Understanding Medication Adherence Among Individuals with Severe Mental Illness: Relationship to Treatment Approaches

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Abstract

Purpose: The use of coercion in public mental health programs as a means to promote adherence to psychotropic medication is a subject of significant debate. Programs that rely on coercion, such as involuntary outpatient commitment, are growing, while programs that reject coercion, such as recovery-based services, present an alternative agenda. Yet, scholarship has not examined recovery-oriented services and coercion together, as a way of explaining medication adherence. Thus, study tested the hypothesis that among consumers with SMI, the greater the degree of perceived recovery-oriented practices and the lower the degree of perceived coercive practices, the greater the degree of adherence to medication treatment. Method: Using an online survey, the study was completed by 111 adults who self-reported a primary psychiatric diagnosis of a severe mental illness and received psychiatric medication prescriptions from a community mental health clinic. The survey included measures of perceived autonomy, perceived organizational recovery-oriented services, perceived coercion, and adherence to medication. The research employed an explanatory mixed-methods (quantitative and qualitative) design. Hypothesis was tested using multiple regression and open-ended questions were analyzed using directed content analysis. Results: Autonomy was found to be a significant predictor of adherence to medication, while perceived organizational culture of recovery-oriented practices and perceived coercion were not significant predictors of adherence to psychotropic medications. Qualitative analysis demonstrated that participants viewed autonomous decision-making and person-centered care as effective methods to encourage adherence. Conclusion: Elements of recovery-oriented treatment that increase consumers’ sense of autonomy in decisions about medications will likely enhance their adherence.

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Understanding Medication Adherence Among Individuals with Severe Mental Illness: Relationship to Treatment Approaches

Lior Ben-Avraham, MSW, RCSW

A DISSERTATION in Social Work

Presented to the Faculties of the University of Pennsylvania in Partial Fulfilment of the Requirements for the Degree of Doctor of Social Work September 2020

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ABSTRACT

**Purpose:** The use of coercion in public mental health programs as a means to promote adherence to psychotropic medication is a subject of significant debate. Programs that rely on coercion, such as involuntary outpatient commitment, are growing, while programs that reject coercion, such as recovery-based services, present an alternative agenda. Yet, scholarship has not examined recovery-oriented services and coercion together, as a way of explaining medication adherence. Thus, study tested the hypothesis that among consumers with SMI, the greater the degree of perceived recovery-oriented practices and the lower the degree of perceived coercive practices, the greater the degree of adherence to medication treatment. **Method:** Using an online survey, the study was completed by 111 adults who self-reported a primary psychiatric diagnosis of a severe mental illness and received psychiatric medication prescriptions from a community mental health clinic. The survey included measures of perceived autonomy, perceived organizational recovery-oriented services, perceived coercion, and adherence to medication. The research employed an explanatory mixed-methods (quantitative and qualitative) design. Hypothesis was tested using multiple regression and open-ended questions were analyzed using directed content analysis. **Results:** Autonomy was found to be a significant predictor of adherence to medication, while perceived organizational culture of recovery-oriented practices and perceived coercion were not significant predictors of adherence to psychotropic medications. Qualitative analysis demonstrated that participants viewed autonomous decision-making and person-centered care as effective methods to encourage adherence. **Conclusion:** Elements of recovery-oriented treatment that increase consumers’ sense of autonomy in decisions about medications will likely enhance their adherence.

**Keywords:** recovery-oriented practice, person-centered care, autonomy, self-determination, coercion, leverage, medication adherence
Dedication

This study is dedicated to my loving partner, Erez, and our precious daughter, Lyri. To my parents, brother, and sister, and my chosen family. To all the people who struggle with severe mental challenges who have inspired me and taught me to be a better social worker throughout my career.

This world is a better world because you are a part of it.
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CHAPTER 1: BACKGROUND AND SIGNIFICANCE

Statement of Problem

Adherence to medication has become a key goal of mental health policymaking and the central task of psychiatric care of individuals with severe mental illnesses (SMI) (Bulloch & Patten, 2010; Chapman & Horne, 2013; Cramer & Rosenheck, 1998). Among many indications of the centrality of medication adherence is the fact that it serves as a primary measure of treatment success among many government-funded programs, as well as the mushrooming of court-mandated outpatient treatments, commonly known as Assisted Outpatient Treatment. The underlying (and not-so-overt) goal of these programs is to ensure high rates of adherence to psychotropic medication (Borum et al., 1999; Swartz, Swanson, Wagner, Bums, & Hiday, 2001; Torrey & Zdanowicz, 2001). The prioritizing of adherence is not surprising since studies show that greater degrees of nonadherence among individuals with a SMI are associated with repeated hospital admission, incarceration, homelessness, violent behavior, and increased alcohol or substance use (Ascher-Svanum et al., 2006; Robertson, Swanson, Van Dorn & Swartz, 2014).

Accompanying this emphasis on adherence to medication is the assumption that coercive practices are the most effective strategies to increase compliance. The burgeoning number of court-mandated outpatient treatments programs—which essentially use the coercive power of the court to increase adherence—is but one example of the pervasiveness of this assumption, as coercive practices have many manifestations and degrees. Other examples include the use of threats, leverages, and inducements, such as conditional eligibility for social benefits based on adherence to psychiatric medication (Monahan et al., 2001; Solomon, 1996; Szmukler & Appelbaum, 2008). A host of studies argue that the use of coercive measures results in positive outcomes (Esposito, Geller & Ragosta, 2012; Swartz & Swanson, 2004).
Interestingly, along with the narrative that adherence and coercion work together as a “horse and carriage,” an alternative anti-coercion practice is growing in importance. In the shadow of the increased use of coercion, the ideology of recovery philosophy continues to call into question the assumption that coercive practices are the best way to increase adherence. Recovery philosophy is grounded in the core values of self-determination, autonomy, and shared decision making (SDM), and maintains that consumers should have control over the support they receive and be empowered to make the essential decisions about their treatment in a collaborative manner. Debate on the issue raises the consideration that SDM, self-determination, and person-centered care may also promote adherence to psychiatric regimens (Davidson, 2017; Ragins, 2002; Solomon, 2015). While recovery-based practice might take longer and cost more, it may achieve better outcomes, including better adherence to medications. Notwithstanding the prominence of coercion in the discourse and practice, federal and state policymakers as well as stakeholders in psychiatry and social work show strong interest in the promotion and implementation of recovery practices (New Freedom Commission, 2003; SAMHSA, 2009).

There is some evidentiary basis to the assumption that recovery practices can promote adherence—as recent studies have shown the importance of hope, empowerment, SDM, person-centered care, and trusting therapeutic alliances in contributing to successful treatment concordance outcomes among individuals with SMI (Cuddeback et al., 2013; Deegan, & Drake, 2006; Kidd et al., 2011; Lukens, Solomon, & Sorenson, 2013; Warner, 2009). Yet, studies on the outcomes of recovery-based programs are relatively limited in regard to medication adherence.

In the face of these alternative (indeed, competing) narratives and trends—the increased reliance on coercion on the one hand, and the promotion of recovery on the other—studies do not provide an answer to what each contributes to enhanced adherence to medication: self-
determination or coercion. Therefore, a critical gap in the literature is an examination of the link between outcomes (regarding adherence to medication) and perceived level of coercion and recovery-oriented practices (expressed in types of service provisions). The lack of sufficient research, most particularly in the area of how recovery-oriented practices affect medication adherence, demands further and better designed studies intended to clarify the role of coercion in psychiatric services. This study is designed to address that gap through an examination of the degree of adherence to medication under coercive practices versus recovery-oriented services. This study hypothesizes that individuals with severe mental illness (SMI) who perceived in engagement of more recovery-type practices and perceive less coercive practices will have a higher degree of adherence to medication.

Question: Among individuals with severe mental illness, to what extent do their perceived degree of engagement in recovery-oriented practices (i.e., shared decision-making, and autonomy), and their degree of perceived coercive practices (i.e., leverages, threats, and inducements) explain their degree of adherence to medication?

**Defining Medication Adherence**

The degree to which individuals follow recommended psychiatric treatment is defined by various terms in the literature, including “compliance,” “concordance,” and “adherence” (Horne et al., 2015). The term “compliance” is associated with coercion and implies lack of consumer involvement in the treatment planning process (Horne et al., 2015). The term “concordance” is also used in this connection, and aims to emphasize self-determination and collaborative approach (Dickinson, Wilkie, & Harris, 1999). Like Rudnick and Lamoure (2018), we applaud the use of the term, but we will use “adherence,” as it is more well-known. In any event, the term “adherence,” as Kaufman and Birks (2009) contend, “emphasizes the patient’s right to choose to
follow treatment recommendations, does not reject the principles of respect for the patient’s beliefs and is viewed as a more realistic term to describe medicine taking” (p. 57). We adopt the World Health Organization (WHO)’s definition of treatment adherence as the degree to which a consumer’s behavior (i.e., taking medication, following a diet, modifying habits, or attending clinics) matches agreed-upon recommendations from a prescribing clinician (e.g., psychiatrist, nurse practitioner, or primary care physician) (World Health Organization, 2003).

**Rates of Medication Nonadherence**

In the United States alone, there are 44 million individuals who experience some type of mental illness each year, with over 9 million (4% of the entire U.S. population) experiencing severe mental illness (SAMHSA, 2014). Use of psychiatric medication is prevalent among individuals with SMI: treatment plans for serious mental illness often include recommendations to take psychotropic medications as a means to alleviate disturbing symptoms and prevent the harmful consequences of relapse. However, while some individuals with SMI adhere to medication treatments as prescribed, others do not, and some even choose to avoid treatment altogether.

Measuring rates of medication nonadherence poses some challenges; however, the literature consistently reports a high rate of overall nonadherence to antipsychotic medications at approximately 50% (Barkhof, Meijer, de Sonneville, Linszen, & de Haan, 2012; Klingberg, Schneider, Wittorf, Buchkremer, & Wiedemann, 2008). Nonadherence among individuals with schizophrenia ranges from 20% to 72%, and from 28% to 52% among individuals who are diagnosed with major depressive disorder (Julius, Novitsky, & Dubin, 2009). Among individuals with bipolar symptoms, nonadherence is reported to be from 20% to 60% (Julius et al., 2009; Levin, Krivenko, Howland, Schlachet, & Sajatovic, 2016).
Studies consistently show that nonadherence is prevalent among individuals with SMI and associated with adverse outcomes and higher costs of care (Osterberg & Blaschke, 2005). Indeed, according to a WHO report (2003), nonadherence to psychotropic medication among persons with SMI is a critical problem worldwide and may be the most challenging aspect of treatment for individuals with SMI. Hence, medication nonadherence among individuals with SMI has been a growing concern for consumers, physicians, providers, the healthcare system, and other stakeholders. Nonadherence has a direct impact on individuals, the healthcare system, and society at large.

**Consequences of Nonadherence**

**Individual level.** Studies have found correlations between adherence and positive clinical outcomes. Accordingly, individuals who are more adherent with their medication regimen tend to engage better in mental health services and to maintain a good therapeutic alliance with their clinician, which may result in a higher quality of life (Lacro, Dunn, Dolder, Leckband, & Jeste, 2002; Robertson et al., 2014). In addition, cognitive deficits associated with nonadherence seems to improve over time with greater adherence to medication contributing to the prevention of relapse (Robinson, et al., 1999).

Conversely, medication nonadherence is the most accurate predictor of psychotic relapse for individuals with long-term severe mental illness (Barkhof et al., 2012; Robinson et al., 1999). Although most studies connecting adherence to treatment outcomes are correlational, nonadherence may ultimately influence individuals’ quality of life and overall functioning (Julius et al., 2009; Sendt, Tracy, & Bhattacharyya, 2014). Consequences of nonadherence include pain, psychosocial trauma from experiencing exacerbation of psychotic symptoms, rehospitalization, loss of income, poor quality of life, increased chances of criminal justice
involvement, homelessness, and difficult family dynamics (Ascher-Svanum et al., 2006; DiBonaventura, Gabriel, Dupclay, Gupta, & Kim, 2012; Labrum & Solomon, 2016; Robinson et al., 1999; Swartz, Swanson, & Hannon, 2003). Further, even partial or intermittent nonadherence (as opposed to full nonadherence) leads to relapse among those diagnosed with schizophrenia and bipolar illnesses (Levin et al., 2016; Subotnik et al., 2011; Weiden, Kozma, Grogg, & Locklear, 2004). Several studies found that nonadherence was correlated with worsening of psychotic symptoms such as mania, depression, anxiety, delusions, and psychosis (Burton, Chen, Conti, Schultz, & Edington, 2007; Chen et al., 2005; Levin et al., 2016; Swartz et al., 2003).

Medication nonadherence also correlates with higher rates of hospitalization. Individuals with SMI are especially vulnerable to the cycle of hospitalizations and involuntary treatment due to the nature of their illness and their poor relationship with medication. Several studies indicated poor medication adherence, as an identified risk factor for relapse and rehospitalization (Ascher-Svanum et al., 2006; DiBonaventura et al., 2012; Lacro et al., 2002; Weiden et al., 2004). Worsening symptoms due to nonadherence may impair judgment to the point of creating risk of danger to self or others, or a grave disability, which can often result in compulsory psychiatric hospitalization as a last resort for individuals to receive treatment. Additionally, those nonadherent to medication who experience psychosis have increased risks of suicide attempts and completed suicide compared to the general population (Chapman & Horne, 2013), and are more likely to use emergency psychiatric services (Ascher-Svanum et al., 2006).

It is important to emphasize that adherence can also have adverse clinical consequences. Specifically, this could be the case if the consumer adheres to medication without probing the regimen. Some consumers are “passive accepters,” meaning that they take the medication without resistance and questioning (Pound et al., 2005). Other consumers might be submissive as
a result of pressures and leverages. Whatever the reason is, there is a chance that these consumers will not question their regimen, resulting in clinical adverse effects. Recent studies have shown that long-term use of psychotropic medication could create cumulative change in brain structure and have adverse effects on physical health (e.g., cardiac arrhythmias) (Murray et al., 2016).

**Criminal–justice system involvement.** Risk factors for criminal-justice system involvement among persons with SMI are well documented. Recurrent psychosis that results from medication nonadherence can potentially lead to violent behavior, substance abuse, incarceration, and homelessness (Copeland et al., 2009; Robertson et al., 2014; Solomon & Draine, 1999). Robertson and colleagues (2014) found that individuals with SMI who were released from the hospital were more likely to become involved in the criminal justice system after release, if they were less adherent to medications. Furthermore, incarceration is strongly associated with homelessness in persons with mental disorders (Greenberg & Rosenheck, 2008; Kushel, Hahn, Evans, Bangsberg, & Moss, 2005); and homelessness is one of many factors that is associated with substance use (Early, 2005; Kemp, Neale, & Robertson, 2006; McVicar, Moschion, & van Ours, 2015; Shinn et al., 1998).

Additionally, individuals with SMI often do not receive needed treatment while incarcerated (Lurigio & Swartz, 2006). The lack of continuous care for adults with SMI who are navigating the mental health system after involvement in the criminal justice system (Scheyett, Vaughn, & Taylor, 2009) has a direct impact on adherence and often causes many individuals with mental illness to cycle between homelessness, hospitalization, and criminal justice system involvement—which has an impact on the healthcare system as well.
Healthcare system costs. Poor adherence to medication regimen creates a serious financial burden on the U.S healthcare system. The costs of serving individuals with severe mental illness, including health care, lost wages, and disability income payments, are estimated at over $300 billion annually (National Institute of Mental Health, 2012). In the U.S, of all medication-related hospital admissions (including non-related to psychiatric medication), 33 to 69 percent are due to medication nonadherence, which have been estimated to cost more than $100 billion annually. Hospitalization expenditures due to psychotropic nonadherence, specifically, have been estimated at between $1.4 and $1.8 billion annually (DiBonaventura et al., 2012; Osterberg & Blaschke, 2005).

Psychiatric-medication treatment is an evidenced-based practice for the treatment of individuals with SMI (Corrigan, Mueser, Bond, Drake & Solomon, 2008), and such treatment represents a cost-effective care modality, according to the U.S Congress (Congressional Budget Office, 2012). Mental health policymakers and other stakeholders pressure providers to reduce these costs; accordingly, psychopharmacology treatment, an economical practice, has been increasing, while psychotherapy has assumed a less prominent role in managed care and outpatient community-based mental health programs (Druss, 2010; Kilbourne, Greenwald, Bauer, Charns, & Yano, 2012; Olfson & Marcus, 2010). As one of the most cost-effective practices available for people with severe mental illness (Schatzberg & Nemeroff, 2001), it is not surprising that improving consumers’ medication adherence is a central task in the psychiatry and social services arena (Fenton, Blyler, & Heinssen, 1997; Schatzberg & Nemeroff, 2001). Therefore, research on medication adherence should yield data that will help the healthcare system understand the factors that support increased adherence to medication as well as the
factors that contribute to nonadherence, potentially improving intervention strategies and adherence rates.

**Reasons for Nonadherence by Individuals with SMI**

Numerous studies have attempted to yield empirical data that would help providers and policymakers understand barriers to medication adherence. Some factors affecting adherence can be broadly categorized into the following four areas: sociodemographic, psychological, medication-related risks, and social and environmental risks.

**Sociodemographic factors.** Studies about the connections between the consumers’ degree of adherence and sociodemographic factors show inconsistent results. On the one hand, the degree of nonadherence decreases with age, specifically among nonwhite males below 40 years old (Bulloch & Patten, 2010; Lacro et al., 2002; Levin et al., 2016). Additionally, researchers have identified being unmarried, being unemployed, or living alone as risk factors for nonadherence (DiBonaventura et al., 2012; Levin et al., 2016). Conversely, other studies that examined such sociodemographic variables as sex, race and ethnicity, educational status, employment status, rural/urban residence, and socioeconomic status failed to meaningfully predict degrees of adherence (Bulloch & Patten, 2010; Kane et al., 2013). One factor that does correlate with adherence is comorbid substance abuse or dependence, which has a significant impact on medication adherence among individuals with SMI (Ascher-Svanum et al., 2006; Julius et al., 2009; Lacro et al., 2002; Levin et al., 2016).

**Psychological factors.** Another group of studies aimed to predict whether the level of adherence to medication is reflective of the consumers’ beliefs about their manifestation of symptoms (if consumers think that they do not show any symptoms of mental illness then they believe that they do not need medications). Indeed, research has revealed that beliefs concerning
one’s illness was often a main factor in predicting medication nonadherence among individuals with SMI (Staring, van der Gaag, Duivenvoorden, Weiden, & Mulder, 2011; Velligan et al., 2009; Velligan, Sajatovic, Hatch, Kramata, & Docherty, 2017). Several studies cite severity of mental illness and poor insight as the primary reasons that people with severe mental illness stop taking their psychiatric medications. These studies found that more than 50% of people with severe mental illness went off their medications within a year of a hospitalization due to these reasons (Lacro et al., 2002; Townsend, 2009; Zygmunt, Olfson, Boyer, & Mechanic, 2002).

Cognitive impairments were also found to influence adherence. In a large Canadian study (N= 36,984 adults), forgetting was the main reported reason for nonadherence by over 70% of participants taking mood stabilizers and by those taking antipsychotics (Bulloch & Patten, 2010). A cross-sectional survey of 24,017 U.S. participants with chronic illnesses, including depression, identified similar perceptual factors (e.g., forgetting, running out of medication, affordability). These findings suggest that motivational factors can impact both perceptual and practical barriers to adherence (Gadkari & McHorney, 2012). A few studies noted the role of autonomous motivation and treatment adherence (Lamberti et al., 2014; Johan et al., 2012). For example, Williams and colleagues (1998) examined medication adherence among individuals with SMI using the Self- Determination Theory (SDT) framework. They found that autonomous motivation for medication adherence mediated the relationship between perceived autonomous support and medication adherence (Williams, Rodin, Ryan, Grolnick, & Deci, 1998).

Medication-related risk factors. Multiple studies have found that the severity of medications’ side- effects predicts lower medication adherence (Deegan, 2007; Faasse, & Petrie, 2013; Townsend, 2009). The side- effects that tend to correlate with nonadherence include weight gain, involuntary movement (i.e., tremors), cognitive impairment, agitation, sedation,
metabolic issues, and an increased risk of diabetes, hyperlipidemia, and reduction in sexual desire or sexual dysfunction (DiBonaventura et al., 2012; Meehan, Stedman, & Wallace, 2011; Roe, Goldblatt, Baloush-Klienman, Swarbrick, & Davidson, 2009; Velligan et al., 2009).

However, Meehan and colleagues (2011) examined the level of adherence among adults diagnosed with schizophrenic and found that there were almost equal numbers of consumers who experienced no side-effects and consumers who experienced severe side-effects. Furthermore, Lacro and colleagues (2002) reviewed adherence in consumers with psychotic disorders and found that side effects were not associated with nonadherence.

**Social and environmental risk factors.** The quality of consumer-provider therapeutic alliance has been a major risk factor and is among the most accurate predictors of adherence. Effective therapeutic alliances are associated with higher adherence and overall treatment satisfaction among individuals with SMI (Frank & Gunderson, 1990; Lacro et al., 2002).

Conversely, lack of therapeutic alliances often results in poor adherence. In one qualitative study, lack of shared decision-making between provider and consumer was a major theme related to nonadherence (Mishra, Gioia, Childress, Barnet, & Webster, 2011).

Likewise, the quality of communication with consumers about their medication regimen strongly influences adherence. Roe and colleagues (2009) reported that nonadherence is often the result of consumer-provider disagreement rather than poor judgment on the part of the consumer. Other reasons for treatment avoidance include experiences of unsympathetic providers, not being listened to, not being able to actively participate in decision-making, and being dissatisfied with services (O'Brien, Fahmy, & Singh, 2009). Consumers’ lack of access to transportation may create challenges in attending appointments and obtaining prescriptions from pharmacies (Townsend, 2009).
Coercion and Adherence in Mental Health Care

The relationship between adherence to medication and coercion is rather intuitive in that it almost does not require an explanation. Yet, coercion is a complex concept that manifests in more than involuntary hospitalization; it appears in various subtle and not-so-subtle ways in health care. In what follows, we define “coercion” and discuss its various manifestations, its prevalence, and, finally, the connection between coercion and adherence to medication.

Definition of “Coercion.” The Oxford Dictionary of Epidemiology (Porta, 2014) defines “coercion” as:

Excessive pressure or influence to force or entice a person to act in a given way (e.g., to enroll in a research study or a public health program). May be exercised by offering excessive incentives, applying social pressure, using authority figures, or otherwise manipulating the vulnerable person or group.

