

**Make Me Why Don't You:
Understanding Barriers to Treatment
Engagement in Coercive Contexts**

by

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Abstract

The high cost of mandated or coercive treatment in terms of time, money, and emotional distress highlights the importance of determining whether and how this kind of treatment can lead to positive outcomes. Findings suggest that even treatment resistant patients can benefit given the right circumstances. A recent Task Force concluded that there was evidence for the influence of three factors in treatment outcomes including relationship principles, non-diagnostic patient characteristics and the technical details of the treatment. The authors called for future research to further their stated aim, “to identify empirically based principles of change in psychotherapy ...that provide guidelines about how to most effectively deal with clients that aren’t tied to particular approaches or theories” (Castongauy & Beutler, 2006, p. 632).

The aim of the present study was to examine factors thought to influence relationship principles (patient perceptions of the hospital admission process and subsequent treatment) and patient characteristics associated with negative treatment outcomes (antisocial personality traits and negative emotionality) in an attempt to identify which variables are at play during the experience of treatment that prevent active participation (therapeutic alliance, treatment motivation and treatment compliance). The participants were 139 civil psychiatric patients recently discharged. Data was collected via semi-structured interview and record review at baseline and 5 prospective follow-ups to examine relationships between variables over time.

Results indicated that patient perceptions are related to treatment indices at baseline and these relationships are stable over time. Further, antisocial personality traits were related to treatment compliance and dispositional anger. Findings hold implications for the impact of interventions designed to target treatment interfering perceptions and emotions at initial contact, on treatment engagement over time.

Keywords: Mandated treatment; perceived coercion; procedural justice, treatment engagement; therapeutic alliance

Dedication

*This is for my mom, Debbie; her sister, Danielle; and
my sisters Erica, Christina and Rebecca*

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Chapter 1. Introduction

The exorbitant cost of mandated treatment (i.e., involuntary civil commitment) in combination with the difficulties associated with trying to engage patients who are coerced makes for a high stakes enterprise. Even if we are to set aside the moral qualms we may have about forcing people in vulnerable situations into treatment, it is necessary to determine whether and how this kind of treatment can be beneficial. A growing body of research across disciplines and settings has been exploring how best to foster positive outcomes in this context. Recent findings suggest that even characteristically treatment resistant individuals can benefit from coercive treatment given that the intensity and frequency of the intervention is high enough (Olver and Wong, 2009; Salekin, Worley & Grimes, 2010; Skeem, Johanson, Andershed & Loudon, 2007; Skeem & Manchak, 2008; Skeem, Monahan, & Mulvey, 2002) and the individual actively engages in the process (Polaschek & Ross, 2010).

Targeting the factors that prevent engagement in treatment is key. Extant research suggests that variables related to active participation in treatment including compliance, therapeutic alliance and treatment engagement are influential and mediate the association between mandated treatment and outcomes (Swartz et al., 2001). Unfortunately, there is insufficient evidence to inform how to best address behaviors and characteristics that prevent the development of a good working alliance and therefore impede treatment compliance and engagement.

One of the more recent in a line of empirical reviews towards informing what constitutes effective evidence based treatment was a task force appointed by Division 12 of the American Psychological Association in cooperation with the North American Society for Psychotherapy Research (NASPR). The authors' stated goal was to identify empirically based principles of change in psychotherapy... "that provide guidelines about how to most effectively deal with clients that aren't tied to particular approaches or

theories” (Castongauy & Beutler, 2006, pp. 632). The results of this exhaustive review provide support for the role of three factors in psychotherapy outcomes: technical factors of the treatment (e.g. technique and modality), relationship variables (variables that affect the patient/therapist relationship, or therapeutic alliance), and patient characteristics (e.g. demographic variables and personality traits). The resulting document highlights the need for future research that provides solutions that cut across treatment techniques, modalities and settings and also work towards the identification of specific factors (including patient characteristics) that challenge the development and maintenance of treatment engagement.

The aim of this dissertation is to answer this call by considering a patient population and context with a high likelihood for treatment rejection; individuals with serious mental illness (SMI) who have recently been hospitalized involuntarily. I will do this by examining factors thought to influence relationship principles (patient perceptions of the hospital admission process and subsequent treatment) and patient characteristics associated with negative treatment outcomes (antisocial personality traits and negative emotionality) in an attempt to identify which variables are at play during the experience of treatment that prevent active participation (therapeutic alliance, treatment motivation and treatment compliance). Mathematically speaking, I will be exploring which regions of a multivariate space (i.e., which combinations of values of a set of variables) are those that are coincident with the experiencing of treatment that prevent active participation.

1.1. Population of Interest: Serious Mental Illness (SMI)

Frequently, individuals subjected to coercive treatment are clients with complex diagnoses, SMI, and multiple life problems. There is no shortage of evidence to demonstrate that individuals with SMI are more likely to experience adversity. They are more likely to perpetrate violence, experience victimization and engage in self-harm; an example of just a few problematic outcomes (Steadman, et al., 1998; Swartz et al., 2001).

This population is also grossly overrepresented in the criminal justice system and upon release, is more likely to return than offenders without mental illness, caught in

what is often referred to as prison's revolving door (Torrey, 1995). Inmates with SMI are often incarcerated, at least in part, as a result of problems related to mental health. They are also re-incarcerated at a much higher rate than their healthy counterparts (Baillargeon, Binswanger, Penn, Williams, & Murray, 2009). Over the last two decades the disparity in the rate of incarceration for persons with SMI versus without has been increasing disproportionately. Prisons and correctional facilities house three times the number of individuals with mental illness as do psychiatric hospitals in the United States (Abramsky & Fellner, 2003). A recent review of treatment services for offenders with mental illness (OMI) noted that many OMI experience an increase in psychiatric symptoms following incarceration and a majority will require inpatient treatment for these symptoms during their stay (Morgan, Fisher, Duan, Mandracchia, & Murray, 2010; Morgan et al., 2012). More and more the distinction between SMI and OMI is becoming an arbitrary one. It is where these two designations overlap that we will find those patients who are most difficult to treat successfully. Based on this rationale, I will also consider the literature addressing treatment outcomes for OMI as they represent individuals with SMI and have a higher prevalence of antisocial personality traits; one of the patient characteristics of interest.

In addition to the lack of available resources that adequately address the needs of this high-risk population, people with SMI are less likely to seek out or accept the treatment that is available and often go untreated unless it is mandated through avenues such as involuntary hospitalization or court ordered sanctions (Abramsky & Fellner, 2003; Kessler et al., 2001). The unfortunate irony is that lack of insight, low motivation and high drop-out rates, all factors common in individuals with SMI including OMI (McMurrin, & Theodosi, 2007; Olver, Wormith, & Stockdale, 2011), may make them even less likely to participate in or benefit from treatment that is coerced (e.g. involuntary hospitalization or court mandated services) (Swartz, Wagner, Swanson, Hiday, & Burns, 2002; Swartz et al., 2013). As a result, costly interventions are often forced upon individuals who may superficially comply with but fail to benefit from them, taxing both financial resources and the patience of those providing care. Given the high cost of forcing these individuals to adhere to our "treatments" it seems necessary that the ends justify the means (Insel, 2008; Swartz et al., 2013; Treatment Advocacy Center, 2013).

What then do we mean when we say “treatment” and what, empirically, are the demonstrated benefits that justify the costs?

1.2. Compulsory Treatment

There are many benefits to compulsory treatment. It is associated with reductions in risk of hospitalization, length of stay in hospital (Munetz et al., 1996; Rohland, 1998; Swanson et al., 2013; Swartz et al., 1999; Treatment Advocacy Center, 2013; Zanni & Stavis, 2007), the use of restrictive measures such as seclusion and restraints during re-hospitalization (Zanni & Stavis, 2007), homelessness (Treatment Advocacy Center, 2013), victimization (Hiday et al., 2002) and arrest rates (Gilbert et al., 2010; Swanson et al., 2001; Swartz et al., 2009). It is also associated with reductions in many harmful behaviors including suicide attempts, self-harm, violence, threats, property damage and substance misuse (Hiday, Swartz, Swanson, Borum, & Wagner, 2002; Phelan, Sinkewicz, Castille, Huz & Link, 2010; Swanson et al., 2001; Swartz, Swanson, Steadman, Robbins, & Monahan, 2009) and has been shown to improve medication compliance (Rain, Steadman & Robbins, 2003) and attendance at outpatient psychiatric and day treatment appointments (Munetz, Grande, Kleist & Peterson, 1996; Swartz et al., 2013). Regrettably, patients mandated to treatment also report feeling more coerced and less autonomous (Swartz et al., 2001). Moreover, despite a body of evidence in support of positive outcomes, these findings are inconsistent (Galon & Wineman, 2010, Steadman, 1998; Swartz, Swanson, Steadman, Robbins & Monahan, 2009; Swartz, Swanson & Wagner, 1999). There is also some question about whether the demonstrated benefits actually translate to symptom reduction and improvements in quality of life in the long term. For example, patients subjected to mandated treatment have failed to maintain treatment compliance or engagement post discharge (Bindman et al., 2005; Rain et al., 2003). Reductions in outcomes such as hospitalization, recidivism, and violent behavior and increases in treatment compliance (e.g. taking medications or showing up at appointments) may not reflect true clinical improvement or recovery in the long term.

Despite the fact that a majority of individuals with SMI is receiving treatment, at least some of the time, in a correctional setting, there is a lack of evidence to inform

practice in these settings and a lack of resources to address treatment needs. Due to the lack of extant research examining outcomes for OMI, few programs are developed, and existing programs lack the empirical study necessary to designate them as evidence based (Morgan et al., 2012; Rice & Harris, 1997; Snyder, 2007). The Risk-Needs-Responsivity (R-N-R) paradigm developed by Andrews, Bonta and Hoge (1990) for the management of non-disordered offenders involves identifying an offender's level of risk and need and matching him or her with appropriate services accordingly. This model is often employed in the assessment and treatment of OMI (Morgan et al., 2012) but there is little research to support its efficacy with this population.

In a recent research synthesis examining treatment effects across services provided to OMI (Morgan et al., 2012), the authors note that findings in a general offender population are often focused on reducing recidivism and treatment factors related to criminal behavior. Researchers have identified what works (structured interventions, intensive treatment, the use of homework, a caring relational style among service providers) and what does not work (non-directive therapies, alternatives to incarceration such as drug testing and targeting low risk offenders). However, little is known about what psychological mechanisms underlie changes and whether these interventions are effective in an OMI population (Taxman & Ainsworth, 2009). Morgan and colleagues' (2012) meta-analysis based on 26 studies, suggested that interventions used with OMI yielded psychological gains such as reduced symptoms of distress, improved coping ability, institutional adjustment and behavioral functioning as well as reductions in criminal recidivism and return to hospital.

1.3. Community Based Treatment and Diversion

Changes in legislation have resulted in an increase in the variety and intensity of mandated treatment (Galon & Wineman, 2010). In addition to involuntary psychiatric hospitalization, there are now several forms of community treatment for those with more severe psychopathology in both civil and forensic contexts, many of which are compulsory. These include: Assisted Outpatient Treatment (AOT), Outpatient Commitment (OPC), Assisted Community Treatment (ACT), Parole Outpatient Clinics

(POC) and other conditional release options associated with both civilly and forensically committed patients.

In recent years, there has been a growing recognition that managing individuals with complex mental health issues through the criminal justice system is not an effective way to reduce criminal behavior. Moreover, intensive supervision is not enough but needs to be accompanied by treatment. Diversion programs were developed to address the needs of those with mental health and substance abuse related issues from a recovery-oriented approach. Mental health courts are one of the more recent variations of problem solving courts; the first of which was the Broward Mental Health Court that started in Broward county Florida in 1997 (Winick, 2002). The goal of the mental health courts is to divert offenders from the criminal justice system and encourage them to participate in community treatment. Individuals eligible for diversion are typically those with misdemeanor offenses whose primary issue is one of mental health and not criminality, though there is significant variation between mental health courts at this time (Winick, 2002). With the growing emphasis on a recovery oriented approach and the use of the least restrictive environment possible, mandated community treatment seems to be the direction in which society is moving for the treatment of SMI.

The Treatment Advocacy Center is a non-profit organization founded in the United States in 1998. Its mission is to effect legislation and policy change toward the swift and effective treatment of SMI (Treatment Advocacy Center, 2013). Mandated community treatment is offered as a less restrictive alternative for high-risk individuals with SMI who are in need of intensive services. To date 45 of 50 states permit the use of court ordered community treatment for individuals with a history of mental illness and non-compliance (Treatment Advocacy Center, 2013). This model is exemplified under New York State's Kendra's Law passed in 1999. Under this model, AOT is being implemented for individuals who are 18 years or older with a history of non-compliance, SMI and violent behavior (Treatment advocacy center, 2013).

There has been some question regarding whether the involuntary component of mandated community treatment is necessary in order to yield the associated benefits; however, the preponderance of evidence suggests that this is likely the case. Two large

scale randomized controlled trials drew different conclusions regarding whether a court mandate was an additional necessity (Galon & Wineman, 2010; Swartz et al., 1999). The Duke Study in North Carolina found that long term AOT (at least 180 days) and intensive services, when combined with a court mandate, was better at reducing adverse outcomes such as violence and victimization than the same services without a court order (Hiday et al., 2002; Swanson et al., 2001). Extended periods of commitment and more intensive services among those subjected to AOT was also associated with reductions in substance abuse and return to hospital as well as a decrease in length of hospital stay (Swartz et al., 1999).

A second randomized controlled trial conducted in New York City found no difference between those mandated to AOT versus those treated voluntarily in re-hospitalization, arrest rates, psychiatric symptoms or homelessness (Steadman, 1998). However, researchers have stated that these results should be interpreted with caution due to limitations associated with small sample size and methodological flaws (Galon & Wineman, 2010).

Most recently, Swanson and colleagues (2013) found that AOT was more effective at reducing annual costs per person than voluntary service use. AOT was also associated with a decrease in hospitalization, number of psychiatric emergency room visits, and criminal justice involvement as well as an increase in the utilization of outpatient services. These effects were either smaller in size or non-existent for individuals accessing the same services voluntarily with variations based on geographic location.

