). Addressing side effects has a large potential implication for treatment effectiveness. Previous research has identified patients who had undesirable side effects alleviated by medication changes after they reported their experience to their physicians (Lambert et al., 2004). The patients who experienced a direct change in their treatment after participating in the decision process with their physicians reported significantly more positive attitudes toward psychiatric treatment than did those who did not have these experiences (Lambert et al., 2004). The current study found attitudes toward psychiatric treatment to be the single most important finding with regard to medication adherence. Therefore, direct attempts should be made to improve patients' attitudes toward treatment, and the result is likely to be improvements in their medication adherence behavior. Additional research has also demonstrated positive outcomes regarding patients' medication adherence when their families are included in the psychoeducation process (Resnick et al., 2005). The ATPT scale was developed to address participants' outlooks toward taking psychiatric medication. This scale was found to be significantly correlated with each of the predictor scales and both of the medication outcome variables (frequency and quality).

Participants who reported a higher frequency and quality of taking medication as prescribed also reported having more positive attitudes toward psychiatric medication.

The RAS-SF was also found to be significantly correlated with the ATPT scale. People who rated themselves as having positive attitudes toward psychiatric medication also significantly reported high scores on the recovery assessment measure, and they

reported positive attitudes toward treatment. For certain people, having positive attitudes toward psychiatric medication may be part of their recovery.

Participants' scores on the ATT scale, which was adapted from the coercion scale, were found to be significantly correlated with ATPT scores. Participants who reported that they did not believe they were coerced into mental-health treatment and that they had positive attitudes towards treatment also reported having positive attitudes toward psychiatric medication as part of their mental-health treatment.

POW was found to be significantly positively correlated with ATPT scores. Therefore, people who generally felt empowered tended to have positive attitudes toward psychiatric medication, which is consistent with previous research findings (Deegan & Drake, 2006; Dickerson, 1998).

Based on the large amount of variance in the medication outcome variables that the ATPT scale accounted for, measuring and addressing patients' attitudes toward psychiatric medication is important if medication is a recommended part of their treatment. If someone's goal is to become independent from medication, this goal should be taken into consideration as part of his or her recovery. Otherwise, keeping people on medication when medication is not personally important to them is an unrealistic expectation on the part of the treatment provider.

The positive correlation with ATPT scale and the PDMS suggests that the more the participants believe they are involved with their psychiatrist during the decision-making process regarding their medications, the more they have positive attitudes toward taking psychiatric medication. This evidence provides further support for the idea that people want more involvement in their treatment as part of their recovery.

### **The Recovery Model and Service Engagement**

The recovery model has multiple theoretical relationships with service engagement beyond simply taking medications and attending appointments with psychiatrists. Although the intention of the current study was to measure treatment adherence through those indicators, the larger implications for mental-health treatment of individuals with severe mental illness include more broad service engagement considerations.

Service engagement may be antithetical to certain individuals' concept of recovery. By definition, being in recovery with a mental illness is a highly individual process. Some individuals with serious mental illnesses may view recovery as a process that does not involve traditional medical treatment components. On the other hand, other individuals may decide that minimal engagement in treatment is a goal of their recovery. For example, their goal might be to become stable on medication so that they can have a job, to attend an occasional psychiatry appointment during which they do not have to participate in decisions, and to simply take the medication as prescribed and live an uninterrupted life. People who reported positive attitudes toward psychiatric treatment also reported high levels of quality of life. For many participants in the current study, high quality of life was indicative of people wanting to have or having more involvement with their mental-health treatment.

Perhaps people feel that being highly involved with their treatment is a sign that they have a sense of mastery over their treatment and their symptomatology; therefore, they are able to feel that their overall quality of life is positive, even if they experience symptoms. This explanation is aligned with the principles of the recovery model, in that

recovery is an individualized process and being rid of symptoms is not always the goal of each patient.

Predicting a construct that is as multiply determined as treatment adherence is difficult. Service engagement is a much more complicated construct than simply adherence to medication and attending scheduled appointments. The quality of the interaction between the service provider and the patient, the extent to which the patient views the treatment as helpful and important, and the degree to which patients incorporate treatment principles into their daily living are additional concepts that should be included in measures of service engagement. Although the outcome of the current study was measured by appointment attendance and medication adherence, the intention was more broadly to examine barriers to service engagement and the clinical implications that can be gained.