According to Carroll (1991), the exercise of power and control to influence consumers’ behavior is coercive. Power, control, and force are embedded within the therapeutic setting. To better understand coercion in the mental health arena, we need a better understanding of the types of “power and control” (Carroll, 1991), or “force,” that providers exert over their consumers. An oft-used definition of “power” is the capacity to influence the will of a person or group of people such that they change their behavior. Such capacity is based on the control of resources or relationships that are valued or desired by others (Turner, 2005). Solomon (1996) identified force, manipulation, and persuasion as forms of power that may be coercive and impact consumers’ perceptions of coercion.

In mental health practice, providers acknowledge the asymmetrical nature of the therapeutic relationship and how this gives them a significant amount of power over their
consumers. That is, consumers seek support from mental health experts because the latter hold some knowledge, skills, and resources that may help consumers with their suffering. By the very fact that consumers come and ask for such help, a degree of power dynamics in the therapeutic alliance is inevitable. Such social resources as financial support, housing, food, and clothing are essential for consumers with SMI. Emotional support—psychotherapy, rehabilitation, attention, and so on—are also vital for consumers. Through the provision of social and emotional support, providers are able to dramatically influence consumers’ behaviors and attitudes.

Coercion, then, becomes a key ingredient in power imbalances, and within mental health practice and is displayed in various ways. Szmukler and Applebaum (2008) provide a useful framework of coercion as a spectrum of “treatment pressures” to ensure individuals are adherent to treatment, with autonomous agreement or not. This spectrum is presented in ascending order ranging from “persuasion,” to progressively stronger levels of informal coercive measures of “interpersonal leverages,” “inducements,” and “threats,” to the most extreme use of formal coercion known as “compulsory treatment” (inpatient or outpatient) (Szmukler & Appelbaum, 2008). “Persuasion,” according to Szmukler and Appelbaum, is an “appeal to reason” in suggesting the benefits of staying on medication and in flushing out the risks of nonadherence. A provider may cultivate relationships with consumers with the aim of using “interpersonal leverage” as a tool to encourage them to adhere to medication; that is, such leverage allows the provider to use the consumers’ dependency to signal to them that they should follow their treatment. “Inducement” occurs when the provider offers a form of recourse to consumers if they adhere to treatment. Szmukler and Appelbaum suggest the example of offering tickets to a football club in return for taking the medication. “Threats” are an amplified use of “inducements” in which providers use adherence as a condition for eligibility to social and
emotional services. Finally, “compulsory treatment” is the practice that involves the highest degree of formal coercion.

**Informal Coercion**

**Definition.** “Informal coercion” refers to a broad range of nonstatutory treatment pressures used by mental health providers, caregivers, family members, housing officers, and the welfare and criminal justice systems as means to foster adherence to treatment and improve clinical outcomes (Solomon, 1996; Yeeles, 2016). Interventions involving informal coercions—the use of treatment pressures—are widely used in mental health care and psychosocial practice (Burns et al., 2011; Monahan et al., 2005; Solomon, 1996; Yeeles, 2016).

According to Szmukler and Appelbaum (2008), not all pressures applied by a provider amounts to coercion. They argue that some interventions would be more aptly described as “treatment pressures,” a term lacking the implication of moral condemnation used for some forms of coercion. The less coercive interventions, persuasion and interpersonal leverage, are considered noncoercive positive treatment pressures. Szmukler and Appelbaum assert that “inducements can become problematic if they are used in ways that subvert consumers’ decision-making,” (p. 238) and its use should often be constrained.

Notwithstanding the relatively low degree of coercion involved in persuasion and interpersonal leverage, characterizing these approaches as categorically noncoercive practices is wrong. Although persuasion and interpersonal leverage ranked as “weak” on the coercive spectrum, they still fall within a “grey area” because, in some form, these approaches may involve an emotional-based extension of persuasion. Furthermore, consumers’ dependence on providers and service resources force them to maintain a positive therapeutic relationship to ensure continuity of care and needed resources. The provider-consumer interpersonal
relationship can be used as a coercive mechanism to influence consumers’ decisions; for example, by the provider’s showing signs of emotional distancing or disappointment if the consumer rejects recommended treatment (Gergel & Szmukler, 2016). Therefore, these approaches can still be potentially coercive.

 Threats serve as another informal common practice. Threats involve warning consumers that nonadherence with medication or missing mental health appointments will result in hospitalization, involuntary commitment, police contact, loss of spending money, loss of housing or employment opportunities. Threats of potential loss of freedom or use of force are problematic interventions in enhancing consumers’ adherence, as studies have shown that threats and giving orders are strong predictors of perceived coercion and thereby act as barriers to care (Lidz et al., 1998; Swartz, Swanson, & Hannon, 2003).

 Individuals with SMI may also be subjected to external motivating forces, such as various kinds of “leverages” from the legal and social-welfare systems designed to improve their adherence with recommended treatment in the community (Monahan et al., 2005). According to Yeeles (2016), the term “leverage” in mental health care refers to “the explicit use of pressure by making needed provisions such as housing and financial support, or the reduction of criminal charges, directly contingent upon adherence to prescribe treatment” (p. 87). Canvin and colleagues (2013) proposed three conditions for leveraged pressure: “(i) consequences contingent upon a specified response (conditionality); (ii) a lever (e.g., access to social welfare resources, hospital admission, depot injection, and avoidance from jail or criminal charges); and (iii) direct communication by someone perceived to have the power to bring about the specified consequences” (p. 102). Leverages may compromise the consumers’ autonomy and the therapeutic relationship (Angell, Martinez, Mahoney, & Corrigan 2007; Monahan et al., 2001),
and the legality of withholding or delaying welfare leverages (i.e., housing and finances) is not entirely clear in the U.S. (Monahan et al., 2005). Conversely, Lidz and colleagues (1998) noted that leverage using offers of housing, money, or criminal justice benefits do not necessarily induce perceived coercion, as long as such leverage is applied with high transparency, where the purpose is clearly stated to the consumer.

**Prevalence.** While the literature on coercion has mainly focused on the formal compulsory treatment of individuals with SMI, a small number of studies have examined the frequency of use of informal coercion mechanisms. In fact, only three studies examined the prevalence of use of various types of leverages (Burns, 2011; Jager & Rossler, 2009; 2010; Monahan et al., 2005). Negative treatment pressure such as threats and force are common in therapeutic dynamics. For example, Angell (2006) has developed and pilot-tested a scale to assess the various strategies used by clinicians ($N=271$) to improve consumers’ adherence to psychotropic medications. She found that 16% of clinicians in the pool threatened to report consumer noncompliance to legal authorities and 44% threatened to hospitalize consumers if they did not adhere to medication regimen.

Monahan and colleagues (2005) conducted the largest study of leverages among psychiatric consumers, which included a sample of individuals with SMI in five U.S. cities and examined the prevalence of the use of leverages during their lifetime (housing, finances, and outpatient commitment, and criminal sanctions as leverage). Results showed that half of the sample ($N=1011$) reported experiencing specific leverages to promote treatment adherence. Of those with a representative payee or informal money manager (61% of sample), 15% to 31% reported that money was used as leverage in their lifetime (7% to 19% for those without a representative payee). Criminal justice was used as leverage for 15% to 30% of all participants
(38% to 49% for those who had been arrested or convicted). Housing was used as leverage for 23% to 40% of all participants.

Another study, which examined the mechanisms of structural leverage in 27 supported housing programs in the U.S., found that in 16 (60%) programs, residents could be excluded from the housing program for nonadherence to medication, relapse, or substance use (Wong, Lee, & Solomon, 2010), suggesting a frequent and incisive use of pressure to induce treatment adherence. Other studies have suggested that such pressure can delay or prevent a consumer from seeking help due to fear of coercive or involuntary treatment (Van Dorn et al., 2006) and be a cause of stigma (Link, Castille, & Stuber, 2008).

Effectiveness. While recent studies have examined the frequency of the use of informal coercion, relatively little is known about the effectiveness of informal coercion on treatment adherence, particularly to medication. An analysis of the dataset from the study by Monahan and colleagues (2005), looking at four types of leverage (financial, housing, criminal sanctions, and involuntary outpatient commitment), found that the experience of leverage was not associated with medication adherence (McNiel, Gormley, & Binder, 2013). Additional analysis of the same dataset examined the connection between jail-diversion programs—which mandate treatment and community supervision in lieu of arrest—and medication adherence and found no association between them (Redlich, Steadman, Robbins, & Swanson, 2006). Currently, there is no empirical evidence that the use of any leverage is associated with adherence to medication. However, some evidence indicates that financial incentives (i.e., money for medication adherence) improve medication adherence. A recent randomized controlled trial (RCT) in the Netherlands ($N = 169$) reported that financial incentives are effective in improving treatment adherence to medication in consumers with psychotic disorder (Noordraven, Wierdsma,
Blanken, Bloemendaal, & Mulder, 2018). Further, the study found that even when the financial incentive was discontinued over 80% of participants were still motivated to participate in clinical treatment. Notwithstanding its possible effectiveness, the use of financial incentives has been highly contentious among clinicians and researchers, since such incentives can become ethically and practically problematic if they are used in ways that subvert consumers’ decision-making (Burns, 2007; Szmukler & Appelbaum, 2008).

**Formal Coercion: Effectiveness and Critique**

Compulsion in community mental health care has been a source of fierce debate for centuries. Compulsion in its most traditional sense refers to involuntary hospitalization; however, it also applies to treatments outside of hospitals and mental health institutions. These days, compulsion outside of an inpatient facility takes the form of a legal coercive order to mandate individuals to participate in mental health treatment. Types of compulsory community treatment orders include involuntary outpatient commitment (IOC), community treatment order (CTO), and, in its widespread version in the U.S., assisted outpatient treatment (AOT). Of these terms, AOT has become particularly popular in the discourse, but it is essentially a misnomer. As noted by Solomon (2017), the term “assisted outpatient treatment” was euphemistically proffered by proponents of these programs to describe what was known for years as, simply and correctly, “involuntary outpatient treatment.” The word “assisted” was a cynical effort—in lobbying for laws that support such programs—to render the coercive aspect of the practice less obvious to the public eye and lawmakers. Since AOT is “a positive spin” on involuntary outpatient treatment orders (Solomon, 2017), we aim to restrict the use of the term to cases in which we refer to a law or other sources that use this name.
An involuntary outpatient treatment order is issued by courts; it mandates adults who have shown symptoms of severe mental illness, and that satisfy other clinical and legal criteria, to participate in a treatment plan. Over the past quarter century, all U.S. states except Connecticut, Maryland, and Massachusetts have adopted a version of such a law (The Treatment Advocacy Center, 2017). While states vary in their criteria required for obtaining a court order (and in the procedures and laws that establish and govern such programs), generally courts mandate outpatient treatment to individuals who suffer from severe mental illnesses, have a history of noncompliance with treatment (particularly medication nonadherence), are gravely disabled, and show imminent risk of harm to self or others (Reisner, Slobogin, & Rai, 2004; Solomon, 2017).

It is important to emphasize that these orders are not issued in connection with criminal activity; rather, these programs allow civil courts to extend their jurisdictions to discipline individuals by compulsory outpatient treatment. Coerciveness, then, in the context of AOT laws, is expressed by the degree to which involuntary programs force, commit, or threaten (the use of coercive language) participants to follow their treatment plan orders. These laws can order individuals with SMI into receiving forced treatment—usually prescribed psychiatric medication, since the presumption is that nonadherence to medications contributes to past incarceration, homelessness, and hospitalization (Solomon, 2017).

Despite its prevalence, the effectiveness and desirability of so-called AOT remains a topic of fierce debate (Rosenberg, 2014). On the one hand, studies that examined the effectiveness of such laws noted that participants who show positive results, such as greater engagement in outpatient services and reduced hospitalizations (Swartz & Swanson, 2004), are more likely to adhere to their medication treatment (Esposito, Geller & Ragosta, 2012; Swartz et
al., 2001), have a higher subjective quality of life, and are ready to accept the harm of coerciveness in return for the benefit of improved outcomes (Swanson et al., 2003a; Swartz et al., 2003b). These studies point out that the involuntary nature of the program does not detract from its efficacy. Advocates of AOT programs believe that people who experience psychosis lack an awareness of their illness and, therefore, are unable to care for themselves, as evidenced by homelessness, incarceration, ill-kept appearance, and bizarre behaviors including visibly talking to themselves, lack of coherent speech, and odd facial, body, and hand movements (Torrey & Zdanowicz, 2001). Finally, supporters contend that with limited sources of funding being provided for mental health services, involuntary outpatient treatment orders are the most pragmatic and cost-effective way to support people with severe mental illness.

Conversely, opponents dispute the validity of the studies measuring the effectiveness of AOTs (Cherry, 2010; Solomon, 2017; Vergunst, Rugkåsa, Koshiaris, Simon, & Burns, 2017). To date, three RCTs have examined the effectiveness of involuntary outpatient treatment orders. While the trials demonstrated no support for the claims of effectiveness, they had several methodological weaknesses, undermining the credibility of these studies’ results. For example, Swartz and colleagues’ (1999) RCT, based on data from North Carolina, reported several positive outcomes. However, the authors failed to describe the process of randomization in detail; the study’s analysis introduced selection bias and violated the rigorous study design that RCTs impose. One important criterion for an order to admit an individual to involuntary outpatient treatment is a history of violent behaviors and imminent risk of harm to self or others. Yet, ironically, both RCTs (Steadman et al., 2001; Swartz et al., 1999) excluded participants with a history of violence. In addition, where the results showed higher adherence, other research found that better adherence rate usually involved deception on the part of the providers
(Szmukler & Appelbaum, 2008) and the consumers’ lack of awareness of their legal status (Hoge et al., 1997; Katsakou et al., 2011; Lids et al., 1995). Further, there is no correlation between cause and effect: to the extent that consumers are doing better after involuntary outpatient treatment order, then it likely stems from availability of mental health services rather than the law itself, which is focused on coercing adherence to treatment and not on providing services (Solomon, 2017).

A recent study sheds some light about another problematic aspect of involuntary outpatient treatment orders. Jobling (2019) conducted ethnographic research into the process of renewing involuntary outpatient orders in mental health tribunals in England. Among the various findings, Jobling observed that it is difficult to discharge from such an order and tribunals tend to err on renewal. If an individual is doing well, the tribunal will renew to maintain progress; if the individual is not, the rationale for renewal is to enable progress. Tribunals also put heavy weight on providers’ testimony about risk, which is difficult to refute or challenge. The process has other structural problems, which, altogether, lead Jobling to conclude that “tribunal judgements are heavily weighted towards upholding CTOs” (Jobling, 2019, p. 95).

Finally, critics contend that even if involuntary outpatient treatment orders show some positive results, they still excessively violate participants’ autonomy and should not exist (Phelan et al., 2010), for several reasons. AOT laws provide the authority to coerce treatment of individuals who have not committed a crime and do not meet the standard for inpatient commitment. Opponents argue that the continued stigmatization and fear of individuals with SMI are based upon the erroneous conception that they are dangerous and impose risks to society (Furnham & Pereira, 2008; Solomon, 2017). Moreover, the enforcement of involuntary outpatient treatment orders has proven to be complex, expensive, and generally ineffective, as
providers do not like to engage in policing and police officers lack the training and will to engage with individuals whose offense is nonadherence to medication (Rosenberg, 2014; Solomon, 2017).

Most importantly, many official bodies warn against the affront to basic human and civil rights that results from the coercive practices, as they violate the basic rights of freedom and liberty, informed consent, and self-determination (American Psychological Association, 2002; NASW, 2008; United Nations, 2013; WHO, 2013). Coercion can lead to dehumanization. In a recent study based on interviews with 12 individuals who had had psychiatric hospitalization, the participants described the coercive process as distinguishing them—the participants—from the staff members, and casting them as “others” (Verbeke et al., 2019). This differentiation caused the participants to feel like integral parts of their personality—e.g., being an independent person—were being neglected. Others reported that providers were afraid of them and treated them as objects. The researchers concluded, “These results help to explain why coercion can have an existential impact and makes it difficult for people to fulfil their social roles” (Verbeke et al., 2019, p. 94).

Additionally, coercive practices contradict basic social work values and ethical norms. It should be noted that social workers deliver the majority of mental health services in the U.S., with 60% of mental health professionals being clinical social workers (NASW, 2015), and are often faced with considerable ethical practice dilemmas related to a consumer’s right to self-determination and freedom of choice (Mullen, Dawson, & Gibbs, 2006). Accordingly, Szmukler (2008) stated, “There is probably no more unpleasant task for a clinician working in mental health than imposing treatment on an unwilling patient; and probably no experience for the patient that is more humiliating” (p. 229). Thus, social workers are particularly challenged in
coercive settings, where they are expected to ensure that individuals with involuntary outpatient treatment orders adhere to their medication regimen, while not minimizing other (clinical) treatment goals.

Individuals with SMI are the primary group of people who can be forced to receive treatment. Mental health advocates and consumers are actively working to urge the mental health system to transform models of care and implement a more humane approach to treatment. An alternative approach to coercive practices that might minimize consumers’ perceived level of coercion and increase treatment adherence is based on the principles of the recovery philosophy, a treatment approach that gives voice and choice in treatment decisions, promotes self-determination, collaboration, hope, freedom, and liberty. The next section will review two treatment approaches that are in line with the recovery philosophy of being person-centered and involving shared decision-making.

Recovery-Oriented Practices in Community Mental Health Care

Historical Background

**Deinstitutionalization movement.** The deinstitutionalization movement, a worthy and humanistic cause, has become the catalyst for the increase in medication adherence as well as for the search for more ethical psychiatric interventions for recovery. It is worthwhile, then, to briefly introduce the movement that later served as the channel for the recovery treatment philosophy. In 1840, Dorthea Dix, an early and influential psychiatric reformer, visited almshouses, jails, and prisons, and saw the poor conditions of people with SMI, confined to closets and cellars, chained and beaten (Rubinow, 2014). In 1841, after witnessing the harsh treatment of people who suffer from mental illness, Dix began lobbying to build public psychiatric hospitals and advocated for more humane treatment (Rubinow, 2014). Dix
successfully campaigned for the establishment and enlargement of 75 mental hospitals and requested the transfer of individuals with SMI from jails and almshouses. By the late 19th and early 20th centuries, these facilities became overcrowded and underfunded, which dramatically affected the quality of care and caused residents to dysregulate their behaviors (Rubinow, 2014; Solomon, 2015). Consequently, because of few treatment options and the lack of knowledge about severe mental illnesses, care providers frequently felt compelled to employ coercive and abusive means for consumer control (Solomon, 2015). Interventions used in these facilities included eugenics, bloodletting, sterilization, insulin coma therapy, the Tranquilizer Chair, high doses of emetics and neuroleptics, electroshock therapy and restraints (which are still in use), sedation with experimental drugs, and frontal lobotomies (Sharav, 2005; Testa & West, 2010; Whitaker, 2001). Political liberals and social-justice advocates, aware of the maltreatment in these facilities, voiced concerns over consumer rights and psychiatric paternalism. They demanded the release of consumers from asylums and hospitals into community-based care.

In 1952, Smith Kline & French Laboratories introduced the first effective antipsychotic medication, Thorazine (or chlorpromazine) (Watnik, 2001). For policymakers, the premise of medication was promising: it revolutionized the way individuals could be treated and made it possible for individuals who suffer from mental illness to function in the community, enabling states to integrate individuals into society (Arrigo, 1997). This resulted in the deinstitutionalization movement of the 1950s, a movement focused on decreasing stays in psychiatric facilities and increasing treatment within the community (Solomon, Gordon, & Davis, 1984; Watnik, 2001).

To get a fuller understanding of the deinstitutionalization movement in the U.S., it is important to examine the federal involvement in pressuring states to provide cost-effective
community treatment over the 50 years following the rise of deinstitutionalization movement. In the mid-1950s, there were approximately 550,000 beds in psychiatric facilities serving a total U.S. population of 165 million (Anfang & Appelbaum, 2006). With the introduction of Medicaid in 1965, the federal government excluded Medicaid payments for consumers with SMI in state psychiatric hospitals as an effort for further deinstitutionalization, which maintained the costs of caring for consumers to the individual states (Watnik, 2001). Consequently, many state hospitals closed and the care for consumers with SMI shifted to more community-based settings. By the 1980s, there were only 150,000 psychiatric beds (serving a population of 227 million); in 2000, fewer than 60,000 beds (for a population of 281 million) (Anfang & Appelbaum, 2006).

Inpatient beds in acute-care general hospitals and private facilities did not fill the gap. With fewer public inpatient beds available, pressure increased to admit only consumers severely in need of hospitalization; once the consumer was admitted, pressure mounted to discharge that consumer quickly, to keep up with demand for beds (Whitaker, 2001). Anfang and Appelbaum (2006) noted that when consumers with SMI failed to gain access to psychiatric facilities, it was not due to restrictive commitment standards or overly rigorous legal procedures, but lack of appropriate places to which to admit them. Further, between 2009 and 2012, states cut a total of $4.35 billion in public mental health spending from their budgets, leading to a severe shortage of services (Honberg, Kimball, Diehl, Usher, & Fitzpatrick, 2011; Pickler, 2013).

**Consequences of the deinstitutionalization movement.** The aim of this movement was to liberate individuals with severe mental health conditions, while advocating for such individuals to reside in the community and receive integrative community-based services (Bagenstos, 2012; Reinharz, Contandriopoulos, & Lesage, 2000). Thus, the original intent was to implement a humanistic approach to the dilemma resulting from the “incompatibility between an
individualistic world that marginalizes people who are different and a society that aspires to be the humane and caring heir to a vision of society prompted by the major social programs of the past” (Reinharz et al., 2000, p. 542). However, states were not prepared for the release of people with symptoms of severe mental illness into society, and rehabilitative social services were not implemented following their release (Cremin, 2012). Resources and services that could have played a role in preventing psychiatric hospitalization continued to decrease and impacted the well-being of individuals with mental illness. Some people were placed in skilled nursing homes and highly structured facilities, but these were similar to the earlier dehumanizing conditions found in the large institutions that were being closed. Cremin (2012) noted that the transition out of psychiatric hospitals into these facilities have proved to be ineffective and substandard due to unsanitary living conditions, inadequate care, and overcrowding.