Extant findings continue to support the value of AOT when accompanied by intensive treatment services of 6 months or longer. Indeed, many of the benefits of compulsory treatment noted above were found in the context of mandated versus voluntary community treatment. For example, a 2009 report from the New York State Office of Mental Health found reductions from 43-55% in the number of individuals with adverse outcomes such as attempted suicide, self harm, violence, victimization and property damage among those who participated in 180 days of AOT under a court order when compared to a 180 day period prior to the court mandate (Swartz et al., 2009)

A study of New York State's Kendra's Law concluded that the odds of arrest were lower by almost two-thirds ($OR=.39$, $p<.01$) for individuals mandated under an AOT order than for those who had made no arrangement or signed an agreement to participate in the same services voluntarily (Treatment Advocacy Center, 2013). Similarly, Phelan and colleagues (2010) found that participants mandated to AOT were less likely to perpetrate serious violence or attempt suicide and more likely to experience increases in social functioning than those accessing the same services voluntarily. In addition to improvements in medication compliance (Hiday & Scheid-Cook, 1987) and attendance at outpatient day treatment sessions (Munetz, et al., 1996), extended (at least 6 months) AOT is also associated with long-term, voluntary treatment compliance up to 6 months post commitment (Rohland & Rohrer, 1998; Swanson et al., 2013; Swartz et al., 2009; Treatment advocacy center, 2013).

Studies examining OPC indicate that the relationship between mandated treatment and therapeutic outcomes is often mediated by treatment engagement and compliance. Several randomized controlled trials determined that though a relationship between outcomes and OPC alone did not exist, duration of commitment and participation in treatment mediated the relationship between mandated treatment and a decrease in the likelihood of hospital admission, decreased length of stay in the case of readmission (Monahan et al., 2001), and increased subjective quality of life (Swanson, Swartz, Elbogen, Wagner, & Burns, 2003). A study by Swanson and colleagues (2001) concluded that a reduction in the risk for violence mediated the relationship between OPC and arrest. Importantly, when precipitating behaviors were related to mental illness, the authors suggested that OPC reduced contact with the criminal justice system by increasing treatment engagement and compliance via participation in mental health services.

Findings also indicated that duration of treatment was not, in itself, enough. It was the greater exposure and adherence to treatment during longer periods of OPC that were responsible for this difference in outcomes. Swartz and colleagues (2001) found that while OPC per se was not related to treatment adherence in a sample of patients who were involuntarily committed to outpatient treatment, duration of OPC was related to treatment adherence and medication compliance. When continued OPC was

accompanied by the frequent use of mental health services, the probability of treatment adherence increased from 43 to 68%. The authors emphasized that OPC had to be accompanied by participation in treatment in order to yield benefits; compliance may be necessary but not sufficient without active engagement. Therefore, it is essential to identify the psychological mechanisms that influence compliance and engagement in order to answer questions about how to maximize the benefits of coercive treatment. Towards this end, I included therapeutic alliance, treatment motivation and treatment compliance as outcomes of interest in the present study.

1.4. Research and Task Forces: Attempts to Link Treatment with Outcomes

For the past three decades research has attempted to identify what it is about “treatment” that makes it effective. In 1993 The Society of Clinical Psychology, Division 12 of APA, formed a task force to evaluate the scientific validity of psychotherapy and, more broadly, the discipline of psychology. They did this by delineating and defining evidence based therapeutic interventions (APA Presidential Task Force on Evidence-Based Practice, 2006). A variety of theoretical orientations were represented among the task force members and psychotherapies were categorized as “well established,” “probably efficacious” or “experimental” for a given problem based on extant research.

This marked the beginning of what is now an ethical obligation for practicing clinicians to engage in evidence-based practice. In the years that followed, Division 12 continued to build and refine this list in a series of task forces that are now a standing committee. The interventions listed represent manualized protocols that are targeted toward specific disorders and supported by evidence based on randomized controlled trials.

Soon after these initial efforts, other APA divisions and non-APA organizations followed suit, developing their own lists of guidelines (e.g. APA Division of counselling psychology, APA Division of humanistic psychology, the American Association of Applied and Preventive Psychology, the British Psychological Society and the American Psychiatric Association) (Norcross, 2002). Today Division 12 maintains an updated list of

empirically supported treatments “to address consumers’ needs for information about benefits of psychotherapy” (<http://www.div12.org/empirically-supported-treatments/>). Though there is consensus among providers about the importance of evidence based treatment, controversy exists about how to identify what constitutes efficacious treatment in a way that translates to real world outcomes (Norcross, 2002). Subsequent research has challenged the emphasis on technique and highlighted the influence of other factors on treatment outcomes.

In 2002 APA Division 29, The Division of Psychotherapy, assembled its own task force to identify empirically supported (therapy) relationships (Norcross, 2002). The authors criticized the practice guidelines that focused on EST for artificially compartmentalizing the technical elements of interventions in what is a dynamic and integrated process. They accused the efforts of Division 12 of “depict(ing) disembodied therapists performing procedures on Axis I disorders, (which) stands in marked contrast to the clinician’s experience of psychotherapy as an intensely interpersonal and deeply emotional experience” (Norcross, 2001 pp.346). The authors posited that a) the person of the therapist, b) the therapy relationship, and c) the patient’s (non-diagnostic) characteristics are all vital considerations in the prediction of treatment outcome. They defined psychotherapy, including techniques and interventions, as a relational act.

Based on collected research on a variety of modalities, disorders and measurements of therapist and client characteristics, the task force concluded that the factors related to therapeutic outcomes fit into one of four categories: a) extratherapeutic factors (e.g. social support, external events); b) expectancy (e.g. the placebo effect); c) specific therapeutic techniques; and d) common factors shared by most therapies (Lambert & Barley, 2001). The relative impact of each category was assessed by identifying a subset of more than 100 studies that provided statistical analyses of outcome predictors. Using these studies they averaged the contribution that each predictor made to the final outcome to derive percentages. Based on this admittedly crude estimate, extratherapeutic factors accounted for 40% of the outcome variance. Expectancy and therapeutic technique each accounted for 15%; common factors, which include the therapeutic relationship, accounted for 30% of the variance in outcome (Lambert & Barley, 2001).

In 2011, Division 29 assembled the second (interdivisional) task force on evidence based therapy relationships and provided updated recommendations based on current research. Conclusions and recommendations based on a series of meta-analyses included findings that confirmed and, in some cases, updated those of the previous task force (Norcross, 2001; 2002; Norcross & Wampold, 2011). Specifically, “the therapy relationship makes substantial and consistent contributions to psychotherapy outcomes independent of the specific type of treatment” and accounts for as much as, if not more than the variance in outcomes related to specific treatment method. Moreover, taking extra-diagnostic (as well as diagnostic) patient characteristics into account enhances the effectiveness of the treatment (Norcross and Wampold, 2011 pp. 99).

A comprehensive research synthesis on the relationship between therapeutic alliance and outcomes in individual psychotherapy found a moderate but robust relationship between alliance and outcomes (Horvath, Del Re, Fluckiger, & Symonds, 2011). The study, which was the fourth meta-analysis on this topic published since 1991, included 190 independent data sources that covered more than 14,000 treatments and considered variables such as assessment perspective (client, therapist or observer), publication source, types of assessment methods, and time of assessment. Over 30 different alliance measures were used including the California Psychotherapy Alliance Scale (CALPAS), Helping Alliance Questionnaires (HAQ), Vanderbilt Psychotherapy Process Scale (VPPS), and the Working Alliance Inventory (WAI).

Similar efforts to identify the factors responsible for treatment outcome supported the centrality of the therapeutic relationship and built on this concept by identifying additional variables that contribute to or interact with the alliance not tied to particular treatment approaches, settings, disorders or populations. The findings of a task force appointed by Division 12 of APA in cooperation with the North American Society for Psychotherapy Research examined what they referred to as empirically based principles of change (Castonguay & Beutler, 2006). In keeping with the findings of Norcross and colleagues (2002; 2011), the authors noted that there was sufficient evidence to suggest that there are three principles that warrant consideration: a) participant characteristics, b) relationship variables and c) technical factors of the treatment.

The present study will attempt to inform how to best address behaviors and characteristics that prevent the development of a good working alliance and therefore impede treatment compliance and engagement. In response to Castonguay and Beutler's call (2006), I will consider factors that potentially influence relationship variables (patient perceptions of their treatment), and patient characteristics (antisocial personality traits and NEM). I will review the extant research on patient perceptions of hospitalization and other coercive treatment including perceived coercion, perceived negative pressures and perceived procedural justice.

Next, I will review relevant findings on antisocial personality traits as they relate to patient perceptions and NEM. Finally, I will examine the impact of these variables on treatment indices (therapeutic alliance, treatment motivation and treatment compliance) in a characteristically treatment resistant population; recently hospitalized civil psychiatric patients. I will discuss the findings and the associated implications for fostering treatment in coercive contexts.

1.5. Relationship Principles

1.5.1. Patient perceptions

Perceived coercion

Despite therapeutic intent, the very nature of treatment for SMI can be described as coercive by virtue of the fact that the patient is being controlled. The process of admission for psychiatric hospitalization can be likened to a battle, placing family and treatment providers at odds with patients. The adversarial nature of this interaction holds the potential to damage therapeutic alliance, impeding treatment gains (Cascardi & Poythress, 1997). Indeed, research has demonstrated that patients who reported higher levels of coercion were less likely to expect mental health staff to be helpful and to feel that they need or would benefit from treatment (Shannon, 1976 in Monahan, Hoge, Lidz et al., 1995).

The Oxford English Dictionary defines coercion as “constraint, restraint, compulsion; the application of force to control the action of a voluntary agent” (Oxford

Dictionary of English, 2010), forcing an individual to do something he or she would not do of his or her own volition. Coercion in a mental health context refers not only to legal control but also to the social control that is present when “treatment becomes a medical justification for confinement” due to the proscription of the nature of mental illness as irrational (Scheid, 2001 pp. 115). Despite the potential negative repercussions of compelling individuals against their will, characteristic symptoms of SMI such as lack of insight and poor reality testing raise questions about how to act in the best interest of someone in need of care.

How do clinicians provide necessary treatment to an individual unable to make decisions about their healthcare, and still communicate respect and maintain ethical practice? The “recognition of beneficial as well as unwanted aspects of mandated treatment” (McKenna, Simpson & Coverdale, 2006 p. 146), referred to as ambivalence, has been suggested as the optimal balance between excessive coercion and an absence of coercion, ideal for fostering positive treatment outcomes (Dawson, Romans, Gibbs & Ratter., 2003). For instance, patients undergoing mandated outpatient treatment in New Zealand were more likely to report feeling angry and threatened than voluntary outpatients; however, they were also more likely to defend benefits associated with treatment engagement and medication compliance (McKenna et al., 2006).

Research suggests that a patient’s perceptions of their experience have more bearing on their response than objective designations such as legal status (e.g. voluntary vs involuntary) (Beck & Golowka, 1988; Gardner et al., 1999; Monahan et al., 1995; Rain et al., 2003) and the relationship between perceived coercion and actual coercion is not a strong one. If dynamic factors such as patient perceptions have more of an impact than a static legal designation, a greater understanding of how perceptions influence cooperation with treatment can lead to interventions designed to improve outcomes in coercive contexts.

Monahan and colleagues (1995) argued that the relationship between perceived coercion (PC) and legal status is modest at best because a) many patients, when asked, were unaware of their legal status (approximately 40-50%); b) many legally involuntary patients (approximately 20-30%) indicated that they preferred to be in the hospital while

a considerable percentage of voluntary patients (approximately 50%) claimed that their admission was coerced; and c) the majority of patients reported being satisfied with treatment and believed they benefited from it, despite their legal status. Although a majority of the evidence supports a weak or absent relationship between legal status and perceptions of coercion, some studies such as the one conducted by Nicholson and colleagues (1996) yield contradictory findings.

The authors (Nicholson et al., 1996) concluded that legal status was substantially correlated ($r = .53$) with PC such that involuntary patients felt more coerced. They accused Monahan et al. (1995) of drawing a hasty conclusion. However, subsequent research findings support the suggestion that legal status is weakly related to perceptions of coercion, if at all, and that voluntary patients are as likely to feel coerced as involuntary patients (Gardener et al., 1999). Hoge and colleagues (1997) found that a proportion of legally voluntary civil psychiatric patients (56%) reported feeling coerced while involuntary patients (44%) did not.

Variability in the way that legal status is defined in terms of both laws and procedures, contributes to the inconsistent findings in this line of research. The manner in which an individual is classified as voluntary or involuntary varies by jurisdiction. The heterogeneous nature of these descriptions means that relationships between PC and legal status hold different meanings based on setting and location. Gardener and colleagues (1999) defined legal status based on status at the time of admission rather than after a commitment hearing. Therefore, changes in legal status during the study period were not taken into account. In the aforementioned sample, patients who did not believe they needed hospitalization were more likely to be admitted involuntarily. However, 41% of patients who did not believe they needed hospitalization entered voluntarily anyway begging the question of the relevance that legal status holds for coercion.

Nicholson and colleagues (1996) found that patients designated as voluntary (70%) were more likely to complete the study protocol than involuntary patients (50%). Moreover, patients who completed the study protocol had higher levels of functioning at admission and discharge. Unlike previous studies, the authors (Nicholson et al., 1996)

conducted further analyses to take change in legal status into consideration. Individuals who were admitted voluntarily and remained on a voluntary basis perceived less coercion than those who were involuntary at any time during their stay, including those who entered involuntarily and later remained on a basis that was technically voluntary. Moreover, voluntary patients were more likely to complete the protocol indicating a bias excluding individuals with more severe mental illness and less insight.

Distinctions between un-coerced involuntary admissions and coerced voluntary admissions may also partially explain variability in research findings. The former category includes two groups: a) patients who are confused about their legal status (for reasons such as disorientation, poor reality testing or lack of insight), and b) those who want to be admitted but are designated as involuntary for administrative reasons. The latter category includes patients who are technically admitting themselves voluntarily but are under pressures from family and clinicians and feel as though they have no choice (Hoge et al., 1997; Lidz et al., 1995). This phenomenon has also been referred to as coerced voluntarism; patients enter hospital voluntarily, but do not know or feel that they have a choice (Mckenna et al., 2006).