Many individuals consider some self-care activities to be part of their treatment, and these activities should therefore be considered part of service engagement. For example, some people include alternative treatments, yoga and other forms of exercise, prayer, meditation, and nutrition as part of their treatment. Participants from the current study answered the question regarding engagement in other meaningful activity with “church” ( $N = 6$ ), “art” ( $N = 3$ ), “day program/clubhouse” ( $N = 3$ ), and “childcare” ( $N = 1$ ). A barrier to people including alternative forms of treatment and self-care into their regimen is that health insurance reimburses only for certain types of treatment (more traditional forms of treatment). Health insurance barriers also present problems for measuring service engagement because people’s concepts of what is considered part of treatment are partially defined by what is reimbursed as part of healthcare, even though

researchers and clinicians know healthcare involves more than medication and attending appointments (i.e., behavior change, nutrition, quality time spent with others, additional self-care activities).

Models for conceptualizing healthcare behavior exist, including adherence-related concerns. The most prominent of these theories include the health belief model, theory of reasoned action, protection motivation theory, and subjective expected utility theory (Ronis, 1992; Weinstein, 1993). Common assumptions among theories are that people anticipating negative health outcomes will increase their motivation to engage in health-protective behaviors, that their perception of the likelihood that the negative outcome will occur affects their motivation, and that peoples' motivation to engage in health-protective behaviors increases as their expectation that their action will reduce their likelihood of being harmed increases (Weinstein, 1993). The current study found that when people have self-reported symptom exacerbations, they are likely perceiving their mental illness as more threatening, which can be a motivating factor to attend their scheduled appointments. Furthermore, the health belief principle regarding the connection between the belief that a particular treatment will help alleviate symptoms and adherence to the treatment was evident in the current study. The ATPT scale measures the extent to which people believe their psychiatric medication will help; therefore, the more they are confident in their medication's effectiveness, the more they should adhere to their medication regimen, which was confirmed by the results of the current study. Treatment implications that are linked to the health belief models are that patients should be educated regarding the potential benefits of their treatment and the potential harm that their symptoms can cause.

Generally, the participants reported high on the measures of recovery. For example, the mean scores for each Likert scale of the recovery scales were in the *agree* range, meaning the participants generally agreed that they felt free to choose to be in treatment, that they felt empowered, and that their treatment was recovery-oriented. Possibly, most participants were generally satisfied with their treatment, thereby limiting the amount of variance in their responses on the measures of the independent variables.

### **Sociocultural Considerations**

The current study was conducted in Philadelphia at four service agencies that largely serve an urban underserved population. This sampling also means this population is likely impoverished, which raises questions regarding how to assist people in becoming more empowered, especially when their surroundings are so demoralizing. For example, people living in these neighborhoods likely experience daily life challenges, such as housing concerns, easy access to illegal and legal substances, and lack of jobs, that are disempowering, so when they come to treatment, expectations for them to become empowered are unrealistic without improving these other aspects of their lives (Draine, Salzer, Culhane, & Hadley, 2002).

Cultural considerations regarding the desirability of being empowered should be considered. Being empowered for some people might mean having faith that their treatment provider makes good decisions for them and that they should simply comply. Cultural differences could determine how much empowerment an individual expects or even wants in his or her life. A cultural norm could make questioning of the treatment provider unacceptable, especially for those in poor urban communities who are



disempowered in so many other ways. Higher rates of appointment nonadherence have been found in urban areas for people with severe mental illness (Compton et al., 2006).

One question regarding culture from the Staff Relationships scale asks the participants to complete a Likert scale regarding their psychiatric treatment and culture: “My psychiatrist is not sensitive to my cultural needs.” This question was found to be significantly correlated with the ATPT scale, POW scale, PDMS, RAS-SF, and medication adherence quality. Therefore, participants who considered their psychiatrist to be more sensitive to their cultural needs also reported that they adhered to their medication, had more positive attitudes toward psychiatric medication, felt more empowered, had higher levels of participation with their treatment decisions, and rated higher on the recovery assessment measure. The clinical significance of cultural sensitivity has been found to be pronounced, and cultural sensitivity is theoretically linked as part of the recovery model. When the question regarding culture was entered to control for any possible confounding effects in the regression analysis, some of the variance in the model was significantly accounted for regarding the medication adherence quality outcome; however, the recovery model remained insignificant for predicting the adherence on all three of the outcome measures.

### **Limitations**

There were several limitations to the current study. The first limitation is related to the use of an archival data set. Limitations associated with using archival data include not having access to the participants or the clinicians to gather any qualitative data or to follow up with them regarding aspects of their treatment and adherence issues. Furthermore, the reliability of the participants’ self-reports may be questionable. The

current researcher also did not have access to the mental-health treatment centers where the interviews were conducted and the treatment was being implemented; therefore, we could not assess differences among the treatment centers or the quality of the treatment the participants were receiving. These aspects of limited access to the methods of data collection become problematic for replicating the current study. Previous research identified variables that can significantly affect treatment adherence, which the current researcher did not have access to, including issues regarding mandated treatment, history of sexual abuse, measures of hope and advocacy concerns, education available to the participants regarding treatment options, impaired insight, poor social functioning, poor premorbid functioning, and history of inpatient hospitalization (Glynn et al., 2006; Kreyenbuhl et al., 2009; Swartz et al., 2003).