Inadequate continuity of care and the lack of psychosocial rehabilitation services following the deinstitutionalization movement have made the lives of those who struggle with severe mental illness even more difficult. The deinstitutionalized population overwhelmed the general hospital emergency rooms and began a cycle of short hospital stays and readmissions (Solomon, 2015). After discharge, without having an appropriate rehabilitative treatment plan, consumers were back to wander the streets and exhibit bizarre behaviors that rerouted them through the revolving door of the emergency rooms or to jail (Rubinow, 2014). “Medicalization of services” and “medication treatment” became the dominant language and framework of the mental health field for the 50 years that followed deinstitutionalization (Conard, 2007). Not only were pills readily available to address and treat individuals’ symptoms, but the availability of medicinal solutions, along with the rise of the pharmaceutical industry, contributed to the field’s overmedicalization: the field became saturated with language and paradigms grounded in
medical thinking (thus, symptoms of mental illness were seen as “medical”), to the relative exclusion of other treatment options. This partly explains the need for a solution, as is seen in coercive practices and the emphasis on medication adherence.

In the 1970s, local groups of persons with severe mental illness began to organize; they formed the mental health consumer movement as a civil rights movement. They advocated for more dignity and freedom for people with SMI who had experienced what they saw as cruel and demeaning treatment from those in control of the mental health system. Members of these groups shared their own personal experiences, perceptions, and opinions concerning their recovery. They demanded that their own perspectives and therapeutic goals should have more importance than those of the professionals who were more focused on attempting to cure them rather than treat them.

In the early 1990s, a group of mental health advocates and consumers initiated the recovery movement as a response to experiences of people with SMI which included disrespect, coercive practices, psychiatric paternalism, and a lack of partnership in their own care in the mental health service (Lukens & Solomon, 2013). They began speaking and writing about recovery-oriented treatment and started an evolution of mental health policy and treatment philosophy that has continued.

**The Recovery Movement and its Philosophy**

For many years, the prevalent belief was that recovery for people living with severe mental illness was not possible. Practices inherited in the medical model led to low rehabilitative expectations that have been seen to wear away hope and support chronicity (Harrison & Mason, 1993). The recovery movement originated as a humanistic response to the consequences of institutionalization, with the aim of developing a psychosocial rehabilitation model alternative to
the medical model. Thus, mental health activists and people with SMI decided to share their personal recovery stories and experiences; they advocated for person-centered practices that value their own life expertise and rights to freedom, choice, and self-determination.

Advocates and consumers have developed many interpretations of recovery philosophy. These advocates include psychiatrist Dr. Mark Ragins (2002, 2006, 2016); Mary Ellen Copeland (2002) a consumer, a psychologist and the designer of the Wellness Recovery Action Plan (WRAP), an evidence-based mental health recovery program; William Anthony (1991, 1993, 2000), a front-runner of the recovery movement, and a major leader in the Center for Psychiatric Rehabilitation; and Patricia Deegan (1988, 1996), a consumer, psychologist and advocate for mental health consumers. This study will use William Anthony’s (1993) popular definition of “recovery”:

Recovery is … a deeply personal, unique process of changing one’s attitudes, values, feelings, goals, skills, and/or roles. It is a way of living a satisfying, hopeful, and contributing life even with limitations caused by illness. Recovery involves the development of new meaning and purpose in one’s life as one grows beyond the catastrophic effects of mental illness. (p. 15)

As Anthony’s definition suggests, recovery aims to help individuals achieve satisfying and fulfilling lives; the method involves seeing a person holistically, beyond their illness. Recovery-oriented services “aim at seeking, achieving and maintaining valued social roles and a personally meaningful life despite and beyond the limitations and challenges of SMI” (Rudnick & Roe, 2018, p. 1). Deegan (1996) emphasized that recovery is a “journey” with the goal “to embrace our human vocation of becoming more deeply, more fully human…. The goal is to become the unique, awesome, never to be repeated human being that we are called to be” (p. 92). The
philosophy asserts that mental health diagnoses or symptoms should be seen as part of a person’s whole and therefore not define who they are. This is an important concept since psychiatric diagnosis and medications profoundly influence consumers’ sense of self, identity, and life experiences (Roe et al., 2009). Recovery focuses on functional improvement and building a life beyond illness without necessarily achieving a full elimination of symptoms. Recovery, then, is “both an outcome . . . as well as a process” (Rudnick & Roe, 2018, p. 8), in the sense that it aims to achieve better functioning of the individual, and to celebrate the uniqueness of each consumer’s journey and personal qualities.

In direct-practice terms, recovery requires, first and foremost, providers’ belief that people can—and do—actually recover from serious mental illnesses. Treatment providers are essentially seen as quality-of-life facilitators who act as coaches to help design a psychiatric rehabilitation treatment plan in which they support consumers’ efforts to achieve a higher quality of life. In the therapeutic alliances, providers authentically connect with consumers and help them develop hopes and dreams, recognize their strengths and uniqueness, and find a meaningful life role. Recovery-oriented providers will ask consumers whether an assessment or diagnosis seems right to them, while empowering consumers to make changes or add something that the provider might have missed. These providers exhibit the sensitivity of acknowledging human value and of telling a consumer straightforwardly, when they need to hear it, that this world is a better world because they are a part of it. Recovery is about partnership, and presenting opportunities that might be lost for people with SMI. This is why hiring people with severe mental illness as peer-support professionals is so important to enhance mutual help and hope (Deegan, 1996; Solomon, 2004).
Empowerment is a key feature of the recovery process. Consumers are empowered to participate in shared decision-making (SDM) interventions about their treatment choices, as opposed to a paternalistic approach, where care is dictated by the provider and is often more focused on illness and managing symptoms. Empowerment also helps individuals challenge the stigma and discrimination that are attached to mental illness. Warner (2009) noted that “people with mental illness may feel disempowered, not only as a result of involuntary confinement or paternalistic treatment, but also by their own acceptance of the stereotype of the mentally ill person” (p. 378). Thus, the recovery model is useful in challenging the consumer’s own lack of feelings of self-worth, self-esteem, and hope (Warner, 2009).

In 2003, the idea of recovery received national attention in the U.S. when the federal government established the president’s New Freedom Commission report on Mental Health, which emphasized recovery as the primary goal for individuals with mental illness (New Freedom Commission, 2003). This report designated recovery as the single most important goal in its call for the transformation of the mental health system to that of a recovery-oriented system of care. This was a noteworthy development, which led to the establishment of a nationwide formal definition of “recovery” and to recovery principles. In 2005, SAMHSA’s Center for Substance Abuse Treatment (CSAT) convened a national summit on recovery. They gathered a group of stakeholders, consumers, policymakers, advocates, and clinicians to create a common definition of “recovery” in order to lay the foundation for research devoted to better understanding this process (Sheedy & Whitter, 2009). From this summit came a working definition, 12 guiding principles of recovery, and 17 elements of a recovery-oriented system of care—each of which were adopted by SAMHSA (Sheedy & Whitter, 2009). Table 1, below, gives a summary of SAMHSA’s recovery principles:
Table 1

12 Guiding Principles of Recovery

1. There are many pathways to recovery.
2. Recovery is self-directed and empowering.
3. Recovery involves a personal recognition of the need for change and transformation.
4. Recovery is holistic.
5. Recovery has cultural dimensions.
6. Recovery exists on a continuum of improved health and wellness.
7. Recovery emerges from hope and gratitude.
8. Recovery involves a process of healing and self-redefinition.
9. Recovery involves addressing discrimination and transcending shame and stigma.
10. Recovery is supported by peers and allies.
11. Recovery involves (re)joining and (re)building a life in the community.
12. Recovery is a reality.


These recovery principles and elements provide a philosophical and conceptual framework to guide SAMHSA, CSAT, and other stakeholder groups and offer a shared language for dialogue and further development.

Recovery and Self-Determination Theory

Consumers’ right to self-determination is a central feature of the recovery philosophy, with the consumers being active participants who take responsibility for their lives and determine the terms of their treatments. Recovery principles are grounded in the notion that consumers should have autonomy and control over the support they receive, with the aim of creating their unique journey to recovery; therapeutic alliances are based on motivation and consumers’ own efforts to help themselves. Self-determination theory (SDT) (Ryan & Deci, 2000), a general
theory of human motivation and personality, describes how social context and therapeutic alliances can either thwart or support personal autonomy, and how a sense of autonomy can mediate engagement in treatment. The theory highlights the importance of human’s evolved inner resource for personality development and behavioral self-regulation (Ryan, Kuhl, & Deci, 1997). In broad terms, the theory aims to specify factors that nurture people’s inherent growth tendencies and innate psychological needs that are the bases for their self-motivation and personality integration.

SDT posits that people share basic universal psychological needs for autonomy (i.e., the capacity to make an informed, uncoerced decision), competence (i.e., feeling empowered to accomplish their desired goals), and relatedness (i.e., feeling one’s belonging to a certain group, being accepted and feeling positive emotions while acting as a group member) (Ryan & Deci, 2000). According to SDT, these basic psychological needs are essential for optimally facilitating people’s natural propensities for internalization and integration, as well as for their constructive social development and personal well-being.

The theory postulates that when people’s basic needs are met by their social environment (e.g., religious leaders, coaches, healthcare providers, parents, and criminal-justice environments), they naturally feel energized to grow, to address personal challenges, and to be healthier (Lamberti et al., 2014). However, when these basic needs are undermined, individuals become unmotivated, or they rebel against those they perceive to be controlling them. Central to the experience of personal autonomy is an individual’s perception of whether specific behaviors and activities are expressed out of one’s own personal interest (intrinsic motivation) or are forced by some external contingency (extrinsic motivation) (Ryan & Deci, 2000). People whose motivation comes from being forced or controlled are less likely to engage in behavioral change.
and may demonstrate passive compliance to avoid further control. In contrast, when people feel that they have chosen their own rehabilitation services, they may be driven by intrinsic (rather than extrinsic) motivation to follow treatment recommendations (Miller & Rollnic, 2002). Further, people whose motivation is authentic have more interest, excitement, and confidence, which results in enhanced performance, persistence, and creativity (Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), heightened vitality (Nix, Ryan, Manly, & Deci, 1999), self-esteem (Deci & Ryan, 1995), and general well-being (Ryan, Deci, & Grolnick, 1995).

A primary focus of SDT is non-intrinsically motivated practices, with specific attention to how people acquire their motivation as it relates to their quality of autonomy and overall well-being. By nature, individuals have the impulse to reject extrinsically motivated practices (i.e., coercive practices), which are initially experienced as controlling. However, SDT posits that with nurturing social-environmental support (i.e., recovery-oriented practices) for autonomy and competence, these new behaviors may gradually become experienced as increasingly autonomously motivated through the process of internalization and integration.

**Person-Centered Care**

**Concept.** The concept of person-centered care (PCC) has a long history and tradition in the healthcare system. Recovery-oriented practices are built on person-centered approach, such that the consumer has a tailored plan of care that respects and acknowledges their uniqueness, psychosocial needs, culture, and problem severity (Sheedy & Whitter, 2009). Recovery-oriented practices incorporates PCC because they “put the person at the center of the service” (Rudnick & Roe, 2018, p.1). There are several definitions for PCC approach in the literature. However, our
study will use Adams and Griedler’s (2005) definition, which is based on the Institute of Medicine (2001) definition of PCC.

A highly individualized comprehensive approach to assessment and services is used to understand each individual’s and family’s history, strengths, needs, and vision of their own recovery including attention to the issues of culture, spirituality, trauma, and other factors. Service plans and outcomes are built upon respect for the unique preferences, strengths, and dignity of each person. (p. 21)

Thus, PCC is a collaboration of the provider and the consumer where the latter is seen as an expert in their own lived experiences and is critical in developing realistic life goals.

Rudnick and Roe (2018) suggest that PCC in the context of working with SMI has four possible dimensions: (1) “person focused”: “refers to the person as the (intended) beneficiary of care” (p. 9); (2) “person driven”: “refers to the person[s] as the decision-maker” about their care (p. 10); (3) “person-sensitive”: “refers to care as addressing particular needs of the person” (p. 11); and (4) “person-contextualized”: “refers to care as considering the person’s history and current circumstances . . . “ (p. 11).

Being respectful is a key feature of PCC; it is frequently referred to as a “right” and is the driving force behind this concept (McCormack, 2003). The practice of PCC is based on mutual respect between the provider and the consumer, while the emphasis is on recognizing consumers’ capabilities to make essential decisions about their own care, with respect to the provider’s expertise (Tondora, Miller, Slade, & Davidson, 2014). Thus, PCC plays a central role in the strategy to promote self-determination and autonomy. For people who receive mental health services, PCC means that they have the power to make choices and can be active in selecting their support system (e.g., family, friends, tutor, etc.) (Tondora et al., 2014). Healthcare
providers who offer choices to their consumers recognize and respect the inherent value of each individual, focus on their strengths and opportunities, and encourage autonomy.

In PCC, the provider establishes a collaborative environment, where the consumer is empowered to trust their own inner voice and develop goals that are personally meaningful for them, including goals beyond the spectrum of clinical care (Tondora et al., 2014). Consumers experience respect and unconditional acceptance by a provider, who shows them that no aspect of life is unworthy of understanding and acceptance. In addition, PCC care recognizes consumers’ need to take healthy risks in pursuing recovery and their right to make mistakes and experience real-life consequences of their choices (Corrigan, 2015; Deegan, 1996). To minimize the degree of such risk, providers encourage consumers to use self-directed and proactive approaches to crisis planning, such as a psychiatric advance directive and the Wellness Recovery Action Plan (WRAP), mentioned above (Corrigan, 2015).

PCC and Medication-adherence Studies

A review of the literature provides consistent evidence, both in general health care and mental health care, suggesting that empowering persons to take on active roles in their recovery and increasing their choices about their own care promotes positive outcomes (Davidson et al., 2012; Roe, McCay, & Keene, 2011). Several studies found that individuals who engage in PCC and are offered treatment choices are more likely to adhere to prescribed medications. Day et al. (2005) conducted a study in England (N = 228) and found that participants’ attitudes toward treatment were predicted by insight and relationship with staff (especially the physician-prescriber); a poor relationship with the prescriber, experience of coercion, and low insight predicted a negative attitude toward treatment. The researchers concluded that the quality of the therapeutic relationships with providers appears to be an important determinant of participants’
attitudes toward adherence to medication (Day et al., 2005). Another study found that when consumers were given the opportunity to discuss the risks and benefits of antipsychotic medication, 87% chose to adhere to the medication, compared with only 10% who were unsure whether they were going to continue to adhere and 3% who decided to discontinue (Bunn, O’Connor, Tansey, Jones, & Stinson, 1997).

Elbogen, Wilder, Swanson, Moser, and Swartz (2010) examined the use of psychiatric advance directives to coordinate ongoing treatment and medication preferences, as a proxy for type of treatment that allows individuals with SMI more control over their choice of medication, enables more decision-making and autonomy in designing the treatment of their choice (person-centered plans). The researchers reported that completing a psychiatric advance directive allowed participants to express their preferences about medications and may have positively influenced medication adherence up to a year later, suggesting that wider use of such directives could increase consumer participation in medication choice and potentially improve adherence to treatment regimens (Elbogen et al., 2010). Similarly, in a randomized controlled trial, providers used PCC planning combined with collaborative documentation—e.g., reporting assessments and engaging in identifying and integrating life goals—to appraise the level of consumers’ involvement in treatment and adherence to medication. The study found that such interventions were associated with improved service engagement and medication adherence (Stanhope, Ingoglia, Schmelter, & Marcus, 2013). Last, a comprehensive literature review by Laugharne and Priebe (2006) concluded that consumers want choices and trusting partnerships with their clinician, where the consumer uses the expert’s knowledge, and when consistent with their treatment preference they are more likely to adhere to their treatment choice.
In summary, PCC in the mental health field is an emerging topic in direct practice and in research. The philosophy of PCC accords with that of the recovery movement and overlaps in many of the concepts (Tondora et al., 2014)—including collaborative treatment decisions, with the consumer usually taking the lead; respect for the consumer’s control of her own process; focus on individual values and preferences, cultural competency, and coordination of care (Adams & Griedler 2005; Anthony, 2000).

**Shared Decision-Making**

Shared decision-making (SDM) for people with severe mental illness has been identified as a fundamental component of person-centered practices and as an implicit part of the recovery process (Drake & Deegan, 2006; 2009; Lukens et al., 2013). Researchers have identified SDM as an interactive intervention between a consumer and a healthcare provider wherein both are recognized as experts who share information, responsibility, goals, and mutual respect while discussing treatment choices (Adams & Drake, 2006; Deegan, 2007; SAMHSA, 2011). Furthermore, according to Adams and Grieder (2013), SDM aims to promote “an interactive and collaborative process between individuals and their healthcare practitioners about decisions pertinent to the individual’s treatment, services, and ultimately their personal recovery” (p.10). In the SDM process, consumers are encouraged to engage in a productive dialogue regarding their treatment perspectives and verbalize concerns about their overall well-being. For example, SDM empowers consumers to talk about medications’ side effects and to become more invested in treatment decisions. SDM also finds support among people who experienced coercive treatment. A 2018 study interviewed people with SMI who experienced coercion about their ethical views on coercion. Among the findings, participants expressed support for more
involvement in the therapeutic process and in the development of alternative treatment plans (Norvoll & Pedersen, 2016; 2018).

SDM attempts to adjust the traditional power imbalance between providers and consumers in the mental health care system—as well as in the healthcare system in general—with respect to the capacity of persons with severe mental illness and the presence of legal coercive power within those systems (SAMHSA, 2011). SAMHSA has recognized SDM as an effective intervention that advances wellness and recovery and produces good clinical outcomes (SAMHSA, 2011). In a meeting of approximately 50 experts and stakeholders about SDM and mental health care held in Washington, DC, A. Kathryn Power, the then director of the Center for Mental Health Services (CMHS) said, “SDM is an opportunity to make recovery real. By developing and promoting SDM in mental health care, we can advance consumer-centered care and recovery” (Power, 2007). However, despite its importance as part of recovery-oriented services, SDM has not yet been widely used with persons with severe mental illness; meeting participants voiced an urgent need for further research.

**SDM and Medication-Adherence Studies**

Medication treatment is one of the most important decisional domains for users of mental health services; giving such consumers a role in these decisions may help to decrease the negative effects associated with consumer expectations about medications (Roe et al., 2009). People with SMI need an open, safe, and supportive environment to discuss their concerns about medications without pressure from professionals (Roe et al., 2009). However, many consumers have reported both difficulties in raising medication concerns with psychiatrists and low levels of consumer involvement in medication decisions (Roe et al., 2009; Wolford, Drake, & Adams, 2007). A survey of consumers with schizophrenia (N = 96) found most were interested in SDM,
especially regarding medication (Bunn et al., 1997). Similarly, Wolford and colleagues (2007) found that approximately three in four people with severe mental illness preferred a shared role in decision-making about prescribing new psychiatric medications.

While most SDM studies focus on primary care physicians addressing physical conditions, the use of SDM interventions with people with SMI has been understudied (Duncan, Best, & Hagen, 2010). Quantitative studies exploring the benefits and applicability of SDM with individuals with SMI who receive treatment in community mental health programs are relatively limited in number. The Cochrane Collaboration conducted a systematic review of published SDM studies in mental health care to determine what research was rigorous enough to be considered “evidence” for SDM. After reviewing 197 articles, Duncan and colleagues identified 2 German studies that met the criteria for an extensive review (Duncan et al., 2010; Hamann et al., 2006; Loh, Simon, Wills, Kriston, Niebling, & Härter, 2007). Both included studies, discussed below, were cluster randomized controlled trials.

Hamann and colleagues (2006) recruited 113 consumers with a diagnosis of schizophrenia or schizoaffective disorder; this study took place in an inpatient acute-care mental health setting. Loh and colleagues (2007) recruited 405 consumers diagnosed with depression who were participating in outpatient primary-care settings. The latter study (Loh et al., 2007) indicated a statistically significant increase in levels of satisfaction in the intervention group ($p = 0.014$), while the earlier one (Hamann et al., 2006) did not find any difference between groups in terms of satisfaction. Further, neither study found evidence on clinical outcomes, hospital readmission rates, or consumer compliance with treatment appointments (Duncan et al., 2010). Although the Cochrane Collaboration concluded that use of SDM in these studies did not necessarily improve treatment outcome, they found that those engaged in SDM were more
knowledgeable about schizophrenia and treatment alternatives than those in usual care (Hamann et al., 2006) and that SDM might increase consumer satisfaction (Duncan et al., 2010; Loh et al., 2007).

A more recent cross-sectional study of 967 psychiatric outpatient participants in Spain concluded that increased consumer participation in clinical decision-making could increase consumer adherence to treatment (De las Cuevas, Peñate, & de Rivera, 2014). The study found a strong connection between participants’ expectations about involvement in designing their treatment plan and their rate of adherence to medications. Accordingly, the research showed that people with SMI whose preferences regarding participation in clinical decision-making were matched by their real experience in participating to the extent that they wished—were significantly more likely to adhere to their medications than individuals who experienced a different level of participation than they had desired. Another study found that when consumers received therapy that emphasized SDM they had greater adherence to medications (Ludman et al., 2003). Last, Adams and Drake (2006) reported that “[c]lients who believe they are actively involved in treatment decisions generally have better outcomes, whereas having a low sense of control over decisions is associated with less behavioral involvement in care, poorer self-rated health, and increased illness burden” (p. 94). Certainly, the use of SDM in mental health care is still understudied and requires further empirical research. Current quantitative studies have mainly examined consumer satisfaction, clinical outcomes, consumer compliance, and the impact of consumer demographics on decision-making in treatment. None of the studies examined the influence of coercion and recovery-oriented treatment practices as they relate to consumers’ adherence to their medication regime.
Interestingly, a recent study explored whether “supported decision-making” is even possible within an outpatient mandated program, within the Australian version of AOTs (called “Community Treatment Orders”, or CTOs). The researchers interviewed providers and consumers about their experiences working or receiving services in outpatient mandated programs, particularly about aspects of shared decision-making concerning treatment (Brophy et al., 2019). Among the many illuminating findings about the challenges of facilitating autonomous and respectful decision-making, the study found that “[t]he use of CTOs appeared to sometimes interfere with developing a trusting relationship due to power differentials being highlighted, and CTOs also formed a substitute for other ways of working that might be riskier such as enabling consumers to make their own decisions about their medication and other aspects of their treatment and care” (Brophy et al., 2019, p. 4). In addition, some consumers reported that their requests to discuss side effects of medications were not fully heard (Brophy et al., 2019). The study thus sheds light on the problems of being able to activate self-determination in the context of mandated outpatient programs.

SDM holds to several social work values, such as the inherent dignity and worth of the person, a person’s right-to-choice and self-determination, person-centered care, and empowerment of the consumer (Drake, Deegan, & Rapp 2010; NASW, 2008). The social work profession is committed to research and to use evidenced-based interventions that support its core principles throughout the different environments in which it operates. SDM is a strength-based model: it values people’s expertise and strengths instead of their deficits, while emphasizing collaboration and mutual respect.
Conclusion

Since the end of mass institutionalization and the advancement of the first effective psychiatric medications, adherence to medication has been embraced by policymakers as the paramount measure of successful treatment. This is not surprising as the consequences of nonadherence are significant, with effects on individuals with SMI, on monetary implications for the entire healthcare system, and on the criminal justice system. In accordance, academic studies aiming to isolate the factors that lead to increased adherence have proliferated. Yet, the growing research about what makes some individuals with SMI adhere—and others, not—is still inconclusive.