An investigation comparing perceptions of individuals tried in regular versus mental health court settings found that those who were unaware that they could choose to have their case heard in a mental health court had higher levels of PC than those who were aware that they had a choice in the matter. In this study all participants' legal statuses were the same. Technically, everyone had a choice; however, it was their perceptions of this choice that influenced their level of satisfaction (Poythress, Pettila, McGaha, & Boothroyd, 2002).

The lack of relationship between subjective coercion and legal status and the reality of circumstances such as coerced voluntarism illustrate the fact that there is more to the experience of coercion than actual force. It will be important for treatment providers to consider how the presentation of an individual patient may influence the nature of the relationship between PC and legal status. For patients with less insight who are more likely to be confused about their legal status, PC may be unrelated to objective designations. Conversely, patients with a greater awareness of their legal status who are

involuntarily admitted may be more likely to feel coerced. Differences in the nature of persuasive communications also hold implications for the perceptions of the patient and their subsequent reactions (Lidz, Mulvey, Arnold, Bennett, & Kirsch, 1993). Research suggests that different kinds of coercive statements and behaviors elicit different reactions (Lidz et al., 1993). Indeed, whether the coercive party is a community or family member versus a mental health professional may also hold important implications for response to treatment.

Negative pressures

In a qualitative analysis of transcripts involving admissions processes in acute mental health care settings, Lidz and colleagues (1993) identified four categories of coercive behavior that they collapsed to form two. Positive pressures (PP) include persuasion and inducements or promises while negative pressures (NP) are characterized by threats and force (including physical force). Perceived negative pressures (PNP) are positively correlated with PC in the literature (Hoge et al., 1997; Lidz et al., 1995); however, perceived positive pressures (PPP) are unrelated to PC and may offset the coercive effects of PNP (Monahan et al., 1995). A separate qualitative review of semi-structured interviews about the admissions process provided specific examples from patients of both PPP and PNP (Bennet et al., 1993). PPP were described as attempts that made patients feel as though others cared about their fate and well being, for example, “I was happy. Because nobody ever cared enough about me to do that. He wasn’t all right with me attempting to do what I had to do. He told me my life was worth something” (Bennet et al., 1993, p. 300). Conversely, PNP made patients feel coerced and threatened, for example, one patient was told, “Either I come freely or the officers would have to subdue me and bring me in” (Bennet et al., 1993, p. 298).

Involuntary patients admitted to experiencing more coercion and anger and perceiving more NP (McKenna, Simpson, & Laidlaw, 1999), which can come from the community (friends and relatives) or hospital (clinicians, nurses and other mental health treatment providers). Research suggests that the source of the pressures holds implications for their relationship to PC. Specifically, Cascardi and Poythress (1997) found that if patients stated that family or friends influenced their experiences of admission, PPP was associated with decreases in PC. However, when the same

persuasive behaviors were attributed to psychiatrists or other clinical staff, PPP was associated with an increase in PC. Contrary to PPP, PNP was associated with an increase in PC for both hospital and community associations.

Similar results were found in a randomized controlled trial by Swartz and colleagues (2001), who concluded that PC was positively correlated with PNP and unrelated to PPP. Moreover, negative community pressures evidenced incremental validity in the prediction of PC, accounting for 9% of the variance (Swartz et al., 2001). Important distinctions are being made between coercion (negative pressures) and persuasion (positive pressures) and the different implications that each holds for treatment (Winick, 2002). Another influential perception is the degree to which an individual feels that he or she is involved in what is happening to him or her as well as the fairness of the process. This is referred to as procedural justice.

Procedural justice

The opportunity for patients to participate actively in decisions regarding treatment, including hospitalization, influences their attitudes toward the experience of treatment (Cascardi & Poythress, 1997; Monahan et al., 1995, 2001; Poythress et al., 2002). These perceptions of process, or procedural justice, shape participants' impressions of autonomy and whether they have control over their fate (Cascardi & Poythress, 1997; McKenna, Simpson, Coverdale & Laidlaw, 2001).

Procedural justice as a concept is rooted in social justice theory. It was developed based on research examining court proceedings and is comprised of several different elements that can be defined as follows: a) fairness represents the degree to which the process is transparent, consistent and free from bias, b) voice represents the degree to which an individual feels he or she is able to express his or her views and voice his or her concerns, c) validation represents whether an individual's views and opinions are given merit and taken seriously in the decision making process, d) respect represents the degree to which an individual feels that he or she is treated with dignity and respect, e) motivation represents the degree to which an individual feels that decisions are made and actions are taken out of genuine concern for him or her, f) information represents the degree to which an individual feels he or she is given

accurate and relevant information regarding the situation and the decision to be made, and g) deception represents the degree to which an individual feels that he or she has been tricked or fooled (McKenna et al., 2001).

Research indicates that perceived procedural justice (PPJ) may override concerns about coercive events, and may significantly decrease PC during admission for both voluntary and involuntary patients (Cascardi and Poythress, 1997; Hiday, Swartz, Swanson, & Wagner, 1997; Lidz et al., 1995; McKenna, Simpson, & Laidlaw, 1999; McKenna et al., 2003). In a qualitative review of semi-structured interviews about the admissions process, the most consistent message communicated by patients was the importance of being included as an active participant (Bennett et al., 1993). Similarly, a study examining PPJ in a mental health court context revealed that participants' responses to open ended questions often included elements of procedural justice, reinforcing the importance that process holds (Heathcote, Hiday, & Ray, 2010). McKenna and colleagues (2001) found greater indications of perceived fairness, voice, validation, motivation and respect in a voluntary sample and greater perceived deception in an involuntary sample of acute psychiatric patients. In the same study, approximately half of the involuntary patients did not perceive voice or validation at all during the admission process.

In addition to decreasing PC, findings indicated that individuals who felt they had been treated fairly by an authority or institution were more likely to accept that authority's decisions and comply with its rules (Lind & Tyler, 1998; Murphy & Tyler, 2008; Tyler & Huo, 2002). In an examination of PPJ and health care decision making, PPJ was associated with individuals' expectations that a treatment provider would rate them positively and their relationship with a provider or an organization would improve. PPJ was also associated with higher levels of pride and pleasure and lower levels of anger in response to treatment (Murphy-Bergman, Cross & Fondcaro, 1999). Voice and respect emerged as the only variables associated with outcome satisfaction in a mental health court context, explaining 63% of the variance. PPJ was also associated with a six item impact of hearing (IOH) measure. The IOH used a seven point likert-type scale to elicit participant ratings of whether they felt better vs. worse; upset vs. calm; less vs. more respected; confused vs. informed; less vs. more hopeful; and good vs. bad in general

(Poythress et al., 2002). Specifically, the opportunity to voice an opinion and the belief that one was treated respectfully by the judge were significant predictors of the emotional impact of the hearing as operationalized by the global IOH score.

Temporal stability and relationship to outcomes

Findings indicate that PC is positively associated with PNP and negatively associated with PPJ (Cascardi & Poythress, 1997; Guarda et al., 2007; Lidz et al., 1995; McKenna, Simpson & Laidlaw, 1999; McKenna, Simpson & Coverdale, 2003). However, there are no consistent findings regarding the nature of the temporal relationship of these variables to one another or to therapeutic and adverse outcomes. While there is some evidence that PNP and PPJ are stable up to 10 months (Bindman et al., 2005; Cascardi & Poythress., 1997; Gardener et al., 1999; Guarda et al., 2007) and the same relationships present at admission hold during OPC (Scheid-Cook, 1991; 1993), subsequent findings yield conflicting results.

In a comparative research study examining the perceptions of forensic and involuntary civil psychiatric patients, PPJ had more impact on PC during admission than during OPC post discharge (McKenna et al., 2003). Gardener and colleagues (1999) interviewed civil psychiatric patients about their admission experience within 2 days of hospitalization and again 4 to 8 weeks post discharge. Despite changes in perceived need for hospitalization and gains in insight, individuals who reported more coercion were less likely to change their minds about need for hospitalization, and those who initially denied needing hospitalization reported more coercion. This is consistent with subsequent findings that perceived need for hospitalization was associated with higher levels of PC and PNP and lower levels of PPJ (Guarda et al., 2007). However, even patients who later admitted that they needed hospitalization did not improve their negative attitudes about the experience (Gardener et al., 1999).

Jaeger and colleagues (2013) evaluated civil psychiatric patients diagnosed with schizophrenia or schizoaffective disorder just before discharge and at four follow-up points, six months apart. They found that PC increased over time. PC was found to increase over time from baseline to three month follow-up in a sample of civil psychiatric patients in a multicenter, prospective cohort study in Europe (Fiorillo et al., 2012).

Moreover, a recent investigation into PPJ in a mental health court context concluded that participant perceptions of PPJ increased over time for up to 4 months (Kopelovich, Yanos, Pratt, & Koerner, 2013). This increase in PPJ was associated with a decrease in psychiatric symptoms but not an increase in positive attitudes toward recovery. In a separate study, data from 8 different mental health courts revealed that PPJ during the court hearing carried over to the subsequent treatment and program requirements (Heathcote et al., 2010). Cascardi, Poythress and Hall (2001) found that PPJ during commitment hearings influenced the attitudes of involuntarily committed psychiatric patients toward subsequent treatment, suggesting that past experiences may carry over to future encounters. The stability of subjective experience is particularly relevant for individuals with SMI who often have multiple instances of coercive treatment. Understanding how perceptions hold the potential to influence future experiences may help treatment providers foster positive perceptions and intervene to prevent negative ones.

In addition to the lack of consistent data regarding the stability of patient perceptions over time, scant and conflicting empirical research contributes to a lack of clarity regarding the relationship between patient perceptions and treatment outcomes (Monahan et al., 1995; Nicholson et al., 1996; Poythress et al., 2002; Rain et al., 2003; Swartz et al., 1999). Patients who felt coerced have been less likely to demonstrate improvements in symptoms and functioning and more likely to feel negatively toward mental health staff (Kaltiala-Heino, Laippala & Solokangas, 1997). Conversely, increases in procedural justice were associated with a reduction in psychiatric symptoms (Kopelevich et al., 2013) for MHC participants. Similarly, increases in perceptions of therapeutic jurisprudence, including knowledge, perceived voluntariness and procedural justice, were related to treatment success among MHC participants (Redlich & Woojae, 2014).

In a sample of civil psychiatric patients, Sheehan and Burns (2011) found that hospitalization was perceived as more coercive among participants who rated their relationship with the admitting clinician negatively. Among patients participating in mental health hearings to determine commitment under the Mental Health Act in Ireland, there was no relationship between patient perceptions of the hearing (including PC, PPJ

and IOH, a measure of the emotional impact of the hearing) and measures of therapeutic alliance (Working Alliance Inventory) or interpersonal trust (Interpersonal Trust of Physician) when their perception of the hearing was positive (Donnelly, Lynch, Mohan, & Kennedy, 2011). However, when patient perceptions were classified as negative (via dichotomizing) there was a significant relationship such that negatively perceived hearings were related to lower levels of working alliance with and interpersonal trust of the treating clinician.

An examination of PC and treatment compliance in an OPC program found that higher rates of PC were associated with an increase in self-reported medication compliance but not physician rated compliance. Moreover, this association existed at the first follow-up but not for any subsequent follow-ups (Rain et al., 2003). Similarly, PC at baseline was unrelated to the amount of outpatient service use among jail diversion participants (Cusak, Steadman & Herring, 2014) as well as staff ratings of treatment compliance over the preceding year among civil psychiatric patients (Bindman et al., 2005).

Inconsistent findings in combination with the lack of empirical study that examines the relationship between patient perceptions and outcomes highlights the need to understand whether PNP, PPJ and PC change over time and how this may impact treatment engagement and subsequent outcomes.

1.6. Patient Characteristics

1.6.1. Antisocial personality traits

Variation in patient characteristics is one of many variables that may influence an individual's reactions to treatment generally, and their perceptions of the experience specifically. For example, members of marginalized or underprivileged groups may not feel as heard or supported, potentially affecting their perceptions of treatment and hospitalization as well as how others respond to them. Few studies have examined the relationship between patient characteristics and subjective experience and the limited

number of investigations have yielded inconsistent results (Hiday et al., 1997; McKenna et al., 1999; Swartz et al., 2002).

One characteristic with particular relevance for a population with serious mental illness is personality pathology; specifically, antisocial personality traits. There has been much debate among mental health professionals about personality pathology. A growing body of research suggests that Antisocial Personality Disorder (ASPD) and psychopathy are dimensional in nature and may represent manifestations of the same construct. This dimensional structure has been demonstrated across gender, ethnicity and level of security in correctional facilities (Walters, 2007). For the purposes of the present study, I will focus on a dimensional conceptualization of antisocial personality features considering findings attributed to antisocial personality disorder as well as psychopathy.

ASPD is characterized by chronic and pervasive criminogenic and impulsive behaviors and antisocial traits that begin before the age of 15 and persist into adulthood. Examples of the diagnostic criteria include failure to conform to social norms, deceitfulness as indicated by repeated lying, reckless disregard for the safety of self or others, and lack of remorse (American Psychiatric Association, 2013).

Psychopathy, whose closest correlate in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013) is ASPD, has also been referred to as sociopathy or dissocial personality disorder. It has been most frequently operationalized as having two different aspects represented by factors; factor 2 is comprised of antisocial behavior similar to the diagnostic criteria for ASPD (e.g., impulsivity, irresponsibility and poor behavioral control). Factor 1, the interpersonal and affective factor, includes traits such as glibness, superficial charm and lack of empathy (Hare, 1991). While research supports 3 (Cooke and Michie, 2001), and 4 (Neumann, Hare and Newman, 2007) factor solutions in various populations as well, these models were developed based specifically on the PCL-R rather than the psychopathy construct. For the purposes of the present study, I will focus on the two-factor model that includes affective and behavioral traits.