Another limitation is that the independent and dependent variables were measured by self-report items. The participants could have been seeking a positive reaction from their treatment providers, or their estimates of adherence to their treatment could have been influenced by numerous individual factors. The average length of treatment for the participants was more than 8 years. This length of treatment could be reflected in the participants' view of the treatment facility, which was likely more positive than those of people who are new to a treatment facility. Most of the participants rated their treatment as having generally high quality. These ratings were likely affected by the long length of time they had been receiving services from the same treatment facility. There was not much variability in the participants' reports of satisfaction with their treatment provider. There was likely a homogeneous population of people who were included in the current study with regards to the geographic location and the long average length of treatment,

therefore limiting the amount of variance in the dependent variables and limiting the generalizability of the findings. Additionally, the questionnaire was lengthy, and the participants could have been experiencing fatigue. Symptoms of their mental illness could have affected the participants' ability to endure the length of the interview and answer the questions accurately.

The questions in the interview protocol that were chosen to measure the outcomes of medication adherence and appointment attendance could have presented limitations in their semantics. For example, the question measuring medication adherence quality was not specific as to which type of medications or which type of physician prescribed the medication. Therefore, primary-care physicians, emergency departments, or inpatient psychiatric facilities may have prescribed antipsychotic medication that was unusual for the participants' regimen. Such changes could have complicated their ability to follow the medication prescription. An additional potential effect of the broad scope of interpretation of this question includes, participants having medical conditions for which they do not fully adhere to medication. If that were true, participants would likely include such consideration when answering the quality of medication adherence questions because the question does not specify solely psychiatric medication.

The current study design ran preliminary analyses on variables that had been found in previous studies to correlate with the dependent variables in the current study, and only the variables that were found significant were used as control variables in the main analysis, thereby making the results less generalizable to the larger population.

Another limitation related to using archival data is that the theoretical constructs that were used to measure how recovery-oriented a treatment is perceived were not part

of the original study. Therefore, the methodology for measuring the recovery model was not ideal. Furthermore, the measurement for treatment adherence was not included in the aim of the original study for which the data were gathered. The same limitation is then true for the dependent variables in the current study, which is that they were chosen to measure a construct because they were the best fit given the predetermined set of questions.

A limitation relating to the recovery model and the constructs that are considered to be essential parts of the model also was found. Two of the guiding principles of recovery-oriented treatment according to SAMHSA include recovery being culturally based and influenced and being supported by addressing trauma (SAMHSA, 2012). The archival data set used in the current study did not include data regarding the participants' trauma histories because the questionnaire did not include questions regarding this topic when the data were gathered. While some cultural data were gathered in the original study, too many data points were missing for too many participants, and hence, these data were not used at all in the current analysis. Further studies on recovery-oriented treatment affecting treatment adherence should include measures for both trauma history and culturally informed treatment. Also, peer support and family involvement, which are important recovery principles, were not measured.

Another area of limitation is related to the correlational nature of the data analysis. No causality can be determined from the implications of this research because there was no manipulation of the independent variables. The data can be analyzed only to determine if relationships between the variables exist.

Limitations related to the measures of the dependent variables also were found. The two questions that were chosen to measure medication adherence were theoretically determined to measure two separate aspects of medication adherence: quality and frequency. The quality-related question asked the participants “how well” they currently take their medications. The question is nonspecific to psychiatric medication, while the question addressing medication adherence frequency is specific to “antipsychotic medication.” Furthermore, the frequency of medication adherence question broadens the time frame being evaluated by expanding from “current” to “over the past four months.” These two questions were analyzed to determine the overlap between these two related constructs. Medication adherence quality and frequency were found to be positively correlated,  $r(213) = .466, p < .01$ . The study design also has limitations related to its generalizability. For example, the data collection was limited to four community mental-health centers in the Philadelphia area. The demographics of the participants were not especially diverse. The socioeconomic status of the participants was likely similar, considering the location and type of treatment centers they were attending.

### **Recommendations for Future Research**

Suggestions for replicating the study include obtaining attitudinal and observational data from clinicians and using fidelity checks during the interviews and data collection. Some examples include a more comprehensive range of ethnicities, participants who have received services from multiple agencies or are new to the mental-health system, and people with different diagnoses. A review of participants’ charts could be conducted to gather supplemental objective adherence data (i.e., record of

appointment attendance, lab results regarding medication compliance, notes on participation in alternative forms of treatment and self-care).