Notwithstanding the complexity of what increases adherence, the trend in policymaking is toward matching adherence with coercion: assuming that coercion efficiently leads to adherence. This trend that relies on coercion does not take the older form of inhumane institutionalization; but, rather, in its new incarnation, it manifests through providers’ diverse formal and informal practices. Our knowledge about the prevalence of informal coercion—and, even more so, on how successful it is in increasing adherence rates—is limited, with one study indicating that financial incentives might be successful in improving levels of adherence. When it comes to formal coercion, in particular involuntary outpatient treatment orders (aka, “AOTs”), the outcomes, in terms of success in increasing adherence, are more contested. Yet, such programs have mushroomed across the U.S. and internationally as well under the premise that coercion is limited—embraced by the consumers themselves as a better alternative to illness—and is an effective way to ensure safety and decrease hospitalization through increased medication adherence.
Against the backdrop of the return of involuntariness, programs based on the principles of recovery are also expanding. In fact, the few studies that examined the effect of recovery-oriented programs on medication adherence have been consistent in showing that such treatment—if based on consumers’ active engagement in designing the course of their treatment—increases rates of adherence to medication. When consumers are engaged in person-centered care and shared decision-making, they are more likely to follow their regimen than otherwise.

This study’s intention lies in assessing consumers perceptions of treatments based on recovery principles and treatments based on coercion and examining the degrees of contribution of each to the degree of adherence. One of the gaps in the literature is a combined assessment of these two treatment approaches. In addition, this research will join the growing number of studies that aim to yield enhanced knowledge of the factors that explain higher rates of medication adherence.

**Study’s Hypothesis**

Among consumers with SMI, the greater the degree of perceived recovery-oriented practices (e.g., autonomy support, shared decision-making, PCC) and the lower the degree of perceived coercive practices, the greater the degree of adherence to medication treatment.
CHAPTER 2: RESEARCH DESIGN AND METHODS

Study Design

This study employed an explanatory mixed-methods design (Creswell, 2015; 2014), which incorporates both quantitative and qualitative research methods, in order to understand the effects of perceived coercion, perceived autonomy, experiences of leverage, and perceived recovery-oriented treatment on adherence to medications among people with SMI within their mental health program. The primary justification for using a mixed-methods approach was the desire to combine multiple forms of data in order to develop a more thorough and deeper understanding of the issues at hand. The aim of the qualitative data collection is to augment the quantitative findings with illustrations that bring them to life and to assist with better interpretation of the data (Ivankova, Creswell, & Stick, 2006).

The quantitative portion used a cross-sectional correlational research design to determine the extent to which factors of perceptions of recovery-oriented and coercive services are related to medication adherence. The quantitative component of the survey contained demographic information and multiple scales measuring the previously identified concepts: recovery-oriented practices, coercive practices, and adherence to medication. The researcher analyzed the data to establish the extent to which the independent variables explain variation in the dependent variable, when controlling for other variables that may affect the dependent variable.

The qualitative component provided richer insight into the contextual and experiential factors associated with participants’ adherence to medication. The researcher collected the qualitative data via three open-ended questions at the end of the survey that allowed participants to freely describe their subjective therapeutic experiences with their mental health providers as they pertain to the concepts in question.
Because of the lack of sufficient research—most particularly, in the area of how recovery practices affect medication adherence versus coercive practices—the use of a mixed-methods study design added a new perspective to the literature regarding the study’s concepts.

**Data Collection and Setting**

Participants who consented to take part in this research, were mainly recruited from a well-known study recruitment platform, Amazon Mechanical Turk (Mturk) \( (N=92) \). Additional participants were recruited from online mental health advocacy support groups \( (N=19) \). Participants were asked to anonymously complete a one-time self-report survey via Qualtrics, an online software program allowing participants to complete the survey independently in their preferred setting. The survey took approximately 20 minutes to complete. Participants were asked to complete the survey after receiving mental health services for at least 90 days. Participants from the advocacy support group completed the survey at their agency by using computers designated for consumers’ use or along with those recruited from Mturk accessed the survey via a website link at their home or any other setting of their choice.

**Recruitment and Sample Size**

In order to determine an adequate sample size for this proposed study, several factors were considered. In reviewing previous studies measuring similar concepts of interest in the study, it was reported that effect sizes on average were moderate. In a meta-analysis, Conn, Enriquez, Ruppar, and Chan (2016) analyzed 146 studies of various theory-based interventions for medication adherence accounting for a total of 19,348 participants. They found through a random-effects models calculation, the overall weighted effect size across interventions to be 0.294, suggesting a small-to-moderate effect size with a \( p \) value < .001. This suggests that
intervention models and factors that contribute to increased medication adherence can be anticipated to reflect a small-to-moderate effect size.

In a study comparing consumers' satisfaction of care with level of coercive treatment experiences with a sample of 240 inpatient psychiatric consumers, Strauss et al. (2013) found a medium-to-large effect size (Cohen’s $d = -0.64$) for effect of involuntary admission on consumer satisfaction, and (Cohen’s $d = -0.46$) for effect of perceived coercion at time of admission on consumer satisfaction both with a p value < .001. In a systematic review and meta-analysis of 11 RCTs examining the effects of shared decision-making on indices of treatment-related empowerment of people with psychosis, Stovell, Morrison, Panayiotou, and Hutton (2016) found small, but statistically significant effect size between shared decision-making and consumer empowerment (Hedge’s $g = 0.30$ with a p value < .05). In a study measuring the impact of perceived coercion on the consumer’s perception of services, Stanhope, Marcus, and Solomon (2009) found a medium-to-large effect size (Cohen’s $f^2 = 0.34$). In other similar studies that examined decision-making for persons with SMI, effect size was reported to be from $0.17$ (O'Neal et al., 2008) to $0.20$ (Puschner et al., 2010). The effect sizes of these studies indicate medium-to-large effect size when compared to Cohen’s (Cohen, 1992) effect size index for multiple correlation analysis.

For this study, based on Cohen’s rationale and related literature, a medium effect size using multiple regression analysis, a power level of .80, and significance level of $p=0.05$ was anticipated. Using Cohen’s power table (Cohen, 1992), the sample size needed for this study to detect a medium effect size using a hierarchical multiple regression analysis with eight independent variables is $N=107$. The final size was 111, who qualified and completed the questionnaire.
The sampling method for this study was one of convenience. The sample was comprised of adults 18–75 years old who received mental health services from community outpatient treatment programs and were able to respond to the study’s online survey independently. Given the ongoing challenges recruiting participants for this study during a pandemic (COVID-19), the largest segment of participants for the study was recruited primarily from a well-known study recruitment platform, Amazon Mechanical Turk (Mturk). This platform provides access to a large, stable, and diverse participants pool in the U.S (Mason & Suri, 2012). Buhrmester, Talaifar, and Gosling (2018) who examined the impact of Mturk on the social sciences concluded that the platform could serve as a useful tool for social sciences research in various behavioral experiment methodologies, including Eriksson and Simpson (2010), who studied gender, culture, and risk preferences; Mason and Watts (2009), who used it to study the effects of pay rate on output quantity and quality; and Suri and Watts (2011), who used it to study social dilemmas over networks. In their article, Buhrmester et al. (2018) found that Mturk participants provided data that met or exceeded the psychometric standards as data collected using other means. In addition, they provided a useful safeguard framework for minimizing factors that may negatively affect data quality (e.g., inattention, attrition, and dishonesty) (Buhrmester et al., 2018). In our study, we incorporated Buhrmester et al. (2018) as well as Mason and Watts (2009) recommended safeguards to ensure the data quality. We performed a rigorous quality assurance assessment that included several screening questions to assess attention and comprehension, avoided factual response questions, minimized spammers and dishonest participation by excluding responses that originated from duplicate IP addresses. Last, we used Qualtrics to randomly generate a four-digit number at the end of the survey, which participants entered in the
MTurk platform to confirm completion and enable the matching of their MTurk identification to their survey response for survey review and payment approval.

Additional participants were recruited from online advocacy support group with short announcement on Facebook or emails along with the study’s flyer. These participants accessed the survey through a single-use link provided upon personal request to participate via email to the researcher.

**Inclusion Criteria**

Participants for this study were eligible if they were 18–75-year-old adults who were receiving psychiatric medication prescriptions from the community mental health clinic for at least 90 days and provided informed consent (see appendix B), and who self-report a primary diagnosis of schizophrenia spectrum disorder, bipolar disorder, major depressive disorder, and other psychotic disorders.

**Participants’ Payments**

The researcher provided all participants with a $5 gift card to Amazon as appreciation for their participation. Mturk participants who successfully completed the survey entered the four-digit code that was randomly supplied at the end of the survey. Then, participants entered their code in the Mturk platform and automatically received their payment. Participants from mental health groups who emailed the researcher directly to join, received a $5 gift card via their email addresses which did not link to their survey responses. After data collection ended, all participants’ email addresses were deleted.

**Measurements**

Data was collected through a one-time self-report survey via Qualtrics. All the proposed measures have been employed in previous research and have good psychometric properties. The
following measures are self-administered instruments that align well with the study’s population and the research question (see appendix C). Some of the measures have been slightly modified to meet the purpose of the study and can be performed independently online by the participants.

**Perceived organizational culture of recovery-oriented practices.** For the purpose of this study, we measured consumers’ perceived organizational culture of recovery-oriented practices using the Recovery-Oriented Services Assessment (ROSA) (People-in-Services Version) scale (Lodge, Kuhn, Earley, & Stevens-Manser, 2018). The ROSA scale is a revised version of the Recovery Self-Assessment–Revised (RSA-R) instrument, a well-established scale developed according to the principles of recovery-oriented services (O’Connell, Tondora, Croog, Evans, & Davidson, 2005; O’Connell et al., 2007). Recognizing the importance of including people in the research process who have lived experience of a mental health challenge, the developers of the ROSA scale adopted a mixed-methods approach that combined exploratory factor analysis with quantitative and qualitative feedback from expert peer provider consultants working in the public mental health system (Lodge et al., 2018). They used the results to develop the ROSA, a 15-item, self-report scale designed to measure the extent to which recovery-supporting practices are evident in mental health services. All items are scored on a 5-point Likert-type scale, ranging from “Never” to “Always.” The scale can be scored as a composite by summing and then calculating the mean of all items to create an overall ROSA score; a higher score indicates a greater frequency of recovery-oriented services at the organization (Lodge et al., 2018). As implemented in this study, for the current sample, the Cronbach’s alpha for the ROSA scale reflected high internal consistency with a Cronbach’s alpha of 0.94.

**Perceived autonomy support.** The concepts of autonomy support and self-determination theory (SDT) are operationalized by the Modified Health Care Climate
Questionnaire (HCCQ) (Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams et al., 1998). The instrument was found valuable for research on SDT in psychiatric outpatients and for clinical purposes such as assessing the consumer’s motivation to engage in treatment (Jochems et al., 2014). The HCCQ is a 6-item scale, modified from an original 15-item scale, that measures the degree to which participants’ specific psychiatrist (or nurse practitioner) or primary provider (i.e., case manager, therapist, social worker, etc.) is autonomy-supportive. The modified version consists of questions that are most representative of the concept of autonomy support (Williams et al., 1998; Williams, Gagné, Mushlin, & Deci, 2005). For the purposes of this study, we adopted two different 6-item versions of the HCCQ scale that were previously modified and used by Sheehan (2007). The first scale is a version for psychiatrists that was modified to address medication-taking decisions for prescribing providers (i.e., psychiatrists or nurse practitioners). For example, one item on the original scale reads, “I feel that my physician has provided me with choices and options.” This item was adapted to read: “I feel that my psychiatrist has provided me with choices and options (including not taking medications).” The second scale is a 6-item version for primary providers; we used it to measure consumers’ perceived autonomy support from primary providers. In our study, the term “primary provider” was substituted in place of “non-prescribing mental health providers” which was used by Sheehan (2007). We added the phrases referring to medication usage (e.g., “including not taking medications”) in parentheses for both scales. Items were scored on a Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). According to scoring guidelines, scores on the 6-item version are calculated by averaging the individual item scores. All items were added together for an overall score. Scores ranged from 6 to 42, with higher average scores representing a higher level of perceived autonomy support. Internal consistency, measured by Cronbach’s alpha, has been reported at .79
for the psychiatrist scale and .75 for the primary providers scale (Sheehan, 2017). The original 6-item version of the HCCQ has a good Cronbach’s alpha (.82–.96) (Carroll et al., 2013; Fullwood et al., 2013). For the current sample, the Chronbach’s alpha for the overall HCCQ scale reflected good internal consistency with a Cronbach’s alpha of 0.82. The Chronbach’s alpha for HCCQ subscale for Psychiatrist/ Nurse Practitioner was 0.85 and the Chronbach’s alpha for the HCCQ subscale for primary provider was 0.86.

**Coercion services.** The concept of coercion services is operationalized as the degree of autonomy, choice, freedom, control, influence, pressure, threats, and force that an individual perceives in seeking outpatient mental health care. We measured this concept by the MacArthur Admission Experiences Survey (MAES), modified for outpatient use (Gardner et al., 1993; Swartz, Wagner, Swanson, Hiday, & Burns, 2002), to assess participants’ experiences of coercion in outpatient treatment. Several studies that examined the perceived coerciveness in outpatient programs have used the modified version of the MAES (Jaeger & Rossler, 2010; Swartz et al., 2002; Swartz, Wagner, Swanson, & Elbogen, 2004). This study used a modified version of the MAES to reflect participants’ current perceptions of coercion, specifically from their current primary provider. For example, one item on the original scale reads, “People tried to force me to go to the mental health center.” This item was adapted to read: “My current primary provider tries to force me to receive mental health services at this program.” The instrument contains 15 true-false questions, which break down into the following 3 subscales: perceived coercion (5 items indicating judgment about lack of autonomy in seeking outpatient treatment), negative pressure (6 items concerning threats and force), and process exclusion (4 items referring to the lack of “voice” and validation in treatment decisions) (Hoge et al., 1997; Swartz et al., 2002). The scale is calculated as the sum of responses indicative of coercive experiences
(potential range, 0 to 15). Swartz et al. (2002) reported good internal consistency for the process exclusion and negative pressures subscales, and Swartz et al. (2004) reported Cronbach’s alpha of 0.85 in their study for the MAES for outpatient use. While we recognize that the scale’s psychometrics properties do not hold given our modifications, we believe that it is still a valid measure because it is more geared to the setting and concept of this study. For the current sample, the Cronbach’s alpha for the MAES scale reflected good internal consistency of 0.82.

Another instrument is a questionnaire that we used to identify leverage in mental health care as experienced by the study’s participants. We adapted the questionnaire from the Monahan et al. (2005) study, which examined consumers’ experiences of leverage to promote treatment adherence in five U.S. cities. The original questions assess participants’ lifetime experience(s) of leverage in three domains within the social welfare system: finance, housing, and criminal justice. For purpose of this study, we used a modified version of these questions, since we were interested in studying participants’ current experiences of leverage and whether they felt pressured or respected. Each question tests for both access to and potential withdrawal of benefits. For example, to assess participants’ experience with housing leverage, we asked participants, “Are you currently living in a place that requires you to stay in mental health or substance-use treatment (or requires you to continue taking your medication) in order to keep living there (including family home)? Have you been told that living in your current housing is dependent on your taking medications?” We asked participants to respond only to the questions that were relevant to their life experience. For example, participants for whom the use of finance as leverage was considered relevant were those who report having a formal representative payee or an informal money manager (Monahan et al., 2005). We combined responses to these questions into a dichotomous variable (any or no experience with leverage). Any positive
response within a specific leverage area counted as “reported” and we considered the participant to have experienced “leverage.” We coded participants who answered affirmatively (i.e., “yes”) to any of the leverage domains as experiencing perceived leverage, and vice versa. Several studies that examined the use of leverage in mental health care used the data set from the Monahan et al. (2005) study.

Further, Burns et al. (2011) have used Monahan’s original questions in a later English study, and results were compared with the U.S. results presented in Monahan et al. (2005) study. Burns et al. (2011) found that a third (n=145) reported feeling coerced to adhere to treatment at some time in their life, which was substantially lower than the U.S. levels (35 percent in England versus 51 percent in the U.S.). The highest rate of leverage was related to housing at 24 percent (compared to 32 percent in the U.S), followed by criminal justice leverage at 15 percent (compared to 23 percent in the U.S) (Burns et al., 2011).

In addition, in order to examine participants’ knowledge of their legal status, we have formulated five questions to assess what information participants know about their mental health treatment. For example, one question asks: “Are you currently mandated by the court to receive mental health services at this program?” Responses to the first two questions are scored on a four-point scale, ranging from “Yes” to “I don’t know.” Questions 3, 4, and 5 were combined into a dichotomous variable (i.e., “yes” or “no”). For example, one question asks: “Have you been conditionally discharged from an inpatient psychiatric unit to this mental health program?”

**Adherence to medication.** The concept of adherence to medication was operationalized by the Medication Adherence Rating Scale (MARS), a 10-item self-report scale that was specifically designed to examine the adherence to medication by consumers with severe mental illness (Thompson, Kulkarni, & Sergejew, 2000). The MARS assesses both beliefs and barriers
to medication adherence (Nguyen, Caze, & Cottrell, 2014). Total scores range from 0 (low likelihood of medication adherence) to 10 (high likelihood). We asked participants to respond to each statement in the questionnaire by choosing the answer (“yes” or “no”) that best describes their attitudes, beliefs, and behaviors regarding medication. We used the scale to examine adherence and the factors affecting individuals’ adherence among psychiatric populations. Thompson, Kulkarni, and Sergejew (2000) reported the reliability and validity of the scale as follows: reliability of the MARS using Cronbach’s alpha was 0.75 which was comparable to two common adherence instruments (0.76 for the Medication Adherence Questionnaire [MAQ] and 0.77 for the Drug Attitude Inventory [DAI]). The researchers reported good convergent or construct validity for the MARS when correlated with the DAI and the MAQ. They assessed the internal validity of the MARS, as well, and suggested it had a good internal validity according to Item Response Theory (IRT) analysis (Thompson, Kulkarni, & Sergejew, 2000). For the current sample, the Cronbach’s alpha for the MARS scale reflected good internal consistency of 0.79.

In addition, we asked participants one straightforward question to assess their medication-taking frequency: “In the last 30 days, how often did you take your mental health medications as prescribed?” We scored responses to this question on a four-point Likert-type scale, ranging from “All the time” to “Not at all.”

Control Variables

Belief of illness. “Belief of illness” is defined as a participant’s beliefs, views, and attitudes toward their mental illness. This concept is operationalized by the Brief Illness Perception Questionnaire (Brief IPQ), a nine-item scale designed to rapidly assess the cognitive and emotional representations of illness (Broadbent, Petrie, Main, & Weinman, 2006). The Brief...
IPQ has been used to assess illness representation in people with physical diagnoses (e.g., renal disease, type-2 diabetes, asthma, and hypertension) as well as among people with psychosis, depression, bipolar disorder, SUD, and personality disorder (Broadbent et al., 2008; Broadbent et al., 2015). All of the items except the causal question are rated using a 0 to 10 response scale, where higher scores represent a stronger endorsement of that dimension. Five of the items assess cognitive illness representations: identity (“How much do you experience symptoms from your illness?”), consequence (“How much does your illness affect your life?”), timeline (“How long do you think your illness will continue?”), personal control (“How much control do you feel you have over your illness?”), and treatment control (“How much do you think your treatment can help your illness?”). Two items assess emotion representations (“How concerned are you about your illness?” and “How much does your illness affect you emotionally?”), and one item assesses illness coherence (“How well do you feel you understand your illness?”). Causal representation is assessed by an open-ended question that prompts participants to list the three most important causal factors of their illness.

The instrument has demonstrated good test-retest reliability with Pearson correlations ranging from 0.24 to 0.73 at three weeks and 0.42 (personal control) to 0.75 (treatment control) at six weeks (Broadbent et al., 2006). Equivalent scales of the Brief IPQ and IPQ-Revised had moderate to good correlations when tested for concurrent validity (Pearson correlations 0.32–0.63) (Broadbent et al., 2006). The Cronbach’s alpha for the overall Belief of Illness score was unacceptably low at 0.56. Therefore, in line with the conventional use of this scale (Broadbent et al., 2006), the seven Belief of Illness items were utilized as separate continuous measures (scale 1 to 10) of the seven dimensions of the Belief of Illness construct.
Severity of mental illness. Severity of illness is operationalized as the level of psychopathological symptoms. The concept is operationalized by the Modified Colorado Symptom Index (MCSI), a 14-item, self-report scale specifically designed to measure the frequency with which psychiatric symptoms have been experienced during the past 30 days, including anxiety, depression, psychotic symptoms, and disturbed thought processes (Conrad et al., 2001; Shern, Lee, & Coen, 1996). Items are rated on a 5-point Likert-style scale, ranging from “Not at all” to “At least every day.” Each item is scored on a 0–4 scale (not at all = 0; at least every day = 4) and added together to give a score between 0 and 56, with higher scores indicating greater frequency of symptoms. An examination by Conard et al. (2001) concluded that the scale was found to be a reliable and valid measure of psychological symptoms in a sample of 1,381 people in treatment for mental illness or substance abuse (or both), of which 84% had a history of homelessness. Conrad et al. (2001) found that the MCSI had high internal consistency ($\alpha = .90$) and good test-retest ($r = .79$) supporting its reliability. Its relationships to other measures indicated that it had good construct validity, and it was responsive to change. The researchers concluded that the MCSI was useful in other studies targeting adults with SMI or substance-use disorders, or both. For the current sample, the Chronbach’s alpha for the MCSI scale reflected good internal consistency of 0.91.

Descriptive Variables: Socio-demographic Characteristics of Participants

Demographic information was obtained to describe some background information of the study’s participants. Demographic questions included age, gender, race, religious affiliation, marital status, employment status, level of education, as well as history of mental health treatment and psychiatric hospitalization.
**Qualitative Questions**

At the end of the survey, participants were asked to share additional information by answering the following three questions:

1. What helps you take your psychiatric medications regularly? For example, is it related to your mental health provider and/or to other things?
2. What makes it difficult for you to take your psychiatric medications regularly? For example, is it related to your mental health provider and/or to other things?
3. If you do not take your psychiatric medication regularly or at all, what do you think your mental health provider can do to help take your medication as prescribed?