The psychopathy literature consistently demonstrates that these two factors are correlated at approximately $r = .50$ and, after partialing out shared variance, relate

differentially to various external criterion measures (Hicks, Markon, Patrick, Krueger, & Newman, 2004). Evidence suggests that Factor 1 correlates more strongly with negative behavior during treatment (Hobson et al., 2000) and correlates negatively with measures of anxiety, neuroticism and negative emotionality, while Factor 2 is positively correlated with these variables (Frick, Lilienfeld, Ellis, Loney and Silverhorn, 1999; Hare 1991; Harpur et al 1988; Patrick 1994; Verona, Patrick and Joiner 2001). Factor 2 has demonstrated positive correlations with impulsivity, sensation seeking and anger and is negatively correlated with conscientiousness and constraint – all traits that Factor 1 demonstrated no significant relationships with (Hare 1991; Harpur et al 1989; Hicks et al., 2004; Patrick 1994; Verona, Patrick, & Joiner, 2001).

A current debate questions whether a) ASPD and psychopathy are related yet distinct constructs, or b) ASPD and psychopathy are a single, heterogeneous dimension. Critics of the latter view note that ASPD criteria are largely behavioral while psychopathy is a disorder more affective in nature. Data suggests that as many as 10%-40% of patients with Axis I disorders and 15-25% of inmates with ASPD also meet the criteria for psychopathy (Blackburn & Coid, 1999; Hare, 1991; Tengström, Grann, Langström & Kullgren, 2000). ASPD is highly correlated with Factor 2 ($r = .40-.84$; Hart, Cox & Hare, 1995; Skilling, Harris, Rice & Quinsy, 2002; Wogan & Mackenzie, 2007) as defined by the Hare family of assessment tools - The Psychopathy Checklist – Revised (PCL-R; Hare, 1991; 2003) and the Psychopathy Checklist: Screening Version (PCL:SV; Hart, Cox, & Hare, 1995). As such I will consider the empirical literature on both ASPD and psychopathy and measure antisocial traits using the PCL:SV, which captures the behavioral characteristics largely shared with ASPD as well as the affective traits of psychopathy.

Antisocial traits are related in a number of ways to poor treatment prognosis. ASPD is associated with anti-authority attitudes, which contributes to a failure to seek help and a tendency to reject help that is offered. Individuals with antisocial traits, like some of those with SMI, are more likely to be high service utilizers and tend to use services that are easily accessed but not adequate to meet their needs such as emergency services that may address an immediate crisis but do not impact the underlying personality pathology that continually leads to problematic circumstances

(Dugan & Kane, 2010). ASPD is considered one of the most costly disorders to treat due to the cost of the criminal justice system and the time and energy invested in working with a group of patients that typically present for treatment for a secondary problem (e.g. a co-occurring axis I disorder, substance abuse or marital difficulty) rather than targeting antisocial traits (Black and Blum, 2010). They are often unmotivated to engage in treatment and acquiesce in response to external pressures (e.g. legal requirements, social coercion) (Hicks & Patrick, 2006) creating an uneasy alliance that is both costly and of questionable benefit (National Institute on Clinical Excellence and Health [NICE], 2009).

Individuals with antisocial traits are also high needs patients who present specific challenges. For instance, patients with psychotic disorders who were also psychopathic experienced an increase in symptom severity and rates of substance abuse relative to their non-psychopathic counterparts (Firestone, Bradford, Greenberg and Larose, 1998; Grisso, Davis, Vesselinov, Appelbaum, & Monahan, 2000). Individuals with antisocial traits often lack insight into their personality pathology and how it is negatively impacting their lives. Research has found that they were more difficult to treat, more likely to test the boundaries of the treatment setting (Hobson, Shine, & Roberts, 2000), were more disruptive (Harris & Rice, 2007), less compliant, more likely to drop out or be released for disciplinary reasons, (Hilsenroth, Holdwic, Castlebury, & Blais, 1998; Pelissier, Camp, & Motivans, 2003) and seemed less likely to gain from treatment in general (Harris & Rice, 2007).

Moreover, there is a lack of evidence to inform clinical practice. Few interventions are aimed at addressing pathology specific to antisocial traits and a diagnosis of ASPD is often used to exclude participants from randomized controlled trials (RCT), further contributing to a lack of guidance so that “inaction and rejection appear to be the norm” (Dugan and Kane, 2010 pp.3). In 2009, NICE attempted to develop guidelines for the “treatment, management and prevention” of ASPD (NICE, 2009). The authors were able to find only one RCT and it concluded that the treatment was not effective (Black & Blum, 2010).

The question of treatment amenability

A current debate exists among scholars examining the treatability of individuals with antisocial traits. Conclusions based on research vary from inferences that treatment with this population is ineffective (Harris & Rice, 2006), and may increase the probability of negative outcomes (Hare, Clark, Grann, & Thornton, 2000; Harris & Rice, 2006; Seto & Barbaree, 1999) to findings that treatment may be beneficial, albeit more challenging (Salekin, 2002; Skeem, Monahan, & Mulvey, 2002).

Evidence that suggests that this population may not be amenable to treatment includes findings that patients with antisocial and psychopathic traits demonstrated specific challenges during treatment and failed to benefit from various interventions. Psychopathic patients showed less motivation (Ogloff et al., 1990), were more likely to drop out (Ogloff & Wong, 1990; Olver & Wong, 2009; Richards, Casey, & Lucente, 2003), were less likely to demonstrate improvements (Morrissey, Mooney, Hogue, Lindsay, & Taylor, 2007b; Ogloff & Wong, 1990), and exhibited more problem behaviors during treatment (Hobson et al., 2000; Rice, Harris & Cormier, 1992), including rule violations (Richards et al., 2003) and aggression (Chakhssi, de Ruiter, & Bernstein, 2010). Moreover, demonstrable associations existed between psychopathy and negative outcomes such as increases in criminal recidivism generally (Hare et al., 2000; Richards et al., 2003) and violent recidivism specifically (Olver & Wong, 2009; Rice et al., 1992) following intervention.

Based on these findings, some authors have adopted a blend of two related conclusions including the proposition that “no clinical intervention will ever be helpful” and “no effective interventions yet exist” (Harris & Rice, 2006, pp. 563). Some still maintain that there is a possibility that treatment could make psychopathic individuals worse, relying on findings that psychopathic patients were more likely to violently reoffend following treatment despite exhibiting apparent treatment progress (Hare et al., 2000; Rice et al., 1992; Seto & Barbaree, 1999). Following this line of reasoning the suggestion has been made that management as opposed to treatment may be the most ideal strategy (Wong & Hare, 2005).

However, more promising results suggest that although treatment with these individuals may present specific challenges, there is evidence that it can be beneficial (Chakhssi et al., 2010). Indeed, some research suggests that they are as likely as their non-psychopathic counterparts to demonstrate treatment gains (Morrissey et al., 2007a; Salekin, 2002; Skeem, et al., 2002). A prospective study of offenders mandated to residential treatment (Skeem et al., 2002) found that although psychopathy was associated with misbehavior and less perceived progress during treatment, PCL-R scores did not moderate the effect of treatment dose on re-arrest rate. Moreover, those scoring high on the PCL-R who received intensive treatment (7 sessions or more) were over 3 times less likely to be rearrested at 1-year follow-up than non-psychopathic individuals who received less intensive treatment.

A recent review of treatment studies ($k = 8$) concluded that treatment had a low to moderate success rate with 3 of 8 studies demonstrating specific treatment gains (Salekin et al., 2010). An earlier review of 42 studies found that 62% of psychopathic patients benefited from different therapeutic modalities and demonstrated gains in a variety of outcomes including improved interpersonal relations, increased capacity for remorse and empathy, employment maintenance, quality of homework, therapist ratings of motivation to change, successful release from probation, and a decrease in lying (Salekin, 2002; Seto & Barbaree, 1999). A more recent investigation provided further support with findings that demonstrated similar patterns of reliable change between psychopathic individuals and their non-psychopathic counterparts on several treatment outcomes including adaptive social behavior, communication skills, insight, attribution of responsibility, and self-regulation strategies (Chakhssi et al., 2010).

Though studies suggest that psychopathic patients may be amenable to treatment, findings still indicate that differences may exist in treatment responsiveness for a variety of reasons (Chakhssi et al., 2010). Effective treatments were greater in scope and intensity (defined as frequency and duration of treatment) and averaged four sessions per week for at least one year (Salekin, 2002; Skeem et al., 2002). Though a majority of studies indicated that psychopathic traits were associated with an increase in problematic behaviors in treatment settings, it is unclear whether poorer treatment response is synonymous with no treatment response (Salekin, 2010). Several areas

present challenges for treatment with antisocial and psychopathic individuals including motivation to change, manipulation and deceit, and lack of deep or lasting emotion (Salekin, 2010). These obstacles have concerning implications for treatment indices such as compliance, therapeutic alliance, readiness to change and treatment engagement.

Gudonis and colleagues (2009) suggested that the conclusion that psychopathic patients are not amenable to treatment is based largely on a homogeneous, categorical conceptualization of this group, a notion that is outdated. Chakhssi and colleagues (2010) found that although psychopathic individuals demonstrated the same treatment gains as non-psychopathic patients, a subset of highly psychopathic patients (22%) demonstrated reliable reduction of physical violence during treatment. The authors concluded that treatment responsiveness varies within psychopathic individuals and these differences may often mask differences when evaluated at the group level. Evaluating psychopathy with respect to its various facets holds implications for treatment indices. Comparing treatments that focus on components of the disorder rather than the construct as a whole will enable service providers to determine which presentations of psychopathy are treatable, and which may present specific difficulties (Salekin, 2010).

A recent RCT that examined Cognitive Behavioral Therapy (CBT) for men with ASPD in the community found that participants often held negative beliefs that interfered with treatment and the development of a therapeutic alliance, including paranoid themes and expectations of injury or rejection (Davidson et al., 2010). The authors noted that, “it was not uncommon for the patients to become suspicious of the motives of their therapists – stating for example, ‘you are trying to pump me for information’” (Davidson et al., 2010 p. 92). It is difficult to engage a patient with antisocial traits enough to develop a good working alliance due to the fact that a central characteristic of the disorder is difficulty with interpersonal relationships. It is then of vital importance to understand how perceptions of treatment impact the therapeutic relationship therefore impeding the development of trust and a good working alliance.

Premature termination and poor outcomes are also common in individuals with personality disorder in general. Hilsenroth and colleagues (1998) examined treatment

drop out in individuals with cluster B personality traits. The authors examined the number of sessions attended and deconstructed personality disorders into their diagnostic criteria in order to take a more dimensional approach. Findings indicated that the number of sessions attended was not related to co-morbid Axis I disorders but was negatively related to the number of DSM IV symptom criteria met for ASPD. Diagnostic criteria for ASPD and narcissistic personality disorder (NPD), which has some overlap with primary psychopathic traits, had the largest percentage of premature termination (55% and 64% respectively). Participants with ASPD and NPD also had the fewest number of sessions. Regardless of their diagnosis, patients with more ASPD criteria terminated sooner (Hilsenroth et al., 1998).

Mccarthy and Dugan (2010) compared treatment completers to non-completers to determine which demographic and psychological factors predicted treatment dropout. They concluded that treatment completers showed lower levels of psychopathic traits compared with non-completers. The authors noted that there were two categories of non-completers, rule breakers (who were expelled from treatment) and those who were not engaged and dropped out. Participants who were expelled met significantly more DSM-IV criteria for ASPD than the treatment completers or those who dropped out due to lack of engagement. This suggests that patients with more behavioral antisocial traits, such as impulsivity, irresponsibility and poor behavioral controls may be more likely to act out during treatment but may still be able to develop a good working alliance and engage under the right circumstances (Mccarthy & Dugan, 2010).

1.6.2. Negative emotionality (NEM)

Negative emotionality (NEM) has been defined as “the predisposition to experience states of dysphoria, anxiety, depression, frustration, hostility, alienation and anger” (Gudonis et al., 2009, p. 1416). NEM holds additional implications for treatment engagement, particularly for individuals with antisocial traits. It has been suggested that antisocial behaviors reflecting impulsivity may depend on the presence of negative affect and an inability to regulate these emotions (Trull, Sher, Minks-Brown, Durbin, & Burr, 2000). Even early theory suggested that unique variance in primary and secondary psychopathy is largely defined by differences in NEM (Karpman, 1948). Specifically, the

antisocial behavior that largely defines secondary psychopathy (characterized by the behavioral traits of Factor 2) occurs largely as an impulsive reaction to negative affective states resulting in anxiety and distress. Conversely, NEM is unrelated or even inversely related to the affective characteristics of primary psychopathy (defined by the affective traits of Factor 1) (Gudonis et al., 2009).

In a sample of Swedish prison inmates convicted of violent crimes, secondary psychopathy (measured by Factor 2 of the PCL-R) was related to greater trait anxiety, and somatic anxiety, fewer affective/interpersonal psychopathic traits, more borderline personality features, decreased interpersonal functioning and more symptoms associated with Axis I disorders (Skeem, Johanson, Andershed, Kerr, & Louden, 2007). These findings led researchers to conclude that a subtype approximating Karpman's (1948) secondary psychopath is exemplified by emotional instability and is therefore more inclined to experience NEM (Gudonis et al., 2009; Skeem et al., 2007). A study conducted by Hicks and colleagues (2004) similarly identified two subtypes based on personality differences that they labelled emotionally stable psychopaths (akin to primary psychopathy or Factor 1) and aggressive psychopaths (akin to secondary psychopathy or Factor 2). Lower levels of stress and impulsivity and higher positive emotionality differentiated the emotionally stable group. Conversely, the aggressive psychopaths exhibited higher levels of stress, aggression and impulsivity and lower levels of positive emotionality (Hicks et al., 2004).

Though previous findings regarding the association between psychopathy and NEM have yielded conflicting results (Patrick, 1994; Verona et al., 2001), a study by Hicks and Patrick (2006) concluded that suppressor effects based on differences between the factors could account for disparate findings. The authors' hypotheses were supported by the study's findings. Specifically, Factor 1, defined in part by a lack of ability to experience deep or true emotion, is associated with a reduction in negative emotional arousal whereas Factor 2, which is highly associated with anger, hostility and aggression, demonstrated a positive association with negative emotional states. The aforementioned findings are consistent with reports across various samples indicating that Factor 2 is positively correlated with NEM while Factor 1 is unrelated (Hare, 2003).