Also recommended is that future research explore provider-related constructs in association with service engagement. Issues related to provider mistrust, therapeutic alliance, and patients believing their opinions are taken into consideration by the treatment provider have all been found to significantly affect treatment adherence and, therefore, significantly affect treatment outcomes. However, most of the existing research is focused on patient-related factors. Clinical implications might be more salient in the provider-focused research since treatment providers tend to have more control over the factors affecting the providers than they do over patient-related barriers to care.

Cultural considerations should be explored in future research, especially with regards to the extent to which people want to be involved in treatment decisions. Given the current findings regarding PDM, certain sub groups of patient populations likely prefer to have trust in their providers and desire the ability to have minimal involvement in their treatment. Collectivistic and individualistic cultural differences could account for some of the difference in desire to have a more inclusive treatment approach versus a more paternalistic approach. The mainstream American culture may tend to assume having participatory treatment is more desirable. However, the evidence from the current study suggests that this assumption may not be universally applicable. The findings do suggest that people's attitudes toward psychiatric medication are one of the most important factors to be considered with regards to people's likelihood of adhering to the prescribed regimen. Clinical decisions should take into account people's personal goals, even if those goals include not depending upon medication. Urban and rural populations

should be studied given the evidence that urban populations with severe mental illness seem to have larger nonadherence problems than rural populations. Perhaps evidence that differentiates rural treatment from urban treatment can inform treatment in urban cultures to improve their outcomes.

A study of the effects of recovery-oriented treatment on service engagement would be better conducted if the data were gathered specifically for that purpose. Service engagement could be measured more validly if additional questions were included to measure treatment adherence and service engagement or if scales that have been validated to measure these constructs were used as the dependent measures.

The recovery framework has been gaining attention as a model for the treatment provision for individuals with severe mental illnesses, and it is being increasingly investigated in research. However, advocacy for the model could include its benefits for people with other types of mental illness. The recovery model is gaining attention in treatment of only severe mental illness and could therefore become viewed as stigmatizing the population it is aimed to serve. By definition of the recovery model, each individual could benefit from its principles, regardless of mental-health status.

Future studies should also consider gathering qualitative data (in addition to quantitative data) to measure the recovery principles because of the suggested importance of the individualistic nature of recovery-oriented treatment. For example, the participants could be asked to state their goals and the extent to which they believe their treatment is supportive of their goals for recovery. This qualitative information would supplement the quantitative data from the scales and could answer some of the questions that were

proposed during the interpretation of the current study (e.g., Do people want to be involved in the decision-making process regarding their antipsychotic medication?).

By definition, recovery is supposed to be unique and individualized for each person, so this definition presents a challenge regarding how to build a system of service that works well for most people. Treatment facilities seem to be adopting the recovery framework and attempting to provide services that would meet a broad range of preferences for their patients, and including exercise, computer courses, recovery goals (not limited to treatment goals), including family in the treatment. These alternative aspects of individualized treatment should be measured in future studies of the recovery model.

The current study was conducted with the intention to determine if recovery aligned constructs are related to increased engagement in treatment for individuals with schizophrenia spectrum disorders. Although the model for measuring recovery-oriented services was not predictive of medication adherence or appointment attendance, some useful findings discussed. If the model had been found to be significantly predictive of service engagement, the utility for mental-health treatment would be aimed at increasing the degree which the recovery model is guiding treatment. The current findings do not, however, suggest otherwise. The findings do suggest that measuring recovery-oriented services and service engagement is a complicated task that is likely worth further investigation. The definition of recovery challenges people to think about treatment on an individual level, which suggests that research on the model needs to take individual preferences and variations into consideration. Possibly, qualitative research may be a more appropriate fit for this this conceptualization.



The findings also suggest that quality of life and symptom severity are significantly related to attending appointments. People seem to believe their lives are more worth living when they experience fewer symptoms and attend mental-health appointments. Clinical decisions regarding frequency of appointments and patients' ability to attend those appointments should be considered along with the patients' recovery goals.

Given the quickly developing digital age, research and treatment need to keep up with available technology to help people access and adhere to the available forms of care (Cosgrove et al., 2010).

Treatment engagement is a topic in need of further investigation. Previous research suggests that increasing treatment adherence is the single most direct way to eliminate symptom exacerbation and to improve overall outcomes for people with psychotic disorders (Coldham et al., 2002); however, engagement remains problematic. The psychiatric literature suggests that increased engagement for the overall population of individuals with serious mental illnesses is an important societal issue (decreased psychiatric symptoms, violence, homelessness, hospitalizations, and healthcare costs). These outcomes are likely important for the population receiving the services and could possibly be considered when developing their recovery goals.

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