**Data Analysis**

**Quantitative.** Socio-demographic characteristics of the sample were described using univariate statistics and multiple linear regression analysis was used to predict the dependent variable based on the values of the independent variables plus control variables. Multiple regression measures the association of the independent variables and dependent variable while holding control variables constant. The analysis was conducted to determine the strength of the relationship that therapeutic approaches (IVs) have on participants’ adherence to medication (DV). These findings assess the dependent variable’s degree of explained variance based on participants’ perceived levels of coercion and recovery-oriented services.

Prior to analyses binary independent variables (yes/no) were transformed into dummy variables with Yes=1 and No=0. Additionally, all continuous variables were tested for skew, outliers, and the existence of multicollinearity between variables. Statistical Package for the Social Sciences (SPSS) software was used to conduct all analyses and pairwise deletion was used to maintain as many cases as possible in all model testing.
Skew. Of the 12 continuous variables planned for analysis, *Perceived Coercion Practices, Negative Pressure, Coercion, Exclusion*, and *Medical Adherence – 30 day* were found to be highly skewed. A log transformation $\log_{10}(\text{PERC\_COERC\_PRACTICES} + 1)$ was performed on Perceived Coercion Practices with +1 added to the equation to account for data points = 0, and a $\log_{10}(\text{MED\_ADHERE30})$ was performed on *Medical Adherence – 30 day*. The log transformation reduced skew for *Perceived Coercion Practices* but increased it for *Medical Adherence – 30 day*. Because the *Medical Adherence – 30-day* variable uses a single question with a four-point Likert Scale response option, it was possible to address the skew by including it as a categorical variable in Chi-Square analysis rather than as a continuous variable in multiple regression given that Chi-Square Tests of Independence do not have the same underlying assumptions of linearity and normality as Multiple Regression does. Frequencies revealed that the skew for each of the *Perceived Coercion Practices* sub-scales, *Negative Pressure, Coercion, and Exclusion*, was a result of the high percentage of data points at 0 (*Negative Pressure* 51%, *Coercion* 86%, and *Exclusion* 72%). Therefore, those variables were transformed into binary variables for inclusion in multiple regression analysis with 0=No and 1-6=Yes.

Outliers. The 12 continuous variables were tested for outliers using the following equation: $(\text{IQR} \times 1.5) + 3Q$. *Perceived Coercion Practices* was the only variable found to have an outlier. As the data point was an extreme outlier, it was Winsorized to the 99th percentile score.

Multicollinearity. To identify possible multicollinearity among continuous variables, a multiple regression model was tested with *Medical Adherence* as the DV and the following variables included as IVs: *Recovery\-Oriented Practices* + *Overall Autonomy* + Psychiatrist/Nurse Practitioner + Primary Provider + Mandated Treatment + Conditionally Released + *Perceived Coercion Practices* + *Negative Pressure* + *Coercion* + *Exclusion* + *Finance Leverage*
+ Housing Leverage + Criminal Justice Leverage + Belief of Illness Dimensions 1-7 + Severity of Mental Illness.

Eight independent variables had VIF scores between 2.00 and 98.00: Recovery-Oriented Practices, Overall Autonomy, Perceived Coercion Practices, Negative Pressure, Coercion, Exclusion, Psychiatrist/Nurse Practitioner, and Primary Provider. To identify the relationships that might be driving the high VIF scores, a correlation analysis was conducted. Overall Autonomy and its two subscales, Psychiatrist/Nurse Practitioner and Primary Provider, were found to be highly correlated: Overall Autonomy and Psychiatrist/Nurse \( r=0.97 \); Overall Autonomy and Primary Provider \( r=0.96 \); and Psychiatrist/Nurse and Primary Provider \( r=0.86 \). Perceived Coercion Practices and its three subscales, Negative Pressure, Coercion, Exclusion were also found to be highly correlated: Perceived Coercion Practices and Negative Pressure \( r=0.78 \); Perceived Coercion Practices and Coercion \( r=0.77 \); and Perceived Coercion Practices and Exclusion \( r=0.82 \). Additionally, Overall Autonomy was found to be highly correlated with Recovery-Oriented Practices \( r=0.67 \). See Table 2.
Table 2

Correlations Among Independent Variables

<table>
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<tr>
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<th>1</th>
<th>2</th>
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<td></td>
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<td>-0.34</td>
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<td>-0.08</td>
<td>-0.08</td>
<td>-0.07</td>
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</table>

To avoid biased estimates due to multicollinearity among variables, the two sub-scales of Overall Autonomy were not used in hypothesis testing. Additionally, Perceived Coercive Practices and the three sub-scales were included in separate models, and Overall Autonomy and Recovery-Oriented Practices were tested in separate models.

**Hypothesis testing.** To test the relationship between Medical Adherence and the independent variables the following models were tested using multiple regression analysis:

**Model 1:** Medical Adherence = Recovery-Oriented Practices + Mandated Treatment + Conditionally Released + Perceived Coercion Practices (Log) + Finance Leverage + Housing Leverage + Criminal Justice Leverage + Severity of Mental Illness + Belief of Illness: affects life + Belief of Illness: illness will continue + Belief of Illness: control over illness + Belief of
Illness: treatment can help + Belief of Illness: experience symptoms + Belief of Illness: concern + Belief of Illness: understand illness + Belief of Illness: affects emotionally

Model 2: Medical Adherence = Recovery-Oriented Practices + Mandated Treatment + Conditionally Released + Negative Pressure + Coercion + Exclusion + Finance Leverage + Housing Leverage + Criminal Justice Leverage + Severity of Mental Illness + Belief of Illness: affects life + Belief of Illness: illness will continue + Belief of Illness: control over illness + Belief of Illness: treatment can help + Belief of Illness: experience symptoms + Belief of Illness: concern + Belief of Illness: understand illness + Belief of Illness: affects emotionally

Model 3: Medical Adherence = Overall Autonomy + Mandated Treatment + Conditionally Released + Perceived Coercion Practices (Log) + Finance Leverage + Housing Leverage + Criminal Justice Leverage + Severity of Mental Illness + Belief of Illness: affects life + Belief of Illness: illness will continue + Belief of Illness: control over illness + Belief of Illness: treatment can help + Belief of Illness: experience symptoms + Belief of Illness: concern + Belief of Illness: understand illness + Belief of Illness: affects emotionally

Model 4: Medical Adherence = Overall Autonomy + Mandated Treatment + Conditionally Released + Negative Pressure + Coercion + Exclusion + Finance Leverage + Housing Leverage + Criminal Justice Leverage + Severity of Mental Illness + Belief of Illness: affects life + Belief of Illness: illness will continue + Belief of Illness: control over illness + Belief of Illness: treatment can help + Belief of Illness: experience symptoms + Belief of Illness: concern + Belief of Illness: understand illness + Belief of Illness: affects emotionally

Because multiple models are planned to test variations of the same relationship (Autonomy on Medication Adherence), a Bonferroni correction was considered to protect against a Type I error whereby it is concluded that a systematic relationship between variables exists when, in fact, the observed relationship between variables is based on chance. A Bonferroni correction was applied to determine the significance of relationships between Medication Adherence and both Overall Autonomy and the Coercion sub-scales. The alpha level used for these variables was identified by dividing the conventional cutoff by the number of models planned ($p<0.05/2 = 0.025$, rounded to $p<0.03$). A Bonferroni correction was also applied to determine the significance of relationships between Medication Adherence and the other
Independent Variables—Mandated Treatment, Conditionally Released, Perceived Coercion Practices, Financial Leverage, Housing Leverage, and Criminal Justice Leverage. The alpha level used for these variables was identified by dividing the conventional cutoff by the number of models planned \((p<0.05/4 = 0.0125, \text{ rounded to } p<0.01)\).

**Exploratory Analysis.** To explore the relationship between Medical Adherence in the past 30 days and the independent variables, a series of Chi Square Tests of Independence were run, each one including *Medical Adherence-30 days* and a different independent variable: Recovery- Oriented Practices (collapsed); Overall Autonomy (collapsed), Mandated Treatment, Conditionally Released, Perceived Coercion Practices, Finance Leverage, Housing Leverage, and Criminal Justice Leverage. Several scales were collapsed to avoid violating the expected cell count of five per cell.

**Qualitative.** The analysis of qualitative data from the three open-ended questions at the end of the survey provided illumination and further interpretation of the findings generated from the quantitative measures (Creswell, 2015; 2014). We analyzed the three open-ended questions for evidence of feelings or experiences of autonomy (or lack thereof) in relation to medication adherence: (Q1) What helps you take your psychiatric medications regularly? (Q2) What makes it difficult for you to take your psychiatric medications regularly? (Q3) If you do not take your psychiatric medication regularly or at all, what do you think your mental health provider can do to help take your medication as prescribed?

Q3 purposely asks about the role of the mental health provider only, rather than more generally about what others—like peer advocates or family members—can do to enhance adherence. While we recognize that players other than the provider might affect adherence, and much research has investigated the role of others in increasing adherence (Davidson, Bellamy,
Guy, & Miller, 2012), we opted to focus on providers because the research concentrates on the connection between therapeutic methods and adherence, and not more broadly about adherence. Moreover, Q1 and Q2 were spaces in which participants could have (and, indeed, have) addressed other support networks.

We analyzed the questions separately, using directed content analysis (Hsieh & Shannon, 2005), whereby initial codes are created based on theory or previous research and used to guide the analysis process. The initial codes were drawn from the concepts underlying the questions in The Health Care Climate Questionnaire (HCCQ) including the concepts of having choices, being understood, having providers convey confidence, being encouraged to ask questions, being listened to, feeling free, having control, and having influence.

After initial codes were created, participant answers were read and notes taken about possible representations of these concepts across answers. These notes were then checked, adjusted, and confirmed by rereading participants’ answers. Each answer was then reread once again and given a single code that best represented the initial concepts drawn from theory. Codes were then collapsed into categories, often termed “themes” in open-coding analysis, whereby codes that appear to be communicating the same underlying idea are collapsed under a single classification. Because directed content analysis was employed, the various classifications ultimately reflected the levels of autonomy underlying the theoretical concepts used to create the codes. These classifications included a range of levels of autonomy communicated via the idea of responsibility: from no autonomy (others are responsible), to feeling some autonomy with support from others (responsible but needs support to be successful), to full autonomy, in which the participant is completely responsible for taking their medication.

Because Q2 asked about barriers to adherence, not necessarily about the provider, the
codes include categories such as “cost” and “logistic” reasons for not taking medications.

**Human Subjects**

To ensure the protection of all participants, this researcher received “human subject” approval from the Institutional Review Board (IRB) at the University of Pennsylvania and adhered to their guidelines. The researcher subscribes to the ethical principles underlying the conduct of research involving human subjects as set forth in the *Belmont Report* (1979) and assures his compliance with the Common Rule in the Code of Federal Regulations (45 CFR 46) on the Protection of Human Subjects. Additionally, the researcher has successfully completed the required Collaborative Institution Training Initiative (CITI), which the University of Pennsylvania provided.

This study used an online survey method, which participants independently responded to in their preferred setting (e.g., home, agency, library, community centers). All participants remained anonymous since the study design did not require them to identify themselves. Potential study participants were given an online prompt that required them to give consent to participate in the survey. Then, only after consent was given were participants provided with access to the online survey through the Qualtrics software. The survey was circulated electronically through a website link, and the researcher was not be present while the participants took the survey; therefore, the potential for coercion was diminished (the survey software, Qualtrics, provides anonymity and prevents coercion).

The consent form included background information on the study’s purpose, and a description of the survey and research procedures. Participants were informed of the risks and benefits of participating in the study. Potential risk included experiencing distressing or upsetting emotions while completing the survey. However, the risks of participation were minimal given that the administration of surveys and scales is a common practice in most mental health
programs. That said, in case a participant experienced distressing emotions that required further evaluation, consumers were prompted to access the clinical support system at their agency. The participants were advised that they were free to end their participation in the survey at any time with no penalties and to skip any questions they did not wish to answer. The researcher made every effort to ensure participants’ responses were secure. All surveys and consent forms were stored on the researchers’ password-protected and secured computer, and on the secured and password-protected Qualtrics database. The IRB at UPENN had access to the study’s data, as they were overseeing the study in terms of ethical implementation. In addition, the dataset that was created on the SPSS software was stored on the researchers’ password-protected storage drive. Participants who expressed interest in receiving further information about the study outcomes will receive a follow-up email that describes the study results.
CHAPTER 3: QUANTITATIVE STUDY FINDINGS

A total of 111 people qualified for and completed the survey. As shown in Table 3, 46% of the sample reported being between age 25-34 (N=51), 34% reported being between age 35-44 (N=38), 15% reported being between age 45-54 (N=17), 3% reported being between age 18-24 (N=3), and 2% reported being age 55-64 (N=2). Almost 68% of the sample reported being White (N=75), 14% reported being Black or African American (N=16), 12% reported being Asian (N=13), 4% reported being Hispanic or Latino (N=4), 1% reported being Native Hawaiian or Other Pacific Islander (N=1), and 2% reported having a race other than what was listed (N=2). Over 80% of the participants reported having some college education: 41% reported having an undergraduate degree (N=46), 30% reported some college (N=33), and 13% reported having a graduate degree (N=14); 14% reported having completed 12th grade or achieving their GED (N=16); 1% completed 10th grade (N=1), and 1% completed 8th grade (N=1).
Table 3

Demographic Characteristics of the Overall Sample

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<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Frequency</th>
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<tr>
<td>Black or African American</td>
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</tr>
<tr>
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<td>67.6</td>
</tr>
<tr>
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<tr>
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</tr>
<tr>
<td>Other</td>
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<table>
<thead>
<tr>
<th>Education</th>
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<th>Percent</th>
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<tr>
<td>10th Grade</td>
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<td>12th Grade or GED</td>
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</tbody>
</table>

As seen in Table 4, 74% of the participants reported having a diagnosis of Major Depressive Disorder (N=82), 20% reported having a diagnosis of Bipolar I Disorder (N=22), 14% reported having a diagnosis of Bipolar II Disorder (N=16), 9% reported having a diagnosis of Schizophrenia (N=10), 5% reported having a diagnosis of Delusional Disorder (N=5), 3% reported having a diagnosis of Schizoaffective Disorder (N=3), 1% reported having a diagnosis of Schizophreniform Disorder (N=1), and 32% reported having a diagnosis in addition to the ones listed above (N=36). Some reported more than one diagnosis.
A majority of participants reported previous outpatient therapy (91%, N=101), with 84% reporting receiving it currently (N=94). Sixty four percent (N=71) of participants reported previous case management, while only 48% reported receiving it currently (N=53); 35% of participants reported receiving crisis services in the past (N=39), with approximately 14% reporting receiving it currently (N=15). Slightly over 32% of participants reported past participation in day treatment or a drop-in center (N=36), while only 15% reported currently receiving it (N=17); 15% of participants reported living in a mental health group home in the past (N=17), while only 1% reported currently living in a mental health group home (N=1); 6% of participants reported previous Assertive Community Treatment (N=7) with slightly over 5% reported it currently (N=6). Finally, all participants currently have prescribed medications and slightly over 88% had past medication services (N=98) and almost 29% of participants reported past inpatient hospitalization (N=32). See Table 5.
As seen in Table 6, 33% of participants reported receiving mental health treatment for more than five years (N=37), 17% for one to two years (N=19), 14% for two to three years (N=15), 12% for three to four years (N=13), 8% for 10 to 12 months (N=9), 6% for both four to six months (N=7) and four to five years (N=7), and 4% reported receiving mental health treatment for seven to nine months (N=4).

Almost 28% of participants reported being with their current primary provider for one to two years (N=31), 20% for two to three years (N=22), 12% for three to four years (N=13), 10% for both four to six months (N=11) and seven to nine months (N=11), 8% for more than five years (N=9), 7% for 10 to 12 months (N=8), and 3% for both zero to three months (N=3) and four to five years (N=3). Similar to the length of time working with primary providers, the
highest proportion of participants (30%, N=33) reported being with their prescribing provider for one to two years, 20% for two to three years (N=22), 11% for 10 to 12 months (N=11) and more than five years (N=11), 10% for four to six months (N=10) and three to four years (N=10), 2% for four to five years (N=2), and 1% for zero to three months (N=1).

Table 6

Duration of Treatment and Length of Time with Treatment Providers

<table>
<thead>
<tr>
<th>Receiving mental health treatment</th>
<th>Between 4 and 6 months</th>
<th>Between 7 and 9 months</th>
<th>Between 10 and 12 months</th>
<th>Between 1 and 2 years</th>
<th>Between 2 and 3 years</th>
<th>Between 3 and 4 years</th>
<th>Between 4 and 5 years</th>
<th>More than 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>With current primary provider</td>
<td>7</td>
<td>4</td>
<td>9</td>
<td>19</td>
<td>15</td>
<td>13</td>
<td>7</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>6.3</td>
<td>3.6</td>
<td>8.1</td>
<td>17.1</td>
<td>13.5</td>
<td>11.7</td>
<td>6.3</td>
<td>33.3</td>
</tr>
<tr>
<td>With current prescribing provider</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>33</td>
<td>22</td>
<td>11</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>9</td>
<td>9</td>
<td>9.9</td>
<td>19.8</td>
<td>9.9</td>
<td>1.8</td>
<td>9.9</td>
</tr>
</tbody>
</table>
Table 7 displays the means, standard deviations, minimum scores, and maximum scores for all continuous variables. The primary dependent variable, Medical Adherence, had a mean of 7.36 (SD=2.50) on a scale of 0 to 10, with higher scores indicating higher adherence. The mean score for Recovery-Oriented Practice was 3.66 (SD=0.76) on a scale of 1 to 5, with higher scores indicating more recovery-oriented practices. The mean score for Overall Autonomy was 5.52 (SD=1.18) on a scale of 1 to 7, with higher scores indicating increased feelings of autonomy. The mean score for Perceived Coercion Practices was 1.97 (SD=2.93) on a scale of 0 to 15, with higher scores indicating increased feelings of being coerced by providers.

**Table 7**

**Descriptive Statistics of Independent And Dependent Continuous Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original Mean</th>
<th>Std. Dev</th>
<th>Min Score</th>
<th>Max Score</th>
<th>Winsorized Mean</th>
<th>Std. Dev</th>
<th>Min Score</th>
<th>Max Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovery-Oriented Practice</td>
<td>3.66</td>
<td>0.76</td>
<td>1.13</td>
<td>5.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Autonomy</td>
<td>5.52</td>
<td>1.18</td>
<td>0.00</td>
<td>7.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Coercion Practices</td>
<td>1.97</td>
<td>2.93</td>
<td>0.00</td>
<td>15.00</td>
<td>1.94</td>
<td>2.78</td>
<td>0.00</td>
<td>11.00</td>
</tr>
<tr>
<td>Perceived Coercion Practices Log10</td>
<td>0.32</td>
<td>0.34</td>
<td>0.00</td>
<td>1.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Pressure</td>
<td>0.87</td>
<td>1.35</td>
<td>0.00</td>
<td>6.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coercion</td>
<td>0.58</td>
<td>1.38</td>
<td>0.00</td>
<td>5.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exclusion</td>
<td>0.52</td>
<td>0.97</td>
<td>0.00</td>
<td>4.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Adherence</td>
<td>7.36</td>
<td>2.50</td>
<td>0.00</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severity of Mental Illness</td>
<td>20.98</td>
<td>10.90</td>
<td>1.00</td>
<td>48.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illness affects my life</td>
<td>6.46</td>
<td>2.37</td>
<td>0.00</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illness will continue</td>
<td>6.70</td>
<td>2.87</td>
<td>0.00</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have control over my illness</td>
<td>4.77</td>
<td>2.41</td>
<td>0.00</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment can help</td>
<td>2.98</td>
<td>2.45</td>
<td>0.00</td>
<td>9.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of symptoms</td>
<td>6.18</td>
<td>2.23</td>
<td>0.00</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am concerned about illness</td>
<td>7.11</td>
<td>2.49</td>
<td>0.00</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I understand my illness</td>
<td>3.03</td>
<td>2.38</td>
<td>0.00</td>
<td>9.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illness affects me emotionally</td>
<td>7.05</td>
<td>2.48</td>
<td>1.00</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8 displays frequencies for categorical independent and dependent variables. Over 22% of participants reported experiencing mandated treatment (N=25) or housing leverage...
(N=25), 14% reported experiencing conditional release (N=15), 12% experienced criminal justice leverage (N=13), and 9% experienced financial leverage (N=10). A majority of participants reported taking their medication all of the time in the last 30 days (69%, N=76), 22% reported taking their medication most of time, 8% some of the time (N=24), and only 1% reported not taking their medication at all (N=1). Almost 48% of participants reported experiencing negative pressure at their mental health program (N=53), 22% experienced coercion (N=24), and 27% reported experiencing process exclusion (N=30).

Table 8

<table>
<thead>
<tr>
<th>Frequencies of Categorical Independent and Dependent Variables</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure to Participate in Treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandated Treatment</td>
<td>25</td>
<td>22.5</td>
</tr>
<tr>
<td>Conditional Release</td>
<td>15</td>
<td>13.5</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Housing Leverage</td>
<td>25</td>
<td>22.5</td>
</tr>
<tr>
<td>Criminal Justice Leverage</td>
<td>13</td>
<td>11.7</td>
</tr>
<tr>
<td>Medical Adherence - 30 day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at All</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Sometimes</td>
<td>9</td>
<td>8.1</td>
</tr>
<tr>
<td>Most of the time</td>
<td>24</td>
<td>21.6</td>
</tr>
<tr>
<td>All of the time</td>
<td>76</td>
<td>68.5</td>
</tr>
<tr>
<td>Perceived Coercion Practices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experienced Negative Pressure</td>
<td>53</td>
<td>47.7</td>
</tr>
<tr>
<td>Experienced Coercion</td>
<td>24</td>
<td>21.6</td>
</tr>
<tr>
<td>Experienced Exclusion</td>
<td>30</td>
<td>27.0</td>
</tr>
</tbody>
</table>

Hypothesis Testing

As shown in Table 9, the combination of variables in the first model that included Overall Autonomy and Perceived Coercion Practices explained 19% of the variance in Medical Adherence [AdjR²=0.19, F (16, 93) = 2.55, p<0.003]. Of the independent variables, Overall Autonomy was the only significant predictor of Medication Adherence, with every ~2-point increase in autonomy predicting a one-point increase in medication adherence (B=0.62, p=0.03).
There were no other significant relationships between *Medical Adherence* and the hypothesized independent variables: Mandated Treatment ($B=-0.12$, $p>0.05$), Conditionally Released ($B=-0.88$, $p>0.05$), Perceived Coercion Practices ($B=-0.19$, $p>0.05$), Financial Leverage ($B=-0.97$, $p>0.05$), Housing Leverage ($B=0.86$, $p>0.05$), or Criminal Justice Leverage ($B=-0.70$, $p>0.05$) when controlling for severity of mental illness and the seven belief in illness dimensions.