These differences highlight the importance of examining the different components of psychopathic traits separately.

Individual differences in patient characteristics such as antisocial personality traits hold implications for the prediction of treatment responsiveness (Hicks & Patrick, 2006). Specifically, individuals higher in affective antisocial traits will be less likely to experience the psychological stress that often leads to a motivation to change and will be less likely to demonstrate treatment readiness or form a therapeutic alliance. Those higher in behavioral traits will be higher in NEM. They may be more likely to seek out or engage in treatment; however, they may also be more likely to act out and present behavioral difficulties. Based on this rationale, it is hypothesized that measures of NEM will mediate the relationships between antisocial personality traits and treatment indices.

1.7. Purpose of the Present Study

The main goal of this dissertation was to identify variables at play during the experience of treatment that prevented active participation (therapeutic alliance, treatment motivation and treatment compliance) in individuals with SMI. I did so by examining factors thought to influence relationship principles (patient perceptions of the hospital admission process and subsequent treatment) and patient characteristics associated with negative treatment outcomes (antisocial traits; NEM). Additional objectives included examining whether patient perceptions of their hospital admission and subsequent treatment were stable over time. I also evaluated whether patient perceptions predicted treatment motivation, therapeutic alliance and treatment compliance. I examined whether relationships existed at baseline as well as follow-up. I also sought to determine whether procedural justice was a unique predictor of treatment indices after controlling for perceived coercion and negative pressures. Further, I aimed to examine the influence of antisocial traits and NEM. Specifically, I examined whether antisocial traits were related to treatment indices and measures of negative emotionality. I also evaluated whether relationships between patient perceptions and treatment indices were still significant after controlling for affective and behavioral antisocial personality traits. Finally, I examined whether relationships between behavioural and affective antisocial traits and treatment indices were mediated by NEM.

Based on extant literature, I asked the following research questions (RQ1 to RQ7) and proposed the following hypotheses (H1 to H7):

RQ1: Are patient perceptions related to one another?

H1: It is hypothesized that PC and PNP will be positively associated with one another and negatively associated with PPJ. These relationships will be present for perceptions at hospital admission as well as perceptions during treatment.

RQ2: Are patient perceptions stable over time?

H2: Patient perceptions will change over time. PC and PNP will decrease and PPJ will increase for those participants who remain in the study. To test this hypothesis I will evaluate change in patient perceptions from baseline over 5 follow-up periods.

RQ3: Are patient perceptions related to treatment indices at baseline?

H3: Patient perceptions will be related to all treatment indices including therapeutic alliance, treatment motivation and treatment compliance. PC and PNP will be negatively associated with all treatment indices and PPJ will be positively associated with all treatment indices. PPJ will account for unique variance in these relationships after accounting for PC and PNP.

RQ4: Are patient perceptions related to treatment indices at follow-up?

H4: Patient perceptions will be related to all treatment indices including therapeutic alliance, treatment motivation and treatment compliance. PC and PNP will be negatively associated with all treatment indices and PPJ will be positively associated with all treatment indices after accounting for PC and PNP at all follow-up periods.

RQ5: Are antisocial traits related to treatment indices at baseline?

H5: Affective/interpersonal antisocial traits will be negatively associated with therapeutic alliance and treatment motivation. Behavioral antisocial traits will be negatively associated with treatment compliance.

RQ6: Are relationships between patient perceptions and treatment indices significant after accounting for antisocial traits at baseline?

H6: This question is exploratory in nature and I have no a priori hypotheses about the results.

RQ7: Are relationships between antisocial traits and treatment indices significant after accounting for NEM?

H7: NEM will account for significant variance in the relationships between behavioral antisocial traits and treatment indices, but not between affective/interpersonal antisocial traits and treatment indices. After controlling for NEM, behavioral antisocial traits will no longer be associated with treatment indices.

Chapter 2. Method

2.1. Overview

The present study was part of a larger multi-wave, longitudinal design examining dynamic risk factors and adverse outcomes in civil psychiatric patients and provincial offenders with and without mental health diagnoses. The present study is focused only on the civil psychiatric sample. Data collection included semi-structured clinical interview and file review at baseline and prospectively through 5 approximately monthly follow-up periods. Ethical approval was obtained from Simon Fraser University, the University of British Columbia, the Ministry of Public Safety and Solicitor General (Corrections Branch) and the Fraser Health Authority.

2.2. Participants

Participants were 139 civil psychiatric patients, recruited from a hospital in Western Canada. Expanded upon in Table 2.1, the sample was approximately equal across gender (53.2% male), with a mean age of 33.7 (S.D. = 1.12). A majority were White (78.4%) or Asian (10.8%) and had never been married or in a common law relationship (61.9%). The mean number of years of education for the sample was 12.4 (S.D.=2.1). At the time of admission, 34.5% were unemployed, 40.3% lived with family or friends, 30.9% lived alone and supported themselves, 11.5% were in subsidized housing (2.9% of these were in group homes) and 5% had no fixed address.

Regarding history of adverse outcomes, 74.1% reported a history of suicidal ideation, 53.2% had made at least one suicide attempt and 36.7% had engaged in self harm. A majority (80.6%) had a history of victimization and 37.4% had been sexually victimized. In addition to victimization, 44.6% had a history of perpetrating physical

violence as an adult, 16.5% spousal violence, 22.3% sexual violence, and 22.3% stalking. 17.3% of participants had at least one previous incarceration.

Regarding hospital admission, 75.5% of participants were admitted involuntarily and 68.3% had at least one previous psychiatric hospitalization. Symptoms at admission, as noted in patient files, included delusions (46.8%), hallucinations (38.8%), mania (25.9%), confusion or disorientation (75.5%), agitation (63.3%), and hostility, anger or aggressiveness (22.3%). At the time of admission, 15% were under the influence of an illicit drug, 2% alcohol and 6% both drugs and alcohol

Table. 2.1. Sample Demographics for Baseline Participants (N = 139)

Variable	N	Percent
Sex		
Male	74	53.2
Female	65	46.8
Age		
19-30	61	43.8
31-40	38	27.3
41-50	35	25.3
51+	5	3.6
Ethnicity		
White	109	78.4
Asian	15	10.8
Aboriginal	4	2.9
Other	11	7.9
Employment		
Unemployed	91	65.5
Employed	48	34.5
Education		
Less than 12	30	29.1
At least 12	73	70.9
Relationship Status		
Single	96	75.5
Partnered	31	24.5
Previous Hospitalization		
Yes	98	71.0
No	40	29.0

Note. Demographic information was missing intermittently for some variables at baseline. One participant did not report whether they had had a previous hospitalization, 36 had missing data for education, and 12 did not report relationship status.

2.3. Procedure

2.3.1. Recruitment

All inpatients on a psychiatric hospital ward aged 19 and older who were designated by staff as approaching discharge, and for whom participation was deemed by psychiatrists as likely not to cause undue stress, were asked if they were willing to be approached by research assistants to participate in informed consent. The names of willing patients were provided to researchers to recruit for study participation. Patients were eligible if they were a) between the ages of 19 and 50¹, b) spoke fluent English, c) planning to reside in the greater Vancouver area on discharge, and (d) did not have a diagnosis of mental retardation. Patients who agreed to participate after an informed consent process completed a brief, four-item competency screen following informed consent to ensure that they understood the nature of their participation in the study including the risks and benefits. Every attempt was made to interview participants prior to discharge; however, when this was not possible, interviews were conducted at a mutually agreed upon location in the community shortly after discharge (e.g., a coffee shop).

2.3.2. Baseline Phase

Following informed consent, each participant who screened in as competent, completed a battery of self-report measures that assessed for a variety of outcomes including but not limited to psychiatric symptoms, attitudes, substance use and perceptions of stress. It took approximately 1.5 hours to complete these measures and participants were compensated \$10 for this portion of the assessment.

Following the self-report session, a semi-structured clinical interview was conducted by a graduate research assistant. The interviewers collected historical information as well as information regarding the index hospitalization and subsequent

¹ Though the inclusion criteria specified that study participants were to be between the ages of 19 and 50 years, a small number of individuals over 50 (n = 5) were recruited when no patients between 19 and 50 were available.

treatment. Permission was requested from each participant to review hospital records and contact up to two collateral informants to supplement record and interview data. The interview took an average of 3 hours to complete and participants were compensated \$10 for this portion of the assessment.

2.3.3. Follow-up phase

Research assistants conducted follow-up assessments approximately 4 to 6 weeks apart for each participant in the community. Each follow-up session included the same self-report measures administered at baseline as well as a semi-structured clinical interview and file review. The interview included questions about overall functioning, psychiatric symptoms, treatment, and criminal justice involvement during the follow-up period. Hospital records and community mental health clinic records were reviewed to collect data regarding any treatment and/or hospitalization. Participants were compensated \$20 for each follow-up session and an additional \$20 if they completed all 5 follow-ups. Every attempt was made to conduct follow-up assessments every 4 to 6 weeks; however, there was variation within each follow-up period.

Table 2.2. Summary of Ranges, Means, and Standard Deviation for Number of Days within Each Follow-Up Period.

Period	N	Range	Minimum	Maximum	M	SD
BL to F1	95	84	15	99	41.0	16.5
F1 to F2	79	98	25	123	41.2	17.5
F2 to F3	70	68	23	91	41.5	13.8
F3 to F4	67	91	21	112	41.3	16.9
F4 to F5	61	79	22	101	39.3	13.6

Note. BL = baseline; F1 = follow-up 1; F2 = follow-up 2; F3 = follow-up 3; F4 = follow-up 4; F5 = follow-up 5.

Data collection in the larger study was ongoing. For the purposes of the present study, data collection was stopped after May 27, 2013. At that point, 528 patients had been approached about participating in the informed consent process. Of those, 461 (87.3%) patients said they were willing to hear about the study and 67 (12.7%) declined. A total of 403 participants completed the informed consent process; 64 (13.8%) were discharged before they could be approached for data collection. After informed consent,

192 (47.6%) patients agreed to participate in the study, 181 (44.9%) declined participation and 30 (7.4%) were excluded from consideration by RAs (e.g., because they failed the competency screen, or moved out of the study area). The refusal rate in the present sample was higher than a previous longitudinal multi-wave study using civil psychiatric patients which had a refusal rate between 29 and 33% (Steadman, 1998). Of the 192 patients who agreed to participate and screened in as competent, 139 (72.3%) had at least partial baseline data (had completed at least a portion of the interview and/or self report measures) and were retained for analysis.

2.4. Measures

Research protocols developed for the MacArthur Coercion Study including the MacArthur Admission Experience Interview were used in order to collect data on patient experience and treatment compliance. For the purposes of the study, these scales were used to measure perceptions at hospital admission and an adapted version of each scale was used to measure the same perceptions during treatment.

2.4.1. Patient perceptions

The Perceived Coercion (PCS) and Negative Pressures (NPS) Scales

The PCS and NPS (Hoge, Lidz, Mulvey, & Roth, 1993) were developed for the MacArthur Coercion Study as part of the MacArthur Admission Experience Interview. They were designed to capture patient perceptions of the amount of coercion as well as the amount of threat and force involved in their hospital admission. The PCS has demonstrated adequate internal consistency (Mean inter-item correlation [MIC] = 0.65; Gardener et al., 1993; Lidz et al., 1995; Nicholson et al., 1996) and reliability ($\alpha = .86 - .91$; Guarda et al., 2007; Hiday et al., 1997; Nicholson et al., 1996). Limited data exists regarding the psychometric properties of the NPS as a stand-alone measure; however, existing data support its reliability ($\alpha = .84$, Corrected item-total correlation [CITC] = .54-.70; Hiday et al., 1997). Further, the MacArthur Admission Experience Interview (AEI) of which the NPS is a part has demonstrated adequate reliability ($\alpha = .90$; Nicholson et al., 1996) and stability over a 24-48 hour period ($r = .62-.72$; Cascardi & Poythress, 1997).

Both scales are comprised of 5 items scored on a 5-point Likert-type scale (1 = Not at all, 5 = Very much).

For the present study four different scales were used to measure perceived coercion at hospital admission (PCHA), perceived coercion during treatment participation (PCTP), negative pressures at hospital admission (NPHA) and negative pressures during treatment participation (NPTP). Internal consistency in the present sample was good to excellent for PCHA ($\alpha = .88-.93$; CITC = .71-.90), PCTP ($\alpha = .83-.92$; CITC = .44-.87), NPHA ($\alpha = .79-.86$; CITC = .43-.74) and NPTP ($\alpha = .79-.88$; CITC = .41-.79) for all follow-up periods.

The Procedural Justice Scale (PJS)

The PJS was designed to capture perceptions of fairness in a given process. It was adapted for the present study to capture such perceptions of the process of hospital admission as well as subsequent treatment in hospital and community post discharge. The scale is comprised of 7 items, scored on a 5-point Likert-type scale (1 = Not at all, 5 = Very much). In addition to a total score representing overall justice, each item evaluates one of 7 proposed elements of procedural justice including: voice, validation, fairness, motivation, respect, information and deception. For the present study, two different scales were used to measure procedural justice during hospital admission (PJHA), and procedural justice during treatment participation (PJTP). The PJS (McKenna et al., 2006) is inversely related to measures of PC (McKenna et al., 2001) and has demonstrated adequate reliability ($\alpha = .76 - .82$, CITC = .54-.70; Guarda et al., 2007; Hiday et al., 1997). Internal consistency in the present sample was good to excellent for PJHA ($\alpha = .74-.90$; CITC = .29-.84) and PJTP ($\alpha = .85-.93$; CITC = .34-.88).

2.4.2. Treatment involvement

MacArthur Violence Risk Assessment Study Treatment Involvement Interview

The treatment involvement interview (Monahan et al., 2001) was used to collect data regarding treatment compliance including current non-compliance, non-compliance in the two previous months and lifetime non-compliance. Specifically, participants were

questioned regarding the nature of the treatment in which they were involved, how many treatment appointments were scheduled and were attended, and the reason(s) for any missed appointments. This included missed doses of prescription medication as well as any missed appointments with health care providers. In addition to participant interview, medical records and any available collateral information was used in order to create a dichotomous variable indicating the presence or absence of any non-compliance. The base rate for any lifetime history of non-compliance at baseline in the present sample was 58.2% (N = 82), 32.6% (N = 46) denied any non-compliance, and 13 participants had missing data.

The California Psychotherapy Alliance Scale (CALPAS)

The CALPAS was used to measure therapeutic alliance. The CALPAS is a 24-item self-report measure comprised of four scales: Patient Commitment (PC), Patient Working Capacity (PWC), Therapist Understanding and Involvement (TUI) and Working Strategy Consensus (WSC). For the present study, a brief 12-item version was used. Participants were asked to consider all of the treatment they received for mental health purposes during their hospitalization as a whole. The CALPAS is scored on a 7-point Likert-type scale (1= Not at all, 7=Very much so) and has demonstrated adequate internal consistency ($\alpha = .83$; Gaston, 1991). Internal consistency in the present sample was acceptable to good for CALPAS total ($\alpha = .82-.88$; CITC = .02-.76), CALPAS-TUI ($\alpha = .74-.89$; CITC = .43-.85), and CALPAS-WSC ($\alpha = .71-.86$; CITC = .32-.83) for all follow-up points. Both CALPAS-PC ($\alpha = .44-.66$; CITC = .17-.49) and CALPAS-PWC ($\alpha = .42-.69$; CITC = .13-.57) had poor internal consistency.

The University of Rhode Island Change Assessment (URICA)

The URICA is a 32-item self-report measure of readiness to change in adults and is often used to assess treatment motivation in individuals with substance dependence (DiClemente & Hughes, 1990). The URICA is comprised of four first order factors measuring various stages of change including: pre-contemplation (PC), contemplation (C), action (A), and maintenance (M). It is scored on a 5-point Likert-type scale (1= Strongly disagree, 5=Strongly agree) and yields a score for each factor as well as an overall treatment readiness score. It has demonstrated good psychometric properties

including predictive validity and internal consistency ($\alpha = .75 - .87$; Pantalon & Swanson, 2003). Internal consistency in the present sample was acceptable to excellent for URICA-PC ($\alpha = .76-.83$; CITC = $.25-.74$), URICA-C ($\alpha = .64-.78$; CITC = $.12-.68$), URICA-A ($\alpha = .83-.91$; CITC = $.29-.80$), and URICA-M ($\alpha = .62-.77$; CITC = $.23-.59$) for all follow-up points.

2.4.3. Antisocial Traits

The Psychopathy Checklist: Screening Version (PCL:SV)

The PCL:SV was developed as a screening measure for the diagnosis of psychopathy. It consists of 12 items scored on a 3-point scale (0=Does not apply, 1=Applies to a certain extent, 2= Applies). It yields Factor 1 and 2 scores analogous to the PCL-R and has demonstrated sound psychometric properties by a wide body of literature (Hart, Cox, & Hare, 1995). Inter-rater reliability for the present study was based on 25 cases and 2 raters (ICC2 = $.87$). Internal consistency in the present sample was acceptable to good for PCL total ($\alpha = .83$; CITC = $.32-.60$), PCL-F1 ($\alpha = .79$; CITC = $.44-.62$), and PCL-F2 ($\alpha = .70$; CITC = $.21-.37$) scores.

2.4.4. Negative Emotionality

The State-Trait Anger Expression Inventory – 2 (STAXI-2)

The STAXI-2 (Spielberger, Sydeman, Owen, & Marsh, 1999) is a 57-item inventory designed to measure the intensity of anger as an affective state and the dispositional tendency to experience angry feelings. The instrument is comprised of six scales; State Anger (SA), Trait Anger (TA), Anger Expression-Out (AXO), Anger Expression-In (AXI), Anger Control-Out (ACO), Anger Control-In (ACI), and an Anger Expression Index. The STAXI-2 is a widely used, psychometrically sound measure of anger with high internal reliability ($\alpha = .74-.90$; see Spielberger et al., 1999). Norms are available for psychiatric patients. State anger was reassessed at each follow-up point; all other scales were collected once at baseline. Internal consistency in the present sample was acceptable to excellent for STAXI-SA ($\alpha = .92-.97$; CITC $.20-.94$) for all follow-up points as well as STAXI-TA ($\alpha = .87$; CITC $.51-.65$), STAXI-AXO ($\alpha = .79$; CITC $.25-.70$),

STAXI-AXI ($\alpha = .77$; CITC .34-.63), STAXI-ACO ($\alpha = .83$; CITC .40-.69), and STAXI-ACI ($\alpha = .86$; CITC .50-.72).

The State-Trait Anxiety Inventory form Y (STAI Form Y)

The STAI (Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1999) is a self-report measure designed to measure anxiety as an affective state as well as the dispositional tendency to feel anxious on a 4-point Likert-type scale. It is comprised of two scales, State Anxiety (SA) and Trait Anxiety (TA). The items related to SA are measured (1= Not at all, 4= Very much so). The items related to TA are measured (1= Almost never, 4= Almost always). It is widely used with sound psychometric properties and has demonstrated validity and reliability (Smeets et al., 1996; De Jong, Merckelback & Muris, 1990). State anxiety was reassessed at each follow-up point; all other scales were collected once at baseline. Internal consistency in the present sample was good to excellent for STAI-SA ($\alpha = .88$ -.93; CITC .08-.78) for all follow-up points as well as STAI-TA ($\alpha = .93$; CITC .38-.78).

2.5. Statistical Analyses

Statistical methods were chosen and justified to test the aforementioned research questions and hypotheses using the variables listed in Table 2.3.

Table 2.3. Variables

Source	Variable	Variable name ^a	
Perceived Coercion Scale (PCS)	01	Perceived Coercion at Hospital Admission	PCHA
	02	Perceived Coercion during Treatment Participation	PCTP
Negative Pressures Scale (NPS)	03	Negative Pressures at Hospital Admission	NPHA
	04	Negative Pressures during Treatment Participation	NPTP
Procedural Justice Scale (PJS)	05	Procedural Justice at Hospital Admission	PJHA
	06	Procedural Justice During Treatment	PJPT
State-Trait Anger Expression Inventory (STAXI-2)	07	State Anger	STAXI-SA
	08	Trait Anger	STAXI-TA
	09	Control In	STAXI-ACI
	10	Control Out	STAXI-ACO
	11	Expression In	STAXI-AXI
	12	Expression Out	STAXI-AXO
State-Trait Anxiety Inventory (STAI-Y).	13	State Anxiety	STAI-SA
		Trait Anxiety	STAI-TA
University of Rhode Island Change Assessment (URICA)	14	Precontemplation	URICA-PC
	15	Contemplation	URICA-C
	16	Action	URICA-A
	17	Maintenance	URICA-M
	18	Readiness to Change	URICA-RTC
Psychopathy Checklist (PCL)	19	PCL Factor 1 (Affective traits)	PCL-1
	20	PCL Factor 2 (Behavioral traits)	PCL-2
California Psychotherapy Alliance Scale (CALPAS)	21	Patient Commitment	CALPAS-PC
	22	Patient Working Capacity	CALPAS-PWC
	23	Therapist Understanding & Involvement	CALPAS-TUI
	24	Working Strategy Consensus	CALPAS-WSC
Treatment Involvement Interview	25	Compliance	Compliance

Note a. Abbreviated variable names were prefixed by BL, F1, F2, F3, F4, and F5 to specify the six repeated measures (i.e., BL = baseline and F1 to F5 = follow ups).

2.5.1. Bivariate correlations

Bivariate correlation was conducted using Pearson's correlation coefficients to provide information about the strength of the relationships between patient perceptions of their hospitalization and to facilitate comparisons of correlational relationships reported in previous and future research using the scales included in the present study.

2.5.2. Repeated measures ANOVA

The issue of temporal stability can be considered at each of the linked, yet, quantitatively distinct, levels of the aggregate/population and of the individual. The former bears on the pattern of change, over time, of parameters of the distribution of a variable under study (more generally, the structure of the multivariate distribution of a variable, scored at p distinct time points). Of typical interest, here, is the level of the distribution, quantified, usually, by the set of means $[\mu_1, \mu_2, \dots, \mu_p]$. Also of interest, is the set of Pearson Product Moment Correlations $[\rho_{1,2}, \rho_{2,3}, \dots, \rho_{p-1,p}]$, which quantify the degree of stability, over adjacent time points, in the rank ordering of individuals within the distribution. The latter bears on the pattern of change, over time, of the scores taken, on a variable, by an individual.

To address the aggregate level hypothesis, Repeated Measures ANOVA was used to compare the mean scores for patient perceptions of hospitalization and treatment over all follow-up periods. Specifically, six 1-factor repeated measures ANOVA tests were conducted with time as the within subjects factor to test the hypothesis pair $H_0: \mu_1 = \mu_2 = \dots = \mu_6$ vs. $H_1: \sim H_0$. at the conventional $\alpha = .05$ family wise error rate, employing a Bonferroni correction. By using a repeated measures model, a source of variance which might otherwise affect the results (i.e., the inherent within-subjects variance, and the correlations between the measures across time) was taken into account (Rutherford, 2001).

2.5.3. Reliable change index (RCI)

To assess individual-level temporal stability in perceptions (from baseline to follow-up 1, and, from baseline to follow-up 5), for each individual, the Reliable Change

Index (RCI; Jacobson & Truax, 1991) was computed by subtracting the post-test score (e.g., PCHA at follow-up 5) from the pre-test (e.g., PCHA at baseline) for each individual, and dividing by the standard error of the differences between the two scores. The standard error of the differences is computed as follows, where SE is equal to the Standard Error of Measurement of a given measure:

$$RCI = (x_2 - x_1) / S_{diff}, \text{ where } S_{diff} = \sqrt{2(SE)^2}, \text{ and } SE = sd\sqrt{(1 - r_{xx})}$$

If the absolute value of the RCI is greater than 1.96 (95% confidence that an actual change occurred), then the difference between pre-test and post-test scores is considered to be a reliable change. If the absolute value of the RCI is smaller than 1.96, then the change between pre- and post-test is not considered to be reliable. In the case of reliable change, the direction of the RCI indicates whether the change is a reliable increase (a positive value greater than 1.96) or a reliable decrease (a negative value greater than -1.96).

The RCI was calculated for patient perceptions using data from baseline, follow-up 1, and follow-up 5 scores. Changes from baseline to follow-up 1 and baseline to follow-up 5 were classified as having no change, a reliable decrease or a reliable increase for PCHA, PCTP, NPHA, NPTP, PJHA and PJTP.

2.5.4. OLS-MLR

Classical multiple linear regression based on ordinary least squares (OLS-MLR) was initially considered as a potential method of addressing RQ3 to RQ7. The aim of OLS-MLR was to construct equations of the general form:

$$\hat{Y} = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k + \varepsilon$$

Where: \hat{Y} is the predicted value of the dependent variable (Y); β_0 is the constant (i.e., the predicted value of Y when all the values of X are zero); $\beta_1 \dots \beta_k$ are the standardized partial regression (β) coefficients for k predictor (X) variables; and ε = residual (the difference between the predicted and the observed value of Y). MLR-OLS

assumes that for every one unit change in X_k , then \hat{Y} would change by β_k units, assuming that all of the other X variables are constant. The regression coefficients were assumed to be statistically significant at the conventional $\alpha = .05$ significance level if $p < .05$ for the t-test statistics, given by $t = \beta/SE$ (where $SE =$ standard error).

The main limitation of OLS-MLR is that its basic theoretical assumptions, including no multicollinearity and no heteroskedacity are often violated, especially in longitudinal and clinical data. Multicollinearity (i.e., strong inter-correlations between the predictor variables) and heteroskedacity (i.e., the non-homogeneity of the variance of the dependent variables across the predictor variables) inflate the SEs of the β coefficients (Chatterjee, Hadi, & Price, 2007). When data are multicollinear and heteroskedastic, the computed SEs deviate enough from their true values that the inferential statistics are biased. Multicollinearity and heteroskedacity are a major problem when the research purpose (as in this study) includes explanatory modeling, because it is impossible to evaluate the relative importance of the predictor variables. Heteroskedacity is a major concern, because it invalidates statistical tests of significance, which assume that the variances are uncorrelated and do not vary systematically with respect to the effects being modeled. A poorly specified model with mutually co-dependent and heteroskedastic predictors provides a highly distorted explanation of the relationships among the variables of interest (Chatterjee, Hadi & Price, 2007).

The variance inflation factor (VIF) was used to assess multicollinearity in this study, because it is a measure commonly used for this purpose (Field, 2009). The square root of the VIF indicates how much larger the SE is, compared to what it would be if the variables were not correlated. Some researchers suggest that the VIF should not be > 5 , while others recommend that the VIF should not be > 2 (Alison, 1998). I used the more conservative $VIF > 2$ guideline in the present study for assumption checking.

There is no objective test for heteroskedacity (Field, 2009). The residuals in an OLS-MLR model should be randomly distributed on either side of the mean in the case of homoskedacity. In this study, a plot of the residuals versus the predicted values was used as a visual test for heteroskedacity, reflected by an irregular geometric pattern (e.g., a wedge, diamond, or V shape) of points. Due to violations of the assumptions of

parametric statistics including multicollinearity and heteroskedasticity, OLS-MLR was rejected as a suitable technique for several analyses. For example models constructed to test RQ3 included the prediction of treatment indices using patient perception variables as predictors. A separate model was constructed using all patient perception variables (PCHA, PCTP, NPHA, NPTP, PJHA and PJTP) as predictors for each of the treatment index subscale measures (e.g. CALPAS_WSC). A majority of the VIFs in these analyses were > 2 (72%) and heteroskedasticity was observed among many of the predictive relationships. For example in the relationship between patient perceptions and URICA_PC, the wedge shaped pattern of the residuals suggested that the variance was not homogeneous, but increased systematically with respect to a decrease in the predicted values of URICA_PC.