The combination of variables in the second model that included *Overall Autonomy* and the *Perceived Coercion Practices* sub-scales *Negative Pressure*, *Coercion*, and *Exclusion* explained 23% of the variance in *Medical Adherence* [AdjR²=0.23, $F (18, 91) = 2.82$, $p<0.01$]. Of the independent variables, *Overall Autonomy* and the *Coercion* sub-scale were the only significant predictors of *Medication Adherence*, with every ~1.5 points increase in autonomy predicting a one-point increase in medication adherence with ($B=0.79$, $p=0.005$) and with those scores of those reporting any coercion, on average, 1.33 points higher on medication adherence than those reporting no coercion ($B=1.33$, $p=0.003$). There were no other significant relationships between *Medical Adherence* and the hypothesized independent variables: Mandated Treatment ($B=-0.09$, $p>0.05$), Conditionally Released ($B=-0.69$, $p>0.05$), Negative Pressure ($B=-0.83$, $p>0.05$), Exclusion ($B=-0.32$, $p>0.05$), Financial Leverage ($B=-0.83$, $p>0.05$), Housing Leverage ($B=1.04$, $p>0.05$), or Criminal Justice Leverage ($B=-0.96$, $p>0.05$) when controlling for severity of mental illness and the seven belief in illness dimensions.

Taken together, these models provide support for the hypothesis that increased medication adherence is predicted by recovery-oriented practice when that practice is measured by partnerships with and personal support of providers as assessed in the Overall Autonomy scale and by coercion to attend a mental health program or center as assessed in the Perceived Coercion sub-scale.
### Table 9

**Multiple Regression Analysis of Medication Adherence with Overall Autonomy**

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>β</td>
<td>B</td>
<td>Std. Error</td>
<td>β</td>
</tr>
<tr>
<td>(Constant)</td>
<td>4.66</td>
<td>1.78</td>
<td>4.10</td>
<td>1.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Autonomy</td>
<td>0.62**</td>
<td>0.28</td>
<td>0.29</td>
<td>0.79*</td>
<td>0.29</td>
<td>0.37</td>
</tr>
<tr>
<td>Mandated Treatment</td>
<td>-0.12</td>
<td>0.69</td>
<td>-0.02</td>
<td>-0.09</td>
<td>0.67</td>
<td>-0.02</td>
</tr>
<tr>
<td>Conditionally Released</td>
<td>-0.88</td>
<td>0.83</td>
<td>-0.12</td>
<td>-0.69</td>
<td>0.80</td>
<td>-0.10</td>
</tr>
<tr>
<td>Perceived Coercion Practices</td>
<td>0.19</td>
<td>0.95</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log10</td>
<td></td>
<td></td>
<td></td>
<td>-0.83</td>
<td>0.47</td>
<td>-0.17</td>
</tr>
<tr>
<td>Negative Pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.33*</td>
<td>0.61</td>
</tr>
<tr>
<td>Coercion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.32</td>
<td>0.68</td>
</tr>
<tr>
<td>Exclusion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>-0.97</td>
<td>0.93</td>
<td>-0.11</td>
<td>-0.83</td>
<td>0.90</td>
<td>-0.10</td>
</tr>
<tr>
<td>Housing Leverage</td>
<td>0.86</td>
<td>0.69</td>
<td>0.15</td>
<td>1.04</td>
<td>0.68</td>
<td>0.18</td>
</tr>
<tr>
<td>Criminal Justice Leverage</td>
<td>-0.70</td>
<td>0.88</td>
<td>-0.09</td>
<td>-0.96</td>
<td>0.86</td>
<td>-0.12</td>
</tr>
<tr>
<td>Severity of Mental Illness</td>
<td>-0.03</td>
<td>0.03</td>
<td>-0.11</td>
<td>-0.03</td>
<td>0.03</td>
<td>-0.15</td>
</tr>
<tr>
<td>Illness affects my life</td>
<td>0.16</td>
<td>0.16</td>
<td>0.15</td>
<td>0.15</td>
<td>0.16</td>
<td>0.15</td>
</tr>
<tr>
<td>Illness will continue</td>
<td>0.15</td>
<td>0.10</td>
<td>0.17</td>
<td>0.13</td>
<td>0.09</td>
<td>0.15</td>
</tr>
<tr>
<td>I have control over my illness</td>
<td>-0.04</td>
<td>0.12</td>
<td>-0.04</td>
<td>-0.06</td>
<td>0.12</td>
<td>-0.06</td>
</tr>
<tr>
<td>Treatment can help</td>
<td>0.37*</td>
<td>0.14</td>
<td>0.36</td>
<td>0.40*</td>
<td>0.14</td>
<td>0.39</td>
</tr>
<tr>
<td>Number of symptoms</td>
<td>0.04</td>
<td>0.14</td>
<td>0.03</td>
<td>0.04</td>
<td>0.14</td>
<td>0.04</td>
</tr>
<tr>
<td>I am concerned about illness</td>
<td>-0.16</td>
<td>0.13</td>
<td>-0.16</td>
<td>-0.21</td>
<td>0.13</td>
<td>-0.21</td>
</tr>
<tr>
<td>I understand my illness</td>
<td>-0.16</td>
<td>0.12</td>
<td>-0.16</td>
<td>-0.17</td>
<td>0.12</td>
<td>-0.17</td>
</tr>
<tr>
<td>Illness affects me emotionally</td>
<td>-0.35*</td>
<td>0.14</td>
<td>-0.35</td>
<td>-0.31**</td>
<td>0.14</td>
<td>-0.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adj R2</th>
<th>0.19</th>
<th>0.23</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-value</td>
<td>F (16, 93) =2.55, p=0.003</td>
<td>F (18, 91) =2.82, p=0.01</td>
</tr>
</tbody>
</table>

*p<0.01  **p<0.05

As shown in Table 10, the combination of variables in the first model that included

*Recovery-Oriented Practice* explained 15% of the variance in Medical Adherence [AdjR2=0.15, F (16, 93) =2.22, p<0.009]. There were no significant relationships between Medical Adherence and any of the hypothesized independent variables: Recovery-Oriented Practice (B=0.37, p>0.05), Mandated Treatment (B=-0.39, p>0.05), Conditionally Released (B=-0.44, p>0.05),
Perceived Coercion Practices Log10 ($B=-0.51, p>0.05$), Financial Leverage ($B=-1.03, p>0.05$), Housing Leverage ($B=0.82, p>0.05$), or Criminal Justice Leverage ($B=-0.91, p>0.05$), when controlling for severity of mental illness and the belief in illness dimensions.

The combination of variables in the second model that included *Recovery-Oriented Practices* and the *Perceived Coercion Practices* sub-scales *Negative Pressure, Coercion*, and *Exclusion* explained 18% of the variance in *Medical Adherence* [$\text{AdjR}^2=0.18$, $F(18, 91)=2.33$, $p<0.005$]. There were no significant relationships between Medical Adherence and any of the hypothesized independent variables: Recovery-Oriented Practice ($B=0.45, p>0.05$), Mandated Treatment ($B=-0.41, p>0.05$), Conditionally Released ($B=-0.23, p>0.05$), Negative Pressure ($B=-0.95, p>0.05$), Coercion ($B=-0.97, p>0.05$), Exclusion ($B=-0.17, p>0.05$), Financial Leverage ($B=-96, p>0.05$), Housing Leverage ($B=0.99, p>0.05$), or Criminal Justice Leverage ($B=-0.18, p>0.05$), when controlling for severity of mental illness and the belief in illness dimensions.

These results do not support the hypothesis that increased medication adherence is predicted by recovery-oriented practice when that practice is measured by coercive practices or by the organizational support assessed in the Recovery-Oriented Practice scale.
Table 10

**Multiple Regression Analysis of Medication Adherence with Recovery-Oriented Practice**

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>9.28</td>
<td>2.09</td>
</tr>
<tr>
<td>Recovery-Oriented Practice</td>
<td>0.37</td>
<td>0.38</td>
</tr>
<tr>
<td>Mandated Treatment</td>
<td>-0.39</td>
<td>0.71</td>
</tr>
<tr>
<td>Conditionally Released</td>
<td>-0.44</td>
<td>0.82</td>
</tr>
<tr>
<td>Perceived Coercion Practices Log10</td>
<td>-0.51</td>
<td>0.89</td>
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<tr>
<td>Negative Pressure</td>
<td>-0.17</td>
<td>0.67</td>
</tr>
<tr>
<td>Coercion</td>
<td>-0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>Exclusion</td>
<td>-0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>-1.03</td>
<td>0.95</td>
</tr>
<tr>
<td>Housing Leverage</td>
<td>0.82</td>
<td>0.71</td>
</tr>
<tr>
<td>Criminal Justice Leverage</td>
<td>-0.91</td>
<td>0.90</td>
</tr>
<tr>
<td>Severity of Mental Illness</td>
<td>-0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Illness affects my life</td>
<td>0.16</td>
<td>0.17</td>
</tr>
<tr>
<td>Illness will continue</td>
<td>0.12</td>
<td>0.10</td>
</tr>
<tr>
<td>I have control over my illness</td>
<td>-0.02</td>
<td>0.13</td>
</tr>
<tr>
<td>Treatment can help</td>
<td>0.42*</td>
<td>0.14</td>
</tr>
<tr>
<td>Number of symptoms</td>
<td>0.01</td>
<td>0.14</td>
</tr>
<tr>
<td>I am concerned about illness</td>
<td>-0.13</td>
<td>0.14</td>
</tr>
<tr>
<td>I understand my illness</td>
<td>-0.13</td>
<td>0.12</td>
</tr>
<tr>
<td>Illness affects me emotionally</td>
<td>-0.36**</td>
<td>0.14</td>
</tr>
<tr>
<td>Adj R2</td>
<td>0.15</td>
<td>0.18</td>
</tr>
<tr>
<td>F-value</td>
<td>F (16, 93)=2.22, p=0.009</td>
<td>F (18, 91)=2.33, p=0.005</td>
</tr>
</tbody>
</table>

*p<0.01  **p<0.05

**Exploratory Analysis**

Results of the exploratory analysis of *Medical Adherence-30 day* with each of the independent variables using Chi-Square Tests of Independence indicated that all combinations (MedicalAdherence-30 day and Recovery- Oriented Practices (collapsed), MedicalAdherence-30 day and Overall Autonomy (collapsed), MedicalAdherence-30 day and Mandated Treatment,
MedicalAdherence-30 day and Conditionally Released, MedicalAdherence-30 day and Perceived Coercion Practices, MedicalAdherence-30 day and Finance Leverage, MedicalAdherence-30 day and Housing Leverage, and MedicalAdherence-30 day and Criminal Justice Leverage) resulted in cells with less than the minimum expected count of five. Because violating minimum expected cell counts can lead to biased results, Chi-Square tables are not included here.

**Post Hoc Analysis**

Because Overall Autonomy was the only independent variable that significantly predicted Medical Adherence across both models, its two sub-scales were explored in multiple regression analysis. Two models were tested, one with Psychiatrist/Nurse and one with Primary Provider. Both models included Coercion, which was significant in one model, and two of the Belief in Illness dimensions that were significant across models. See Table 11.

The combination of variables in the first model explained 25% of the variance in Medical Adherence [AdjR²=0.25, F (4, 105) =10.12, p<0.00]. Psychiatrist/Nurse significantly predicted increases in Medical Adherence, with a one-point increase in medication adherence with every ~1.5 points increase in autonomy associated with Psychiatrists/Nurse Practitioners (B=0.70, p<0.001) when controlling for coercion, belief that treatment can help, and emotional impact of illness.

The combination of variables in the second model explained 23% of the variance in Medical Adherence [AdjR²=0.23, F (4, 105) =9.12, p<0.00]. Primary Provider significantly predicted increases in Medical Adherence, with a one-point increase in medication adherence with every ~1.5 points increase in autonomy associated with Primary Providers (B=0.61, p<0.006) when controlling for coercion, belief that treatment can help, and emotional impact of illness.
### Table 11

*Multiple Regression Analysis of Medication Adherence and Autonomy Sub-Scales*

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>2.93</td>
<td>1.17</td>
</tr>
<tr>
<td>Psychiatrist/Nurse</td>
<td>0.70</td>
<td>0.21</td>
</tr>
<tr>
<td>Primary Provider</td>
<td>0.46</td>
<td>0.17</td>
</tr>
<tr>
<td>Coercion</td>
<td>0.33</td>
<td>0.11</td>
</tr>
<tr>
<td>Treatment can help</td>
<td>-0.28</td>
<td>0.09</td>
</tr>
<tr>
<td>Illness affects me</td>
<td></td>
<td></td>
</tr>
<tr>
<td>emotionally</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj R2</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>( F(4, 105) = 10.12, \ p=0.00 )</td>
<td>( F(4, 105) = 9.12, \ p=0.00 )</td>
</tr>
</tbody>
</table>
CHAPTER 4: QUALITATIVE STUDY FINDINGS

Question 1 asked participants what helps them to take their psychotropic medications regularly. Three primary categories were identified for question 1, and some of them were used for the two other questions as well. For question 1, the categories we coded reflected differing levels of autonomy, with each level including feelings or experiences of autonomy reflective of the initial codes: (1) I am responsible (total autonomy), (2) I am supported by others (supported autonomy), and (3) Others have/could take more control (no autonomy).

The first category, *I am responsible (total autonomy)*, represents responses wherein the participant indicated that they felt/believed that taking medication was their own responsibility. This category was developed to reflect the self-sustained strategies that participants described using to help them remember to take their medication such as “*I usually remember on my own. However, I keep an alarm set on my cell phone to remind me to take it.*” *I am responsible (total autonomy)* was the most common response to Q1 at 63%.

The second category, *I am supported by others (supported autonomy)*, reflects responses whereby the participants indicated that they are currently supported by others in regularly taking their medication or that it would be helpful to be supported by their providers. This category was developed to reflect the descriptions of support by family, friends, or providers that motivate them to take their medication such as “*When I think of the loved ones saying that I hope to recover soon, I am very motivated to take medicine on time.*” *I am supported by others (supported autonomy)* was the second most common response to Q1, at 24%.

The third category, *Others have/could take more control (no autonomy)*, reflects responses whereby the participant indicated that people around them have taken responsibility to assure that they take their medication or that such responsibility taken by their provider could
help them take their medication. This category was developed to reflect the descriptions of pressure or regular reminders by family, friends, or providers to take their medication such as “I want to take my medicine and get better so my husband doesn’t leave me.” Others have/could take more control (no autonomy) was the least common response for Q1, at 11%. See Table 12.

Table 12

Directed Content Analysis of Open-ended Questions Related to Medication Adherence

<table>
<thead>
<tr>
<th>N (%)</th>
<th>Quote 1</th>
<th>Quote 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am responsible (total autonomy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1: Personal Strategies</td>
<td>45 (63%)</td>
<td>I usually remember on my own.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>However, I keep an alarm set on my cell phone to remind me to take it.</td>
</tr>
<tr>
<td>I am supported by others (supported autonomy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1: Family, friends, and providers motivate me</td>
<td>17 (24%)</td>
<td>When I think of the loved ones saying that I hope to recover soon, I am very motivated to take medicine on time</td>
</tr>
<tr>
<td>Others have/could take more control (no autonomy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1: Pressure and reminders</td>
<td>8 (11%)</td>
<td>I want to take my medicine and get better so my husband doesn’t leave me.</td>
</tr>
</tbody>
</table>

We are moving to discuss Q3 because it is similar to Q1, only here the question is directed to participants who are not taking medication, and asks what mental health provider (in particular) can do to help. We used it to analyze the connection between providers’ actions (and therapeutic approach) and consumers’ adherence. Since it asked specifically about the role of the provider, some codes we used in Q1 were irrelevant to this question (e.g., the role of family and friends). We have therefore coded the answers according to the following four categories.

The first category, Total autonomy, personal responsibility, reflects responses that indicated that the decision to take medication is reserved solely to the consumer. These answers emphasized the participants’ role in cases where they have not taken their medications. For
instance: “nothing they [providers] can do. It is up to me and my internal state;” and “nothing [provider can do]. I have to want to be compliant.” Total autonomy, personal responsibility was the second least common response to Q3, at 13%.

The second category, Supported autonomy, reflects an assembly of responses that emphasized the provider’s role in helping the consumers take their medications in case they are not adhering, based on the consumers’ particular needs. This umbrella category includes answers that assigned a role to the provider in tailoring the medical regimen, providing psychoeducation about the medication, reminding consumers why it is important to take medications, and motivating consumers. Examples include: “they can . . . continue to stress how important it is;” “lecture me, give me suggestions for how to stay motivated and diligent;” “switch the drug to something that is more effective;” and “I hope to have regular psychological treatment every week, which can greatly reduce stress.” Supported autonomy was the most common response to Q3, at 43%.

The third category, Others have/could take more control (no autonomy), reflects strategic and practical suggestions about possible ways to remind participants of the need to take their medications. Examples: “send me alerts,” “have an app reminder,” and “send text messages.” Others have taken/could take more control (no autonomy) was the second most common response to Q3, at 38%.

The fourth category, Coercion, reflects participants who particularly named coercive measures as the method to assure their adherence. An example of such response is: “not much, other than put me in a place where I have no choice.” Coercion was the least common response to Q3, with only 4%.

Table 13 summarizes the number of answers that we placed under each category, and the
percentage of participants whose answers fall in each category. In rare cases, participants’
responses contained elements from two categories; in such event, we put them into both
categories. Since Q3 referred to participants who do not take medication regularly or at all, some
answered that they do take medication. Others responded with “none,” meaning either that they
did not feel that the question was applicable to them, or that they felt that the provider could do
nothing to improve their adherence. Overall, we had 43 individuals answering in one of these
two ways. We coded them as “none” and their responses are not included in the table, meaning
that percentage is calculated out of 68 responses.

Table 13

<table>
<thead>
<tr>
<th>Total Autonomy, Personal Responsibility</th>
<th>Supported Autonomy</th>
<th>Others have taken/could take more control (No Autonomy)</th>
<th>Coercion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of responses</td>
<td>9</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Percentage of responses</td>
<td>13%</td>
<td>43%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Five primary categories were identified for Q2, what are the barriers to taking
medications. Some responses fall into 2 categories. In such cases, we counted 2 responses,
although they were given by 1 participant. For example, a response that indicated that cost of
medication and side effects were barriers was counted as 1 for each category. Overall, 92
participants answered substantively (i.e., gave an answer, but not an answer such as “n/a”) and
we coded 110 responses—meaning that 18 participants expressed barriers that we categorized as
falling into 2 categories.

The first category, Taking regularly, reflects participants’ answers that did not identify
any barrier to adherence or that simply indicated that the participant takes their medications regularly. This was the second least popular response, expressed by 15% of participants who answered the question.

The second category, *Personal responsibility: logistics and memory*, includes participants’ answers that expressed logistical reasons, typically memory and busy schedule, for why they do not take their medication. Typical answers are: “If I get really busy at work it’s easy to forget”; “If I run out of medication or forget to refill my pill box”; “Being too busy at work.” This was, by a landslide, the most common response, with 47% of participants providing an answer that fell into this category.

The third category, *Cost*, reflects responses that conveyed that the high cost of medication was a barrier to adherence. While this could be construed as a subset of the previous category, *Personal responsibility: logistics and memory*, we thought it was worthy of a separate category, especially because it is likely a barrier that is more unique to the U.S. than to countries in which state-sponsored medication insurance is more available. Typical answers were: “[T]hey are too expensive ($204 for 30 days of generic Thorazine is too much)”; “The cost! They are $800+ a month without insurance and I just lost my job.” This was the least common response, with 8% of participants’ answers falling into this category.

The fourth category, *Side effects/wrong medication*, includes participants’ responses indicating that the barrier to taking medication regularly was drug-related side effects, or that the medication did not fit them well. Examples include: “Sometimes I feel that it might not be the right kind of medication. Perhaps I need something else? I have been taking the same medication for years”; “Sometimes the onset of symptoms will prevent me from taking the medicine on time”; “The medication zaps my energy and makes me feel ill.” This was the third most common
response, with 17% of participants answering in a way that fell into this category.

The fifth category, Medication efficacy, reflects various responses concerning the participants’ attitudes toward the medications, the medications’ effects on their behavior (other than clinical side-effects), possible dependence on medications, and the medications’ efficiency. Typical answers in this category include: “Probably I feel better and don’t think I need them”; “The difficult part is keeping up with the medications on my ‘bad days.’ There’re days when my mood won’t allow it”; “Feeling as though I'm not in control of myself”; “I have the normal mindset that if I feel better, I can stop taking them. I have to keep reminding myself that I am not healthy and I need them.” This was the second most common response, with 33% of participants expressing a version of it. See table 14.

Table 14
Directed Content Analysis of Barriers to Adherence

<table>
<thead>
<tr>
<th>Number of responses</th>
<th>Taking Regularly</th>
<th>Personal responsibility: logistics and memory</th>
<th>Cost</th>
<th>Side Effects/Wrong Medication</th>
<th>Medication efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>43</td>
<td>7</td>
<td>16</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>15%</td>
<td>47%</td>
<td>8%</td>
<td>17%</td>
<td>33%</td>
<td></td>
</tr>
</tbody>
</table>


CHAPTER 5: DISCUSSION AND IMPLICATIONS

The study investigated the relationship between consumers’ perceptions of recovery-oriented practices, autonomy, and coercive practices, and their adherence to medication treatment. The study found mixed results. Overall, our hypothesis is supported for overall autonomy but not for recovery-oriented practices or coercion. We found overall autonomy, as well as each of its subscale addressing participants’ relationship with their Psychiatrist/Nurse Practitioner and their Primary Provider separately, to be statistically significant predictors of increased adherence to psychotropic medication. On the other hand, recovery-oriented practices and coercion were not significant predictors of adherence to medication. In addition, we did not find different manifestations of perceived coercion to be predictors of adherence to medication. The qualitative analysis provides another layer of support for our interpretation that elements of autonomy, and, in particular, the benefits of a person-centered approach, promote adherence to psychotropic medication.

Although not hypothesized, we also found that two measures of the control variable “belief of illness”—“treatment can help” and “illness affects me emotionally”—were significant dimensions that were associated with medication adherence across all models. The more that people believed that the treatment could help, and the more that the illness affected participants emotionally, the more likely they were to adhere to their prescribed medications.