OLS-MLR was rejected for RQs 4 and 6 due to the fact that a) RQ4 examined the same relationships prospectively across follow-ups and similar analytic methods were required for consistency of interpretation, b) the decrease in sample size between baseline and the fifth follow-up (see Table 5) reduced the power to test hypotheses using parametric statistics. and c) RQ6 included the same relationships in RQ3 that violated the relevant assumptions. A decision was made to use PLS-SEM to test RQs 5 and 7 rather than attempt OLS-MLR in order to have consistency in the statistical techniques used which would aid in comparative statements between hypotheses.

2.5.5. Binary logistic regression

Another option was to conduct binary logistic regression, instead of OLS-MLR, by converting the 5-point scale used to measure the dependent variables into a binary scale; however, as emphasized by Lang (2004) reducing the measurement level in this way also reduces the precision of the measurements, causing loss of information, and leading to misinterpretations. Moreover, the results of Binary Logistic Regression are compromised by multicollinearity and sample sizes with less than 20 cases per predictor variable (Hosmer & Lemeshow, 2000).

2.5.6. Structural equation modeling (SEM)

SEM was the third option considered. It is a second generation technique based on a combination of factor analysis and path analysis that has many advantages over classical regression techniques (Kline, 2010; Alavifar, Karimimalayer, & Annuar, 2012). There are two types of SEM: covariance-based (CB-SEM) and SEM based on partial least squares (PLS-SEM) otherwise known as PLS path modeling (Hair, Hult, Ringle, & Sarstedt, 2014; Kline, 2010). PLS-SEM was used in the present study. The primary differences between PLS-SEM and the more classical CB-SEM as, say, enshrined in LISREL are a) PLS-SEM is a component technique, the causal part of models specified in terms of linear composites of input variables; and b) PLS is employed, standardly, as a purely data analytic technique in an attempt to describe the data at hand rather than make inferences about population parameters. For this reason, it is not underpinned by the framework of classical inferential parametric statistics such as assumptions about the distribution of the data or the measurement levels of the variables (Hair et al., 2014). Therefore, PLS-SEM can be used when other methods (e.g., MLR-OLS and CB-SEM) fail due to violations of the assumptions of classical parametric statistics, including insufficient power due to low sample size (Wong, 2013). PLS-SEM is less sensitive to sample size; it can generate estimates even with samples smaller than 30 observations (Hair, Anderson, Babin, Tatman, & Black, 2010).

PLS-SEM assumes that all of the variance in the data is useful, and can be explained. For this reason, there is no need to consider the distribution of residuals. PLS-SEM focuses on maximizing the explained variance by estimating partial correlations between latent constructs in an iterative sequence (Haenlen & Kaplan, 2004). The goodness of fit of a particular PLS-based component model is evaluated with respect to various variance explained measures detailed later in this section to assess the quality of the measurement model and the structural model separately.

PLS-SEM operates with a graphic user interface (GUI) based on a path diagram, consisting of latent constructs, indicators, and paths. The latent constructs (represented by circles) are identified as factors computed from one or more indicators (e.g., questionnaire item scores) represented by rectangles. Figure 2.1 illustrates one example of a PLS path model used in this study. Reflective indicators (indicated by rectangles

with arrows flowing out of a latent construct) were multiple inter-correlated items that collectively measured and mirrored the effects of the latent construct. In Figure 2.1 an example of reflective indicators is the four related URICA dimensions reflecting Treatment Motivation. All other variables in this model also have reflective indicators including the PC and PNP scales (PC-NP); and PPJ Scales (Procedural Justice).

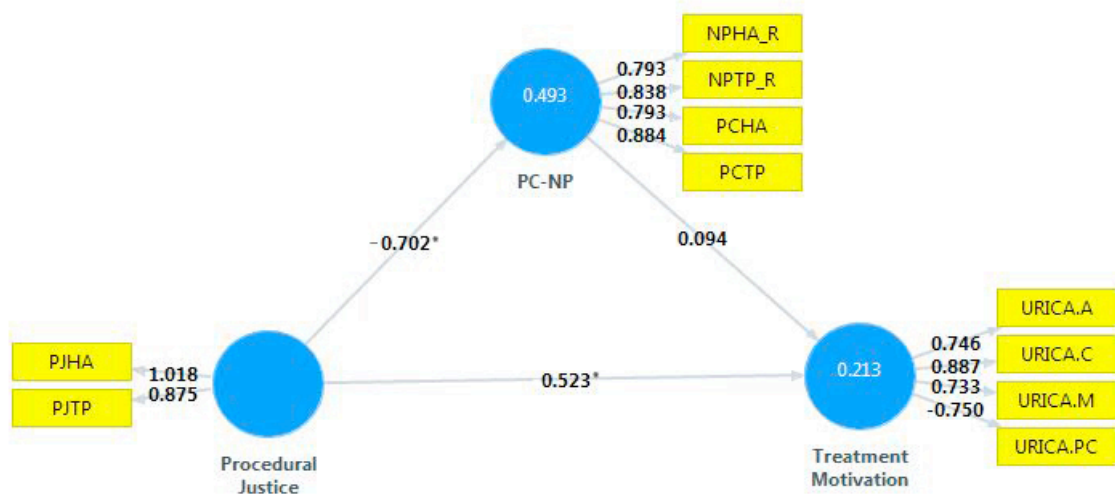


Figure 2.1. Example of a PLS-SEM path model

The relationships between the latent constructs, symbolized by arrows, were computed by path analysis, involving the partitioning of the variance between the latent constructs using partial least squares. The mediating effects of a controlling variable (e.g., PC-NP) were evaluated by incorporating a triangle of arrows between a predictor variable (e.g., Procedural Justice) and a dependent variable (e.g. Treatment Motivation). The statistics computed by PLS-SEM included the weighted path coefficients (β weights) and the effect size (R^2). According to Henseler, Ringle, & Sinkoviks (2009, p. 304) “the individual path coefficients of a PLS model can be interpreted as standardized beta coefficients of ordinary least squares regressions.” The β coefficients ranged in value from -1 to $+1$ and measured the relative strengths and directions (positive or negative) of the correlations between the latent constructs, after the correlations between the other constructs had been controlled for, or partialled out. The β coefficients predicted how much the values of the latent constructs with arrows flowing into them would change (positively or negatively) with respect to the values of the latent constructs with arrows flowing out of them. The larger the β coefficients, then the larger the predicted changes.

The R^2 value or, coefficient of determination, was computed to measure the effect size, indicating the proportions of the variance in an endogenous construct explained by the model. The interpretation of the R^2 values based on conventional guidelines was as follows: $R^2 = .01$ represented a small effect, $R^2 = .06$ represented a moderate effect, and $R^2 = .14$ represented a large effect (Cohen, 1988). The strength of a given path was represented by the β coefficients which are comparable to r and were interpreted as follows: $\beta = .1$ represented a small or weak effect, $\beta = .3$ represented a moderate effect, and $\beta = .5$ represented a large or strong effect (Cohen, 1988; 1992).

Tests of the hypothesis pairs $H_0: \beta=0$ vs. $H_1: \beta \neq 0$ were carried out through the construction of bootstrapped confidence intervals. The bootstrap was built by resampling with replacement from the original sample. Bootstrapping involved drawing 5000 random samples repeatedly from the data with a minimum of 30 cases in each sample. The hypothesis that the mean value of the β coefficient was significantly different from zero was tested at the conventional $\alpha = .05$ error rate using one and two tailed t-tests. The predictive relevance of the model was evaluated using a procedure called blindfolding.

Like bootstrapping, blindfolding also uses a sampling with replacement technique. It omits every d th data point from the indicators of any endogenous, reflective variable using a specified omission distance, D . The PLS Algorithm treats the omitted items as missing data points. It then uses the remaining data points to estimate the sample statistics and predict the omitted (e.g. missing) data points. This occurs in an iterative process until each data point has been omitted and the model subsequently re-estimated (Hair, et al., 2014).

The difference between the omitted data and predicted values indicates the prediction error, which is used to calculate Q^2 or Stone-Geisser's Q value. A Q^2 value larger than 0 indicates that a model has predictive relevance, while values of 0 and below indicate a lack of predictive relevance. $Q^2 = 1 - (\sum_D E_D / \sum_D O_D)$ where E is the sum of squared errors and O is the sum of squared errors using mean replacement. A $Q^2 = 1$ would mean that a model predicted the data with no error while a $Q^2 = 0$ would mean that a model did not do better than mean replacement (Wold, 1982). More specifically Q^2

= .02 represented a small or weak effect, $Q^2 = .15$ represented a moderate effect, and $Q^2 = .35$ represented a large or strong effect (Hair et al., 2014 p. 159).

Unlike other SEM approaches, there are no goodness of fit indices that are universally applicable for PLS-SEM (Hair et al., 2014). Tenenhaus et al. (2004) proposed a global criterion for a goodness of fit index for PLS-SEM, defined by the geometric mean of the average communality and the model's average R^2 value; however, according to Hair et al. (2014) this goodness of fit index does not represent a true global fit measure (even though its name suggests it). The threshold values for an acceptable "goodness-of-fit" cannot be derived using R^2 because acceptable R^2 values depend on the research context (Hair et al., 2014). Rather than using goodness of fit indices to evaluate global model fit, in their recently released book about PLS-SEM Hair et al. (2014) indicate that the structural model is appropriately assessed on the basis of the model's measurement and predictive capabilities as follows:

The criteria for assessing the measurement model, or the relationship between the indicators and constructs includes a) collinearity among the indicators of a construct (VIF values should be lower than 5); b) the composite reliability (as a measure of internal consistency); c) the indicator reliability (ω^2), the square of the standardized indicator loadings which reflect the amount of variance in an indicator variable explained by the construct, also referred to as the variance extracted; d) the Average Variance Extracted (AVE) from a given construct as a measure of convergent validity; and e) the Fornell-Lacker Criterion which is met if the square root of the AVE of each construct is higher than its highest correlation with any other construct in the model. The composite reliability value calculated by PLS-SEM indicated by ρ_c considers the outer loading of the other indicator variables, unlike Cronbach's alpha, which assumes they are all equally reliable (Hair et al., 2014). Composite reliability values of .60 to .70 indicate acceptable levels of reliability. An AVE value of .50 or higher indicates that a given construct explains at least half of the variance in its indicators and convergent validity is indicated.

The criteria for assessing the structural model include a) the acceptance of the alternative hypothesis with respect to the test of $H_0: \beta=0$ vs. $H_1: \beta \neq 0$; b) the strength of

the path coefficient β c) the level of the R^2 values; and d) the predictive relevance indicated by Q^2 .

In order to examine unique variance in a given variable after accounting for variance in one or more variables using PLS-SEM, mediation analysis was used, described below. The hypothesized effects in this context are a lack of full mediation.

Analysis of mediation

The steps used to analyze mediation using PLS-SEM were as follows, based on the protocol defined by Baron and Kenny (1986) and more recently described by Frazier, Tix, and Barron (2004). The first step was to estimate and test the significance of the path coefficient β_1 between an independent variable (X) and a dependent variable (Y) where X was hypothesized to have a direct effect on Y (see the path diagram in Figure 2.2).

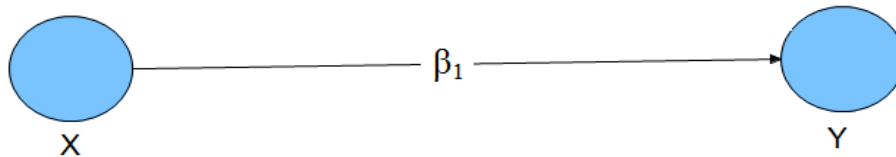


Figure 2.2. Direct effect of independent variable (X) on dependant variable (Y)

If β_1 was not statistically different from zero at $\alpha = .05$ error rate, then the hypothesis of a direct effect was not supported, and it was not justified to introduce a mediating variable between X and Y; however, if β_1 was statistically different from zero, then it was justified to determine if the direct effect of X on Y was controlled by a mediating variable.

The second step was to test the hypothesis that both X and Y were correlated with a mediating variable (M). This hypothesis was supported if the two path coefficients (β_2 and β_3) between X and M, and between Y and M, respectively, were statistically different from zero at $\alpha = .05$ error rate (see the path diagram in Figure 2.3)

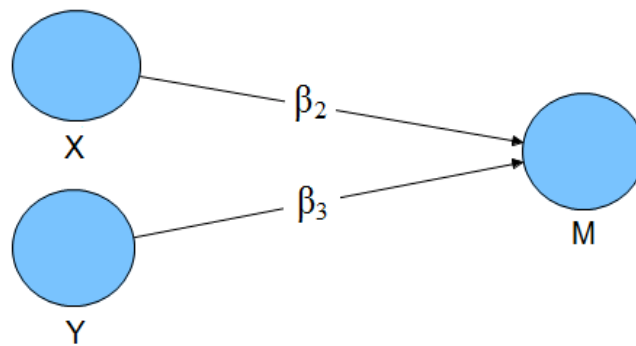


Figure 2.3. Relationships between an independent variable (X), a dependent variable (Y), and a mediating variable (M)

If β_2 and β_3 were both different from zero at $\alpha = .05$ error rate, then the final step was to test the hypothesis that the effect of X on Y was controlled by M using the path model illustrated in Figure 2.4. When M was introduced at the center of a triangle of paths between X and Y, then the indirect relationships between X and M, and between Y and M, were measured by β_5 and β_6 respectively. β_4 measured the mediating effect of M on the relationship between X on Y. If β_4 was statistically different from β_1 at $\alpha = .05$ error rate then the hypothesis that M had a mediating or controlling effect was rejected.