Autonomous Motivation for Adherence. Overall autonomy as used in this study refers particularly to participants’ relationships with their mental health providers and prescribers, and specifically examines perceived level of self-determination and choice regarding decisions about medications and treatment plans. The HCCQ scale “assess[es] the degree to which patients experience their providers as autonomy supportive, defined as taking the patient’s perspective, encouraging and answering their questions, supporting their initiatives, offering choice about
treatment options, and minimizing control” (Williams et al., 2002, p. 515). Our results find support for consumers’ perceived autonomy as being related to medication adherence.

This aspect of our findings is not surprising—as it joins a burgeoning number of studies that show that perceived autonomy is key to medication adherence. Simply, when consumers are engaged in the decision-making interventions and feeling validated, they adhere to their medication regimen. The result that perceived autonomy significantly predicted adherence to medication taps into the concepts of shared decision-making, self-determination, and person-centered care, and into recovery practices more generally (at least as pertaining to involvement in treatment choices).

Our results add support to the scholarship that finds that SDM is likely to increase adherence to medication (de las Cuevas, Peñate, & de Rivera, 2014). By implication, this study’s results strengthen previous research findings that people with severe mental illness show interest in SDM about their course of treatment (Bunn et al., 1997; Wolford, Drake, & Adams, 2007). It also helps to explain studies indicating that SDM might increase consumers’ satisfaction more generally (Ludman et al., 2003; Duncan et al., 2010; Loh et al., 2007). Further, while measures of organizational culture of recovery did not significantly predict adherence to medication as measured by the ROSA scale, this study’s results do support the hypothesis that perceived degree of engagement in recovery practices explains the degree of adherence, because SDM is an integral part of the recovery philosophy (Drake & Deegan, 2006; 2009; Lukens et al., 2013). The HCCQ scale also taps into consumers’ interest in self-determination, implying that determining terms of treatment is strongly predictive of adherence to medication. Self-determination, also a key element of recovery-oriented practices, is central to exercising autonomy. Finally, this study joins the findings of others that PCC promotes positive therapeutic outcomes, particularly with
regard to medication adherence (Bunn, O’Connor, Tansey, Jones, & Stinson, 1997; Day et al., 2005; Elbogen et al., 2010; Stanhope, Ingoglia, Schmelter, & Marcus, 2013).

Importantly, our study found that each subscale of autonomy is predictive of adherence (of prescribers and providers more generally). In many mental health programs, the prescriber plays a more technical role, while other providers discuss the treatment plan and deliver psychoeducation on adherence and other related issues. Different from the role of the program in promoting recovery—for which we did not find support—this shows, in fact, that adopting recovery principles by people other than the prescriber is important as well. Thus, while the organizational culture of recovery-oriented services is not predictive of adherence, providers who engage with autonomy-enhancing practices (which are an integral part of recovery-oriented services) do matter to adherence.

The qualitative analysis adds strong support to this study’s interpretation: accordingly, recovery-oriented services that are grounded in autonomy can enhance adherence to psychotropic medication. In answers to the question about what could help participants to take their medications, most participants (63%) expressed an attitude that we characterized as “total autonomy”—participants are personally accountable to create the strategies that will support them in taking medication. While the “total autonomy” category might seem to indicate a limited role for providers in adherence, we contend that this set of answers points to the importance of perceived personal autonomy. The answers show that, for consumers, autonomy is at premium, and they highly value making their own decisions. At the least, these comments point to the importance of providers respecting the autonomy of consumers and their self-determination. Hence, clinical strategies that infringe—or that consumers perceive as infringing—on consumers’ autonomy, may well face resistance.
Categories that reflect a “total autonomy” approach also presented in qualitative Q2 and Q3. In Q2, almost half of participants indicated that it is their own responsibility—their personal problems with logistics and memory—that are barriers to adherence. This attitude not only points to the importance of self-determination but also, indirectly, to the role of providers. A provider with a holistic approach could help with techniques to remember to take medications, or to change a regimen that is better suited to the consumer’s work hours. Q3 asked specifically about the role of the provider, but, even there, 13% of participants chose to emphasize that the decision to take their medication is in their hands, hence further showing how perceived autonomy matters to them.

Moreover, almost a quarter of participants reflected that supporting their autonomy is helpful to their adherence (Q1). They indicted that family members and providers are important in their journey and in their decisions to take their medications. This result indicates that many consumers value providers supporting them with motivating comments and psychoeducation. These remarks emphasized the importance of shared decision-making and person-centered care as therapeutic interventions that were not seen as infringing on their autonomy. The fact that about a third of the participants indicated that they value support does not contradict the strong emphasis on personal strategies and responsibility, indicated above. The provider’s role is not to override autonomous decision-making; rather, it is to nurture autonomous motivation and enhance conditions that enable individuals to consistently take their medications.

Most important, consumers who do not take their medications consistently (Q3) made the strongest case for how a PCC approach is related to adherence. The largest group of answers (43%) indicated that participants value support from their providers—precisely of the type with which PCC approach aligns. Participants had various suggestions as to how providers can help
them, from reminding them of the harm of nonadherence and of the progress they have made, to addressing side effects of the medications. Participants clearly valued positive interventions that enhanced their own motivation to keep taking medication. The participants’ suggestions mimic the foundation principles of the PCC approach to adherence to medication. Rudnick and Lamoure (2018) explain the connection between the PCC approach and adherence, as follows: “A person-centered approach to adverse effects of psychotropic medications considers the pros and cons of the medications with service users by listening to their concerns, discussing them, and supporting them in aligning medication use with their personal goals” (p. 255). They further contend that “by listening to the concerns of the service user, discussing them, and aligning medication choices with personal goals, the physician can help to encourage adherence and promote positive outcomes of the service user, while building a strong therapeutic alliance with him” (p. 256). Participants noted these strategies—talking about side effects and listening to their difficulties—as prime actions that providers can adopt to encourage adherence.

Finally, when asked about the barriers to taking their medications, 33% of participants discussed medication efficacy, and an additional 17% talked about side effects and determining the best medications. This means that 50% of participants expressed that their barriers are those that can be addressed by providers who employ recovery-oriented methods. Many have described their struggles with taking medication over a long period of time, when they feel better or worse, or simply getting the regimen changed. One participant described the following extreme case: “I initially had a bipolar disorder misdiagnosis, so good luck getting a psychiatrist to listen to you about NOT needing lithium after you've been diagnosed with that.” Optimizing regimens, addressing side effect and efficacy, establishing strategies to enable SDM, and motivating the consumer to take their medications are all part of recovery-oriented approaches.
Although some psychotropic medications will inevitably have some side effects, finding the best regimen, providing psychoeducation, and supporting consumer intrinsic motivation to keep taking their medication are the foundations of a recovery approach in general and of PCC in particular.

**Organizational Culture of Recovery.** We did not find a significant relationship between a culture of recovery in organizations and adherence to medication. However, we do not think that this finding refutes our hypothesis that predicted that perceived degree of engagement in recovery-oriented practices explains adherence to psychotropic medication. The ROSA scale examines the way that participants interacted with the organizational therapeutic culture but not with their primary providers themselves. Further, the ROSA’s categories ask more generally about recovery principles—such as setting goals, using language of recovery, using peer support—but not about shared decision-making with regard to medication and treatment planning more directly with providers. The finding might imply that the general approach of the institution is not the main factor in increasing adherence, but that the consumer’s relationship with the provider is more important. There might be a relationship between the provider’s approach and the institution’s—or that the environment contributes to the interaction between the provider and the consumer—but our study did not test this. The connection between institutional commitment to recovery principles and the provider’s therapeutic approach is an important one, as some studies indicate that organizational support for recovery is important to its successful implementation (Leamy et al., 2014). A meta-analysis of studies that examined the effect of implementing recovery principles concluded that “[q]ualitative evidence seems to point in the direction of organisational obstacles preventing” changes in practice toward more recovery-oriented practice (Eiroa-Orosa & García-Mieres, 2019, p. 748). Institutional support matters for
individual providers’ ability to use recovery, but our findings may buttress a case for educating individual providers in recovery principles even in the absence of institutional support.

**Coercion and Adherence.** Surprisingly, we found that the various manifestations of perceived coercion—Mandated Treatment, Conditionally Released, Perceived Coercion Practices, Financial Leverage, Housing Leverage, and Criminal Justice Leverage—were not predictors of adherence to medication. This is a particularly unexpected result considering the fact that many participants were subject to coercive treatment (indeed, almost 23% of participants reported that they receive mandated treatment).

This lack of significance may be explained by the sample itself given that the mean score for feeling coerced was low, meaning that participants experienced low levels of perceived coercion. Hence, its lack of significance might be more reflective of the sample itself than of the connection between perceived coercion and adherence to medication. Moreover, regarding the question of what providers can do if consumers are not taking medications, only 4% of participants mentioned coercive measures as helpful, compared with the majority, who indicated approaches related to person-centered care or use of personal strategies to increased adherence. This sample, then, did not feel coercion was being used in their own cases to a very great extent, and did not endorse coercion as an effective means to enhance adherence. Similarly, to the Hoge et al. (1997) study findings whereby consumers felt more validated and a greater sense of fairness when committed to the hospital, when they believed their voices of concern were heard. It is an issue of procedural justice.

Another possibility is that the study participants, generally, had a high degree of therapeutic alliance with their providers and felt validated. Then, even if they were engaged with some coercive practices, they did not perceive the practices as coercive. That is, participants may
have experienced a positive therapeutic relationship with their providers that influenced their perception of coercion. Indeed, average scores for both recovery-oriented practice and overall autonomy were high, indicating that the participants had good interactions with their providers and with the institutions. Since research shows that therapeutic alliance is correlated with perception of coercion, it is possible that the study’s participants did not perceive practices as coercive, because of their positive relationships with their providers (Sheehan, & Burns, 2011). In their study, Sheehan and Burns (2011) found that even voluntary hospitalization was viewed as more coercive when consumers rated their relationship with the admitting clinician negatively. In a similar vein, based on Szmukler and Applebaum’s (2008) framework of coercion as a spectrum, it is possible that participants did not perceive “treatment pressures” as coercive, and, further, that they were hesitant or ashamed to acknowledge that they felt coerced. Support for the assertion that participants might underreport their feelings of coercion is found in the fact that almost 50% of participants in our study indicated that they felt “negative pressure.”

**Belief of Illness.** Another interesting finding is that two dimensions of the HCCQ scale that measures belief of illness (a control variable), significantly predicted medication adherence. We observed that both “treatment can help” and “illness affects me emotionally” were related to adherence to medication. This finding, in turn, may also provide support to the hypothesis that recovery practices—particularly sense of autonomy in treatment—might increase adherence to medication. It is possible that consumers whose providers engage them in psychoeducational and shared decision-making interventions have a better understanding of their treatment and believe that treatment can help them understand the impact of their illness on their quality of life and life goals.
Part of autonomous and informed decision-making by the consumers about their medication regimen includes discussion and explanation of the particular treatment options and a fair assessment of the affect they have. In other words, if providers spend more time explaining their treatment, then consumers may have a better understanding of the potential benefits and risks of medications—and be more likely to adhere to medications. This is the essence of shared-decision-making principles. To be able to make decisions, a person must feel empowered to participate in his or her treatment plan and have the relevant information, including the way that a treatment can help (or not) and its effect on the illness. Hence, while we did not hypothesize directly about consumer-provider relationship, this explanation seems to support the overall finding that autonomy—including understanding the effect that illness has on emotions and that treatment can help—is a predictor of greater adherence.

Notably, much of the categories of Supported Autonomy from open ended responses touched upon aspects of reminding consumers of the benefits of the medications and the harms of illness from not adhering. This is another demonstration of how belief about being ill—and about the potential effect of medication—creates autonomous motivation to adhere to prescribed medications.

**Implications for Social Work**

Consumers value autonomy, engagement in the process of treatment planning, normalization, and validation. They want to be treated with dignity, as capable of determining their own course of treatment and medications that suit them. This study strengthens previous scholarship that found that a sense of autonomy may increase the rate of adherence to medication—one of the gold standards of today’s policy and practice in services for people with severe mental illness. To increase autonomy for individuals with mental illness, providers need to cultivate person-centered care, shared decision-making, and consumers’ self-determination—
all foundations of recovery approach. To expand the use of recovery principles, there is a need to intensify providers’ education and training about the recovery approach, and to advocate for systemic change. This study might be a useful tool in achieving these aims.

Coercion—in its various degrees and manifestations—is ingrained in the way social work services are provided to people with severe mental illness. Reducing and eliminating coercive practices are not easy tasks. Struggles to preserve the dignity of people with mental health illness have existed throughout history, and the needle has moved between more and less coercion (Goldman & Morrissey, 1985). The current manifestation of this tension is in the resurgence of coercive services in the form of AOT laws—occurring, ironically, at the time that recovery-oriented practices are also starting to flourish. Despite the challenges, it is the role of social workers to empower and protect the vulnerable and hence to advocate for increased incorporation of recovery-oriented practices. Social workers should be knowledgeable of the full spectrum of coercive services and minimize the use of it in direct practice. A systemic change is difficult to implement, but it is social workers’ responsibility to push back against the reappearance of coercive laws and practices.

One of the barriers in advocating for recovery over coercion is that the former demands more time and resources than do coercive measures, in terms of both training and of the time required to spend with consumers. It is easier, then, to advocate in favor of coercive measurements than of recovery practices. Shared decision-making necessitates that providers take more time with consumers, discussing various treatment plans, choices, side effects, and the consequences of not taking medication. However, it might be the case that since autonomy is effective in increasing adherence, then, in the overall scheme, adopting recovery-oriented treatment will decrease provider work time (over the alternative of revolving doors, etc.).
The utilitarian discourse—one that emphasizes results over process and other values—is prevalent in the United States. A study like this one, showing that autonomy is effective, is an important tool for advocacy against coercion and in favor of implementing and enhancing recovery principles. Our study shows that the investment in recovery practices pays off. Although recovery is more expensive to implement (at least at first), the consumer’s sense of autonomy is relevant to adherence to medication and can show promising results. Social-work practice should adopt it and advocate for its implementation in mental health programs. The fiscal advantages of increased adherence may well pay for this expense efficiently.

Another implication of the study is that recovery-oriented training should not focus exclusively on prescriber per se but, rather, more generally for the team of providers who service people with severe mental illnesses. As social workers are the front-line workers with this population, adopting recovery principles should not remain the terrain of the medical team only, but be adopted by all the other service providers.

Moreover, “belief in the self-determination of clients has been one of the most enduring ethical principles in social work practice” (Abramson, 1985, p. 387). According to the National Association of Social Workers’ (2017) Revised Code of Ethics, “Social workers promote clients’ socially responsible self-determination. Social workers seek to enhance clients’ capacity and opportunity to change and to address their own needs” (p. 6). Autonomy, hence, is the cornerstone of social-work practice, and recovery is consistent with the values of social work. As such, social workers should be the leaders in the arena of recovery-oriented approaches.

The role of social work in incorporating and promoting a recovery-oriented approach is recognized by scholarship, policymakers, and various other stakeholders in the field. For example, in 2009, SAMHSA established the “Recovery to Practice” initiative that aimed at
developing curricula in six discipline areas, including social work (Sowers et al., 2009). Yet, the knowledge about recovery trainings and their effectiveness are limited. One study of effectiveness of implementing recovery principles in workshops in the state of Georgia found that they were successful in promoting knowledge about recovery’s primary principles, and were partially successful in encouraging providers to adopt the principles (Peebles et al., 2009). A recent meta-analysis of studies assessing awareness and training for providers about recovery approaches found that staff had strong support for integrating recovery principles, but organizational changes were more challenging to achieve (Eiroa-Orosa & García-Mieres, 2019).

Strengths & Limitations

The current study has several limitations. While the sample is diverse in a few ways (e.g., duration of treatment), some sociodemographic characteristics make this a somewhat homogenous sample. First, over 80% of participants are between 24 and 44 years old. Although studies are inconclusive, age is possibly a predictor in adherence to medication. For instance, one study found that older individuals diagnosed with bipolar disorder were more adherent than their younger counterparts (Sajatovic et al., 2007). Second, the sample’s participants are relatively highly educated, with over 40% having an undergraduate degree and almost 13%, a graduate degree. Also, close to 30% had “some college” education. Overall, 80% of the participants had some education beyond high school. Education level has been found to be a factor related to medication knowledge (Alkatheri & Albekairy, 2013). This bias in the sample might explain why the sample showed a high belief in the effectiveness of the treatment and might also have an effect on the high rate of adherence that participants reported. Third, the sample that reported being part of ACT/PACT was very small for us to make any conclusion about the type of treatment pressure they experienced. Similarly, while the type of pressures that participants experienced was heterogeneous, no type had enough cases to allow for unbiased analysis. For
instance, only 10% of the sample reported financial or criminal justice leverage, which would have made comparisons to those that did not highly unbalanced (90% v 10%).

Another limitation in the participants’ characteristics is insufficient racial and ethnic diversity. White participants constituted almost 70% of all participants, while Hispanic or Latino individuals were less than 4%. Some studies on adherence to medication generally—not specifically psychotropics—have found that racial minorities were less likely to adhere than their white counterparts (Gerber, Cho, Arozullah, & Lee, 2010). Another study reported that African-Americans had a higher hazard of not consistently taking antidepressants (Wu, Erickson, Piette, & Balkrishnan, 2012). Hence, it is a limitation of this study that it cannot discern the association between race, autonomy, and adherence to medication.

This study might have suffered a limitation that is inherent in measuring perceived autonomy by self-reporting only. It is very possible, especially in light of the strong perception of autonomy that participants expressed, that people who are accustomed to being coerced will interpret even a minor expression of choice as a major autonomous event, mainly due to their limited experience.

A specific limitation concerning the study’s population is that most of the participants were recruited via MTurk. Some studies have raised questions about the honesty of answers, accuracy, and attention to details by MTurk participants (Peer, Vosgerau, & Acquisti, 2013, 2014; Shapiro, Chandler, & Mueller, 2013). While we have followed strict rules and protocols to locate any sign of irregularities, measured well for consistency and accuracy, and reduced to minimum the risk of such problems, there is always a risk associated with using MTurk. Yet, this risk is reduced to a minimum, as we used psychometrically sound measures. We accounted for several control variables and used high-quality methods. We have also strengthened our analysis
by employing quantitative and qualitative analysis. Further, 19 participants were recruited from an advocacy support group, hence increasing diversity and minimizing the problem of the MTurk pool.

In a similar vein, the participants need to be relatively savvy with technology and own an electronic device or smart phone to use MTurk, or have some access to computer and wireless. Since we conducted the survey during the time of the COVID-19 pandemic, the options of using a computer outside one’s residency were more limited or even in group residency where fears of transmission may have reduced access. Over 75% of households have smartphones in the U.S., but poor and working-class households are less likely to be connected than those who are better off (Ryan, 2017). Hence, there is a chance of selection bias against low-income individuals.

At the same time, the use of MTurk provides some strengths to the sample. First, it enables sampling of participants from 26 states, hence providing a geographically dispersed pool. Second, and important, the sample expresses responses of people who have received care in different agencies and different settings, hence reflecting a broad set of clinical experiences in diverse settings.

Furthermore, as mentioned, we conducted the research during the period of COVID-19. This should have an impact, particularly on questions concerning the last 30 days of participants’ lives. COVID-19 and the regulatory measures that followed may have many effects on the way that people operate and potentially also on negative feelings; they might worsen some symptoms, and possibly could have impacts on patterns of adherence to medications. We did not ask participants specifically about the impact that COVID-19 had on their adherence to medication because at the time that the coronavirus pandemic took hold the study was already being
implemented. Further, we wished to keep the survey short and manageable in order to not overwhelm and burden the participants.

The interpretation of our findings is also limited because the scale of recovery we used was limited to people in recovery. We did not measure other key informants that Recovery Self-Assessment–Revised measures: family members/advocates, service providers, and care administrators (O’Connell et al., 2007). Hence, our conclusions about recovery-oriented practices in the organization are from the point of view of the recipients of treatment only.

Furthermore, the design of study, being cross-sectional, does not enable us to be assured of the directionality of the independent and dependent variables. We do not know if the degree of adherence may have influenced the degree of perceived of receipt of recovery-oriented practice and coercion. This design limits ability to make any causal statements.

**Directions for Future Research**

This study supports the importance of employing self-determination, shared decision-making, and person-centered care—all bedrocks of recovery-oriented practices—in order to increase adherence to medication. The study thus adds support to the studies that push against coercion and confirm the effectiveness of recovery-oriented practices. To strengthen this scholarly trend, researchers should examine a few issues in the future.

This study had a mix of consumers who experienced different types of pressures in diverse settings. In light of the mushrooming of the involuntary outpatient treatment programs in the U.S., it would be useful to conduct the same or similar study only with consumers who were part of such program. One recent study in Australia aimed to investigate whether consumers and providers were able to build trust within a CTO setting (McMillan, Lawn, & Delany-Crowe, 2019). The study was small scale, based on 8 in-depth interviews with people who were currently on a CTO and 10 interviews with providers. Perhaps a larger-scale study that also
examines adherence to medication could add more to our understanding of the effect of coercion within these programs, and whether it is possible to overcome the impact of coercion with adoption of recovery-oriented practices. Alternatively, it might be useful to compare the results (in terms of adherence to medication) of an involuntary outpatient treatment program that employs recovery methods versus one that does not.

Relatedly, further research in this area should center on evaluating the connection between organizations’ commitment to recovery versus providers’ individual commitment. This study implies that individual providers are more important than the organization and its environment in terms of influencing consumers’ adherence to their medication regime. This is quite contrary to literature that assumes that organizational commitment is a key to implementing recovery-oriented practices. A future study should examine the connection between the provider’s approach and the therapeutic climate of the organization more particularly.

Likewise, it would be beneficial to examine in a more nuanced fashion the methods with which some providers are successful in enhancing consumers’ sense of autonomy. Future studies might aim at exploring real-time interactions between providers and consumers to better understand the means to which practitioners instill a sense of autonomy in the context of treatment planning. For example, do providers who spend more time with their consumers are they more successful in this regard? From a structural standpoint, it might be important to study whether autonomy-enhancing treatment takes more of the provider’s time than other practice strategies. Further, to the extent that autonomy-respecting treatment takes longer, it would be interesting to study whether, in the long run, it saves time (by fewer visits or by avoiding symptom or functioning deterioration).
In addition, future studies could benefit from a larger and more diverse sample, in particular, in terms of race and educational background as well as individuals from outside the U.S., places with a different mental health system. Investigations in different countries might help to create more universal lessons. Likewise, research might benefit with greater accuracy if the researcher conducts the inquiry right after the consumer visits the provider.

Finally, our study raises at least two questions of measurement that calls for developing better ways of evaluation. When it comes to measuring recovery, the ROSA scale (and its predecessor, RSA-PIR) is the prevalent and highly influential tool to assess service-level of recovery (Tan & Fernandez, 2018). However, the ROSA, effective as it is, does not ask specifically about treatment planning and medication prescribing/adhering in particular. Development of scale that examines recovery principles pertaining to the process of decision-making concerning medication may be particularly useful.

Another experience that can benefit from a different method of measurement is coercion, which is notoriously difficult to measure. One of the problems, as we previously discussed, is that consumers might be influenced by their alliance with the provider, or be so used to coercion that they will not recognize it. Further qualitative research may be able to probe about nuances and different types of coercive practices.

Finally, although education in the practice of a recovery orientation shows promise, and SAMHSA listed social work as one of the fields that should develop recovery curricula, we do not know whether or to what extent it is part of social workers’ education. What we do not know and would have been useful is the extent to which social work institutions—schools of social work and those responsible for accreditation and continued education—educate practitioners about recovery and its principles, especially those working with people with severe mental
illness. Because providers in general matter for adherence to medication, it is important to learn the extent to which social workers are aware of recovery practices and implement them since they are more prevalent of clinical providers to work in mental health in the US. We recommend that researchers learn more about recovery in social work in social work curricula. Given the extensiveness to which social workers work with this population and the consistency of the values of recovery to that of social work, this information would be helpful in implementing the findings from this study.

**Conclusion**

From the deinstitutionalizing movement to the development of recovery-oriented services, the tension between dignity and autonomy of people with SMI, on the one hand, and coercion and paternalism, on the other, has had many manifestations. With adherence to medication as the Holy Grail of care for this population, this tension resurfaces: involuntary outpatient treatment programs have brought coercive practices back to the center, while recovery-oriented practices compete to spread a different approach. This study is among the only that we are aware to examine the combined effect of these approaches to increase adherence to one’s medication regime. While the study had some limitations, the study does point to the benefits of shared decision-making, self-determination, and person-centered care—all primary elements of recovery-oriented practice—as factors that increase adherence to medication. Future studies would do well to keep examining the connections between recovery and adherence to medication. All stakeholders in the mental health sector, including regulators, should reconsider the use of coercion and whether recovery is not only more humanistic but also more effective.
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Participants Needed for Research Study

If you are 18–75-year-old person with a diagnosis of severe mental illness who receives outpatient mental health services which includes psychiatric medications treatment, you may qualify for this research study. Diagnoses included are:

- Schizophrenia Spectrum Disorders (including Schizophrenia, Schizoaffective Disorder, Delusional Disorder, and Schizophreniform Disorder)
- Bipolar I or Bipolar II Disorder
- Major Depressive Disorder

The purpose of this study is to learn more about clients’ views about their treatment and how it may relate to clients’ decision about whether to keep taking their medications or not. Eligible respondents will complete a 20-minute web-based anonymous survey by following this link: _____________.

Participants who complete the survey will receive a $5 Amazon gift certificate!

Principle Investigator: Phyllis Solomon, Ph.D.
Co-Investigator: Lior Ben- Avraham, MSW, RCSW
For more information, contact Lior at 778-868-3856
Appendix B, University of Pennsylvania, Informed Consent Form

Title of the Research Study: Medication Adherence Among Individuals with Severe Mental Illness: Relationship to Treatment Approaches

IRB Protocol Number: 834569

Principal Investigator: Phyllis Solomon, Ph.D.
3707 Locust Walk, Caster Building, Room C13
Philadelphia, PA 19104-6214
Office: 215.898.5533
solomonp@sp2.upenn.edu

Co-Investigator: Lior Ben-Avraham, MSW, RCSW
1-778-868-3856
liorba@upenn.edu

Dear Client,

We are asking you to take part in a research study. This study is not treatment or therapy of any kind; it is not supposed to find out if you have an illness or other problem.

Your participation is voluntary, which means you choose whether you want to be part of this study or not. Whether you decide to participate or not to participate, you will not lose any benefits that you are already entitled to have. Before you make a decision, you will need to know the purpose of the study, the possible risks and benefits of being in the study, and what you will have to do if you decide to be part of the study.

What is the purpose of the study?

I am conducting this study to learn more about clients’ views about their treatment style and how it may relate to clients’ decision about whether to keep taking their medications or not. This study is being conducted in part to fulfill the dissertation requirements for a doctorate in clinical social work degree from the University of Pennsylvania.

Why was I asked to participate in the study?

You are being asked to join this study because you are an adult (18 and over) enroll in a community mental health program who receive psychiatric medication prescriptions from the community mental health clinic for at least 90 days with one of the following diagnoses: schizophrenia, schizoaffective disorder, delusional disorder, schizophreniform disorder, bipolar I disorder, bipolar II disorder, major depressive disorder. Your mental illness results in a significant impairment in at least one life area (social relationships, ability to work, completing daily living activities, and meeting basic needs).

How long will I be in the study?
The study’s survey will take you about 20 minutes to complete. You must complete the survey at one time — there will be no additional follow-up surveys. Approximately 107 participants will be surveyed.

**Where do I take the survey?**

You can take the survey at a location that’s easiest for you to get to, such as your home, the clients’ lounge at the agency, a public library, or any community center with access to computers.

**What will I be asked to do?**

If you agree to take part in this study, you will be asked to provide some demographic information related to the type of services you have received and are receiving. You will then be asked to answer questions related to client perceived coercion, perceived autonomy, and perceived recovery-oriented treatment as they relate to your relationship with psychiatric medications. Then, you will be asked to answer questions related to your mental health symptoms, as well as your beliefs, views, and attitudes toward your mental illness. Finally, you will have an opportunity to provide a written response related to your relationship with psychiatric medication.

Data will be de-identified, and could be stored and distributed for future research studies without additional informed consent.

You have the right to drop out of the research study at any time during your participation. If you decide to leave the study, your name and contact information will be destroyed. Partially completed survey data will be retained and remain delinked from any personally identifiable information, including your name and contact information.

**What are the risks?**

The risks of this study are minimal. There is one main risk of participating in this study. This risk is that you may experience an emotional reaction (such as distress) while taking the survey. However, you may skip any question that you feel may upset you. If you do feel distress, please ask your clinician or case manager for support. In terms of your privacy and confidentiality: you do not need to provide any identifying information on this survey, this is an anonymous study. In addition, I will store all surveys and consent forms on my computer (which is protected by password and is secured) and on the secured and password-protected database that I am using for the study.

**How will I benefit from the study?**

There is no immediate benefit to you. However, your participation could give us information on how to best help clients improve their relationship with their medication program.

**How will confidentiality be maintained and my privacy be protected?**

This survey is anonymous; you do not have to give any personal information. All responses are completely anonymous and cannot be linked back to you.
Will I be paid for being in this study?

If you complete the survey, you will receive a $5 gift card to Amazon, in appreciation for your participation. After you complete the survey, you will be directed to a website link to provide your email address or telephone number that is not linked to your survey response. 20 participants in this study will be selected by chance to win a gift card.

When you hit the agree button, you are agreeing to take part in this research study. If you have any questions or if there is something you do not understand, please ask. You can make a copy of this consent document.

____________________________________
Agree

____________________________________
Date

Thank you,
Lior Ben- Avraham, MSW, RCSW
DSW Candidate, 2020
University of Pennsylvania
School of Social Policy & Practice
Appendix C- Study Survey

Eligibility Questions

1. Are you 18 years or older? _____ Yes (1) _____ No (2)

2. Are you currently enrolled in a community mental health program and receive psychiatric medication from the clinic’s psychiatrist or nurse practitioners for at least 90 days? _____ Yes (1) _____ No (2)

3. Have you been diagnosed with at least one of the following illnesses? _____ Yes (1) _____ (2) No

   Schizophrenia
   Schizoaffective Disorder
   Delusional Disorder
   Schizophreniform Disorder
   Bipolar I Disorder
   Bipolar II Disorder
   Major Depressive Disorder

4. As a result of your mental illness/diagnosis, do you find it difficult to make and keep friends or maintain healthy relationships with partners or family members? _____ Yes (1) _____ No (2)

5. As a result of your mental illness/diagnosis, do you find it difficult to maintain a full-time job or do you receive Social Security? _____ Yes (1) _____ No (2)

6. As a result of your mental illness/diagnosis, do you find it difficult to complete daily activities like bathing, cleaning, cooking, and keeping your living area in order? _____ Yes (1) _____ No (2)

7. As a result of your mental illness/diagnosis, do you struggle to meet your basic needs for food, safety, and housing (i.e., do you frequently lose housing, go hungry, or find yourself in dangerous situations because of your illness)? _____ Yes (1) _____ No (2)

8. Are you a U.S.A citizen or resident? _____ Yes (1) _____ No (2)

Survey Questions

9. What is your age range?
   (1) 18-24
   (2) 25-34
   (3) 35-44
   (4) 45-54
   (5) 55-64
   (6) Over 65

10. Gender:
(1) Male
(2) Female
(3) Transgender
(4) Other

11. Race and Ethnicity:
(1) American Indian or Alaska Native
(2) Asian
(3) Black or African American
(4) Native Hawaiian or Other Pacific Islander
(5) White
(6) Multiracial
(7) Middle Eastern
(8) Some Other Race
(9) Prefer not to say

12. Are you of Hispanic or Latino background? ____ Yes (1) _____ No (2)

13. Education Level (What is the highest level of schooling you have completed?):
(1) 8th Grade or below
(2) 9th Grade
(3) 10th Grade
(4) 11th Grade
(5) 12th Grade or GED
(6) Some college
(7) Undergraduate degree
(8) Graduate degree

14. Diagnosis (Which of the following diagnoses have you received? Check all that apply.)
(1) Schizophrenia
(2) Schizoaffective Disorder
(3) Delusional Disorder
(4) Schizophreniform Disorder
(5) Bipolar I Disorder
(6) Bipolar II Disorder
(7) Major Depressive Disorder
(8) Additional Diagnoses __________________________

15. Prior Treatment History (Which mental health services have you received in the past?)
Outpatient therapy _____ Yes (1) _____ No (2)
Case management/care coordination _____ Yes (1) _____ No (2)
Medication services _____ Yes (1) _____ No (2)
Day treatment or drop in center _____ Yes (1) _____ No (2)
Living in a mental health group home _____ Yes (1) _____ No (2)
Crisis services _____ Yes (1) _____ No (2)
Assertive community treatment (ACT/PACT) _____ Yes (1) _____ No (2)
Inpatient hospitalization _____ Yes (1) _____ No (2)

16. Current Treatment (Which mental health services are you currently receiving?)
Outpatient therapy _____ Yes (1) _____ No (2)
Case management/care coordination _____ Yes (1) _____ No (2)
Day treatment or drop in center _____ Yes (1) _____ No (2)
Living in a mental health group home or board and care _____ Yes (1) _____ No (2)
Crisis services _____ Yes (1) _____ No (2)
Assertive community treatment (ACT/PACT) _____ Yes (1) _____ No (2)

17. How long have you been receiving mental health treatment:
(1) Between 0 and 3 months
(2) Between 4 and 6 months
(3) Between 7 and 9 months
(4) Between 10 and 12 months
(5) Between 1 and 2 years
(6) Between 2 and 3 years
(7) Between 3 and 4 years
(8) Between 4 and 5 years
(9) More than 5 years

18. For the purpose of this study, you will be reflecting upon your therapeutic experiences with your primary provider (i.e., case manager, therapist, social worker, etc.) and your prescribing provider (i.e., psychiatrist or nurse practitioner). Your providers are the people who you meet with regularly to get your social and mental health care needs met. These questions are intended to gather information about your therapeutic relationship and how involved you feel in your work with your providers.
(1) How long have you been working with your current primary provider?
(1) Between 0 and 3 months
(2) Between 4 and 6 months
(3) Between 7 and 9 months
(4) Between 10 and 12 months
(5) Between 1 and 2 years
(6) Between 2 and 3 years
(7) Between 3 and 4 years
(8) Between 4 and 5 years
(9) More than 5 years

(2) How long have you been working with your current prescribing provider?
(1) Between 0 and 3 months
(2) Between 4 and 6 months
(3) Between 7 and 9 months
(4) Between 10 and 12 months
(5) Between 1 and 2 years
(6) Between 2 and 3 years  
(7) Between 3 and 4 years  
(8) Between 4 and 5 years  
(9) More than 5 years

The following questions ask you to reflect upon your relationship with your providers. Please keep this in mind when answering the questions.
Perceived organizational culture of recovery-oriented practices

19. Recovery-Oriented Services Assessment (ROSA), People-in-Services Version

**Instructions:** Please respond how often (from “never” to “always”) this mental health program does the following.

<table>
<thead>
<tr>
<th>This organization</th>
<th>1 Never</th>
<th>2 Rarely</th>
<th>3 Sometimes</th>
<th>4 Often</th>
<th>5 Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>… asks me about my interests.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… supports me to develop plans for my future.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… invites me to include those who are important to me in my planning.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… offers services that support my culture or life experience.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… introduces me to peer support or advocacy.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… encourages me to take risks to try new things.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… models hope for me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… focuses on partnering with me to meet my goals.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… respects my decisions about my life.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… partners with me to discuss progress towards my goals.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… offers me a choice of services to support my goals.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… offers me opportunities to discuss my spiritual needs when I wish.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… believes I can grow and recover.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… is open with me about all matters regarding my services.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>… provides trauma-specific services.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Autonomy

20. The Health Care Climate Questionnaire (HCCQ)

Instructions: This questionnaire contains items that are related to your experiences with (1) your primary provider (i.e., social workers, case managers, therapist) and (2) your prescribing provider (i.e., psychiatrist or nurse practitioner). Providers have different styles in dealing with clients, and we would like to know more about how you have felt about your encounters with your providers. Your responses are completely confidential. Please be honest and candid.

HCCQ—Psychiatrist/ Nurse Practitioner Version

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>Moderately disagree</td>
<td>Slightly disagree</td>
<td>Neutral</td>
<td>Slightly agree</td>
<td>Moderately agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

1. I feel that my psychiatrist (or nurse practitioner) has provided me choices and options about my medications (including not taking medications). _____
2. I feel that my psychiatrist (or nurse practitioner) understands how I see things with respect to my mental health treatment and recovery. _____
3. My psychiatrist (or nurse practitioner) conveys confidence in my ability to make changes regarding my mental health treatment and recovery (including whether or not to take medications). _____
4. My psychiatrist (or nurse practitioner) encourages me to ask questions about my mental health treatment (including questions about medications). _____
5. My psychiatrist (or nurse practitioner) listens to how I would like to do things in terms of my mental health treatment and recovery. _____
6. I don't feel very good about the way my psychiatrist (or nurse practitioner) talks to me about my mental health treatment and recovery. _____

HCCQ—Primary Provider Version (i.e., case manager, therapist, social worker)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>Moderately disagree</td>
<td>Slightly disagree</td>
<td>Neutral</td>
<td>Slightly agree</td>
<td>Moderately agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

1. I feel that my primary provider has provided me with choices and options about my treatment. _____
2. I feel that my primary provider understands how I see things with respect to my mental health. _____
3. My primary provider conveys confidence in my ability to make changes with respect to my mental health treatment and recovery (including whether or not to take medications). _____
4. My primary provider encourages me to ask about my mental health treatment (including questions about medications). _____
5. My primary provider listens to how I would like to do things in terms of my mental health treatment and recovery. _____
6. I don't feel very good about the way my primary provider talks to me about my mental health treatment and recovery. _____

**Coercion**

21. Are you currently mandated by the court to receive mental health services at this program?

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>I am Not Sure</td>
<td>I don’t know</td>
</tr>
</tbody>
</table>

b. If yes, does it mean that you have to meet with your mental health providers on a regular basis?

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>I am Not Sure</td>
<td>I don’t know</td>
</tr>
</tbody>
</table>

22. Are you mandated to take your medication as prescribed?

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>I am Not Sure</td>
<td>I don’t know</td>
</tr>
</tbody>
</table>

23. Have you been conditionally discharged from jail to this mental health program?

Yes (1)/No (2)

24. Have you been conditionally discharged from an inpatient psychiatric unit to this mental health program?

Yes (1)/No (2)

25. Have you been told that if you do not comply with prescribed treatment or medication you will be hospitalized?

Yes (1)/No (2)

26. The MacArthur Admission Experiences Survey (MAES)

Please read the following statements and indicate “Yes” or “No” with the statement.

**Negative pressures**

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My current provider tries to force me to receive mental health services at this program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>2</td>
<td>My current provider threatens me to get me to go to this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>3</td>
<td>My current provider physically tried to get me to go to the mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>4</td>
<td>My current provider threatened me with involuntary treatment commitment.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>5</td>
<td>My current provider said he or she would make me go to this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
</tbody>
</table>
6. No one tries to force me to receive mental health services.  
Yes (1)/No (2)

### Perceived coercion

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel free to do what I want about going to this mental health center.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>2. I voluntarily choose to go to the mental health center.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>3. It is my idea to go to this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>4. I have a lot of control over whether I go to this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>5. I have more influence than anyone else over whether I go to this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
</tbody>
</table>

### Process exclusion

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have enough of a chance to say whether I want to go to this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>2. I get to say what I want about going to this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>3. No one seems to want to know whether I want to participate in this mental health program.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>4. My opinion about going to the mental health center doesn’t matter.</td>
<td>Yes (1)/No (2)</td>
</tr>
</tbody>
</table>

### Leverage

#### Finance

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>27. Are you currently experiencing pressure from a financial payee or guardian to do what he or she wants in terms of your getting mental health, alcohol, or drug treatment (or taking medication) in order to gain access to your spending money?</td>
<td>Yes (1)/No (2)</td>
</tr>
</tbody>
</table>

#### Housing

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>28. Are you currently living in a place that requires you to stay in mental health or substance-use treatment (or requires you to continue taking your medication) in order to keep living there (including family home)?</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>29. Have you been told that living in your current housing is dependent on your taking medications?</td>
<td>Yes (1)/No (2)</td>
</tr>
</tbody>
</table>
30. Has anyone in the legal system told you (or your lawyer) that the charges will be dropped or reduced if you get treatment in the community for your mental health, alcohol, or drug problems?  
Yes (1)/No (2)

31. Has your mental health provider, or anyone in the legal system, or their report, suggested that you take treatment for a mental health problem as a condition of not going to prison?  
Yes (1)/No (2)

Medication Adherence

32. In the last 30 days, how often did you take your mental health medications as prescribed?  

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>All the time</td>
<td>Most of the time</td>
<td>Sometimes</td>
<td>Not at all</td>
</tr>
</tbody>
</table>

33. Medication Adherence Rating Scale (MARS)  
Please answer the following questions based on your experience with medications:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you ever forget to take your medication?</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>2. Are you careless at times about taking your medication?</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>3. When you feel better, do you sometimes stop taking your medication?</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>4. Sometimes if you feel worse when you take your medication, do you stop taking it?</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>5. I take my medication only when I am sick.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>6. It is unnatural for my mind and body to be controlled by medication.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>7. My thoughts are clearer on medication.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>8. By staying on medication, I can prevent getting sick.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>9. I feel weird, like a ‘zombie’ on medication.</td>
<td>Yes (1)/No (2)</td>
</tr>
<tr>
<td>10. Medication makes me feel tired and sluggish.</td>
<td>Yes (1)/No (2)</td>
</tr>
</tbody>
</table>
Control Variables

Belief of illness.

34. The Brief Illness Perception Questionnaire

For the following questions, please choose the number that best corresponds to your views:

<table>
<thead>
<tr>
<th>How much does your illness affect your life?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>no affect at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>severely affects my life</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How long do you think your illness will continue?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>a very short time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>forever</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much control do you feel you have over your illness?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>absolutely no control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>extreme amount of control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much do you think your treatment can help your illness?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>extremely helpful</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much do you experience symptoms from your illness?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>no symptoms at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>many severe symptoms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How concerned are you about your illness?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all concerned</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>extremely concerned</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How well do you feel you understand your illness?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>don't understand at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>understand very clearly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much does your illness affect you emotionally? (e.g. does it make you angry, scared, upset or depressed?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all affected emotionally</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>extremely affected emotionally</td>
</tr>
</tbody>
</table>
Severity of mental illness.

35. The Modified Colorado Symptom Index (MCSI)

Below is a list of problems that people sometimes have. Please think about how often you experienced certain problems and how much they bothered or distressed you during the past month. For each problem, please pick one answer choice that best describes how often you have had the problem in the past month (30 days).

<table>
<thead>
<tr>
<th>How often have you experienced these problems in the last 30 days?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1. How often have you felt nervous, tense, worried, frustrated, or afraid?</td>
</tr>
<tr>
<td>2. How often have you felt depressed?</td>
</tr>
<tr>
<td>3. How often have you felt lonely?</td>
</tr>
<tr>
<td>4. How often have others told you that you acted &quot;paranoid&quot; or &quot;suspicious&quot;?</td>
</tr>
<tr>
<td>5. How often did you hear voices, or hear and see things that other people didn’t think were there?</td>
</tr>
<tr>
<td>6. How often did you have trouble making up your mind about something, like deciding where you wanted to go or what you were going to do, or how to solve a problem?</td>
</tr>
<tr>
<td>7. How often did you have trouble thinking straight or concentrating on something you needed to do (like worrying so much or thinking</td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>about problems so much that you can’t remember or focus on other things?</td>
</tr>
<tr>
<td>8. How often did you feel that your behavior or actions were strange or different from that of other people?</td>
</tr>
<tr>
<td>9. How often did you feel out of place or like you did not fit in?</td>
</tr>
<tr>
<td>10. How often did you forget important things?</td>
</tr>
<tr>
<td>11. How often did you have problems with thinking too fast (thoughts racing)?</td>
</tr>
<tr>
<td>12. How often did you feel suspicious or paranoid?</td>
</tr>
<tr>
<td>13. How often did you feel like hurting or killing yourself?</td>
</tr>
<tr>
<td>14. How often have you felt like seriously hurting someone else?</td>
</tr>
</tbody>
</table>

**Qualitative questions**

*The final section of this survey consists of three open ended questions. Please enter your responses in the text fields below.*

**36.** What helps you take your psychiatric medications regularly? For example, is it related to your mental health provider and/or to other things? ______________________________
37. What makes it difficult for you to take your psychiatric medications regularly? For example, is it related to your mental health provider and/or to other things? ____________

38. If you do not take your psychiatric medication regularly or at all, what do you think your mental health provider can do to help take your medication as prescribed? ____________

If you would like to potentially be contacted for follow-up discussions on this topic, please leave your first name and email or phone number ________________________________.