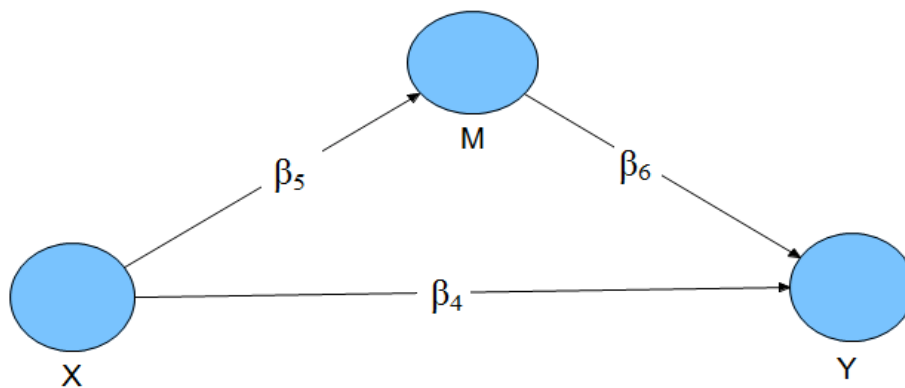


Figure 2.4. Effect of a mediating variable (M) on the relationship between independent variable (X), and a dependent variable (Y)

Complete mediation occurred if β_4 was reduced relative to β_1 , and was not statistically different from zero at $\alpha = .05$ error rate. Complete mediation implied that X no longer had a significant effect on Y after M had been controlled (because the variance in M accounted for all of the explained variance in Y).

2.6. Power

Due to the exploratory nature of the present study, a type one error rate of $\alpha = .05$ was selected for the test of each hypothesis. Due to the iterative nature in which the bootstrapped confidence intervals are estimated, the N for a particular test was difficult to determine. In the interest of type II error control, I consulted Cohen's (1992) sample size recommendations for minimum number of observations required to detect an effect of a certain size given the type one error rate and a power of .80 as a conservative indicator of power with respect to sample size. As a more liberal estimate I included a widely used "rule of thumb" for sample size determination using PLS-SEM called the "rule of 10" (Barclay, Higgins, & Thompson, 1995). Specifically, using a regression heuristic of 10 cases per indicator variable, the minimum sample size required to detect an effect of $R^2 = .06$ or higher should be a) 10 times the largest number of formative indicators, or b) 10 times the largest number of independent variables impacting a dependent variable.

Based on Cohen's (1992) guidelines, the minimum sample size needed for the models included in this study to detect an effect of a given size a type one error rate of $\alpha = .05$, for a power of .80 is as follows: to detect small effect, $N=1,573$, to detect a medium sized effect $N=177$, to detect a large effect, $N=66$. Based on the "rule of 10" guideline, the models included in this study would require a sample size varying from $N=10$ to $N= 20$.

2.7. Missing Data

Missing data is a common problem that plagues applied clinical data, especially longitudinal designs that often lose participants due to attrition. Practical and theoretical implications about how to handle missing data include the mechanism of the missingness (e.g. missing at random, missing completely at random or missing not at random) as well as the characteristics of the data (Graham, 2009). Missing data can decrease power and bias parameter estimates. This is particularly true when data are missing systematically instead of randomly (Newman, 2003). Unfortunately, it is not possible to tell whether data are missing at random (MAR) and it is likely that the

parameters in a longitudinal model with latent variables will be biased by attrition that is not random (Newman, 2003). For example, participants who are lost to follow-up may be different in important ways from those who remain in the study.

Multiple imputation (MI) is a popular data replacement technique with strong empirical support (Schafer & Graham, 2003). MI uses regression to predict the missing values based on linear combinations of other, related variables in the data set. Predicted data is imputed several times, creating multiple data sets. Analyses are conducted using the original, non-imputed data and each of the imputed data sets. Each imputed data set is analyzed separately and the results, with the exception of the standard error (SE), are averaged to create a pooled data set (Rubin, 1987).

There are some problems with MI. First, it assumes that the sample is normally distributed. Since MI seeks to preserve the parameter estimates in the sample data when imputing missing values, it is important that these estimates be unbiased (Graham, 2009). Further, the standard error is not averaged but constructed using the within variance of each data set as well as the variance between the items imputed in each data set (Rubin, 1987). This process increases the error variance in the data set and can inflate the standard error. Newman (2003) ran data simulations with varying proportions of missing data and concluded that the average parameter error increased with increased amounts of missing data. While data missing 25% only resulted in a moderate increase, data missing as much as 50% produced large errors, which meaningfully impacted the results (Newman, 2003).

A decision was made not to replace the missing data in the present study due to the substantial deviations from normality among many of the variables as well as the high proportion of missing data for some analyses. In order to evaluate the impact of drop out due to attrition, participants lost to follow-up were compared with those who completed at least one follow-up on all measures. In order to explore potential bias due to intermittent missing data, participants with missing data on the six patient perception scales were compared to respondents on all other measures at baseline.

Chapter 3. Results

3.1. Descriptive Analysis

A descriptive analysis of the variables listed in Table 3 measured at baseline is presented in Table 3.1. The missing values were not imputed therefore the sample size was different for each variable, ranging from N = 97 to N = 127.

Table 3.1. Descriptive Analysis of Variables at Baseline

Variable name	N	Min	Max	Mdn	M	SD	Skew	Kurtosis
PCHA	126	1.00	5.00	3.00	2.94	1.19	0.03	-1.09
PCTP	117	1.00	5.00	2.40	2.48	1.00	0.52	-0.23
PJHA	97	1.00	4.44	2.33	2.29	0.74	0.49	0.22
PTPT	118	1.00	4.71	2.00	2.01	0.73	0.77	0.81
NPHA	125	1.20	5.00	4.00	3.82	1.04	-0.63	-0.47
NPTP	115	1.50	5.00	4.17	3.93	0.92	-0.82	-0.04
STAI-TA	126	21.00	78.00	50.50	50.45	13.46	-0.11	-0.63
STAI-SA	126	20.00	75.00	42.00	42.79	12.75	0.19	-0.44
STAXI-TA	126	15.00	47.00	16.00	19.83	7.19	1.98	3.56
STAXI-SA	125	10.00	40.00	18.00	19.34	6.53	0.81	0.30
STAXI-ACI	125	8.00	32.00	21.00	21.95	5.42	0.14	-0.76
STAXI-ACO	125	11.00	32.00	23.00	23.21	5.21	0.07	-0.98
STAXI-AXI	124	8.00	32.00	20.00	19.86	5.10	-0.06	-0.46
STAXI-AXO	124	8.00	31.00	16.00	16.42	4.78	0.59	0.12
URICA-PC	124	1.00	4.43	2.00	2.11	0.80	0.80	0.31
URICA-C	124	2.14	5.00	4.14	4.13	0.60	-0.92	1.19
URICA-A	124	1.00	5.00	4.00	3.95	0.65	-1.25	3.75
URICA-M	123	1.71	5.00	3.71	3.66	0.65	-0.62	0.60
URICA-RTC	123	1.71	13.71	10.00	9.61	2.08	-0.92	1.43
PCL-1	126	0.00	10.00	1.00	2.27	2.63	1.17	0.67
PCL-2	126	0.00	12.00	4.00	4.37	2.84	0.70	-0.03
CALPAS-PC	126	3.00	21.00	16.00	15.71	4.47	-0.69	-0.21

Variable name	N	Min	Max	Mdn	M	SD	Skew	Kurtosis
CALPAS-PWC	127	4.00	21.00	14.00	13.79	3.73	-0.25	-0.06
CALPAS-TUI	127	3.00	21.00	15.00	14.66	4.43	-0.56	-0.52
CALPAS-WSC	127	3.00	21.00	14.00	13.69	4.56	-0.24	-0.67
Compliance	96	0.00	1.00					

Note. See Table 2.3 for definitions of the variables

All variables were measured at the scale/interval level, with the exception of Compliance, which was dichotomous (present/absent). The variables exhibited various degrees of deviation from normality, implying violations of the assumptions of parametric statistics. Some variables had a high positive skew, including STAXI-TA, (skewness = 1.98) and PCL-A (skewness = 1.17). Other variables had a high negative skew, including URICA-A (skewness = -1.25); URICA-A and URICA-RTC (skewness = -0.92). Distributions with negative or positive kurtosis are called platykurtic (tall, thin, and peaked) or leptokurtic (wide and flat) respectively. Some variables were excessively platykurtic including PCHA (kurtosis = -1.09) and others were excessively leptokurtic, including STAXI-TA (kurtosis = 3.56) and URICA-A (kurtosis = 3.75).

3.2. Attrition

Thirty percent of participants at baseline did not complete follow-up 1 and were considered lost to follow-up. The proportion of cases missing due to attrition increased at each follow-up wave. By the fifth follow-up the number of participants who completed some portion of the follow-up assessment was less than half. The attrition rate across all follow-ups in the present study (56%) was comparable to the attrition rate in a similar, though larger, longitudinal, multi-wave study (~50%) (Steadman et al., 1998).

Table 3.2. Attrition of Participants Between Baseline and Fifth Follow-up

	Baseline	First Follow-up	Second Follow-up	Third Follow-up	Fourth Follow-up	Fifth Follow-up
	BL	F1	F2	F3	F4	F5
N	139	97	80	71	67	61
% missing	0	30.2	42.4	48.9	51.7	56.1

In order to evaluate the influence of drop out on variables of interest I conducted statistical tests to compare participants who completed at least one follow-up to those who did not complete follow-up 1. Continuous variables were tested using an independent samples t test and the chi squared test of independence was used for dichotomous variables.

Regarding demographic variables, participants who were lost to follow-up did not differ from those retained based on gender $X^2(1, N = 136) = 2.35, p = .62$, admission status $X^2(1, N = 136) = 2.58, p = .10$, age $t(134) = .04, p = .96$, or race $t(134) = 1.10, p = .30$. Participants who dropped out after baseline had more education than those who did not $t(100) = -2.62, p = .01$.

The only measures that differed significantly at baseline for those who were lost to follow-up were related to therapeutic alliance. Participants who dropped out reported less patient commitment to treatment (CALPAS-PC, $t(121) = -3.41, p = .00$), had lower patient working capacity scores (CALPAS-WCS, $t(122) = -2.16, p = .03$), and reported less of a working strategy consensus in their treatment (CALPAS-WSC, $t(122) = -2.11, p = .03$) than those who completed at least one follow-up.

3.3. Intermittent Missing Data

In addition to complete cases that were missing due to failure to complete a follow-up assessment, there were also intermittent missing data points within each follow-up period. For the purposes of prorating, variables with scale-type measurements were coded as “missing” if >20% of the items used to calculate the scale score for a given participant were missing. For cases with < 20% missing on a particular scale, the missing items were replaced with the mean value for the items that were present and the scale score was calculated using these replacements. Intermittent missing data at baseline varied from 7.9 to 30.2% for a given variable (see Table 3.3).

Table 3.3. Intermittent Missing Data at Baseline

Variables	N	Percent
PCHA	13	9.4
PCTP	22	15.8
NPHA	14	10.1
NPTP	24	17.3
PJHA	42	30.2
PJTP	21	15.1
URICA-PC	15	10.8
URICA-C	15	10.8
URICA-A	15	10.8
URICA-M	16	11.5
URICA-RTC	16	11.5
PCL-1	13	9.4
PCL-2	13	9.4
CALPAS-PC	13	9.4
CALPAS-PWC	12	8.6
CALPAS-TUI	12	8.6
CALPAS-WSC	12	8.6
Compliance	11	7.9

Independent samples t-tests were used in order to evaluate the impact of intermittent missingness among patient perceptions on measures of therapeutic alliance, treatment motivation, treatment compliance and antisocial traits. A dichotomous dummy variable was created to indicate missingness for each of the six measures of patient perceptions and served as the grouping variable. The chi-squared test of independence was used for treatment compliance.

3.3.1. Missing values: perceptions of hospital admission scales

Participants with missing data on perceptions of their hospital admission at baseline differed on STAXI-ACI. This was true for PCHA, $t(123) = -4.06, p = .00$, NPHA $t(123) = -4.48, p = .00$, and PJHA, $t(123) = -2.33, p = .02$. Specifically, participants who did not respond to questions about coercion, threat and fairness during admission reported less of a tendency to attempt to relax in order to remain in control of angry

feelings than those who did respond. Participants with missing data on PJHA at baseline also differed on STAXI-AXI, $t(122) = 2.15, p = .03$ and STAI-TA $t(124) = 2.38, p = .02$ indicating that participants who did not respond to questions about the fairness of their admission process reported a greater tendency to express anger inwardly and reported higher levels of dispositional anxiety than those who responded

3.3.2. Missing values: perceptions of treatment scales

Participants with missing data on perceptions of coercion and fairness during their treatment experience at baseline differed on measures of therapeutic alliance. Missing data on PCTP was related to CALPAS-TUI, $t(125) = 2.15, p = .01$, and CALPAS-WSC $t(125) = 3.45, p = .00$. Missing data on PJTP was also related to CALPAS-TUI, $t(125) = 3.94, p = .00$, and CALPAS-WSC $t(125) = 4.43, p = .00$. Specifically, participants who did not answer questions about coercion and fairness in their treatment at baseline reported a stronger therapeutic alliance than those who did. Interestingly this relationship was only present for the subscales related to the therapists' role in treatment; the subscales pertaining to the patient's role (patient commitment and patient working capacity) were unrelated. Since the California Psychotherapy Alliance Scale is a self-report measure, this is based on the patient's view of the alliance and not an observer or a treatment provider. Participants with missing data on NPTP reported higher levels of trait anxiety (STAI-TA, $t(124) = 2.37, p = .02$) and fewer affective antisocial traits (PCL-F1, $t(124) = -2.24, p = .03$) than those who responded.

3.4. RQ1: Are Patient Perceptions Related to One Another?

This section presents the evidence to test hypotheses related to comparisons among patient perceptions. First, PLS-SEM was used to test the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta>0$ that PC and PNP will be linearly related indicating a positive association between the constructs. A path model was constructed, combining the elements of PC (PCHA and PCTP) into a new latent construct called Perceived Coercion. Similarly, a new latent construct called Negative Pressures was operationalized by combining NPHA_R and NPTP_R. The "R" designation following the PNP scales indicates that the scale has been reverse coded so that higher numbers indicate more PNP. Table 3.4

indicates the statistics used to assess the measurement model. The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.1.

Table 3.4. Statistics for the Evaluation of the Measurement Model Fig. 3.1

Construct	Indicators	ρ_c	ω^2	AVE	F-L
PC	PCHA	0.91	0.80	0.85	Yes
	PCTP		0.88		
NP	NPHA_R	0.93	0.84	0.87	Yes
	NPTP_R		0.90		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

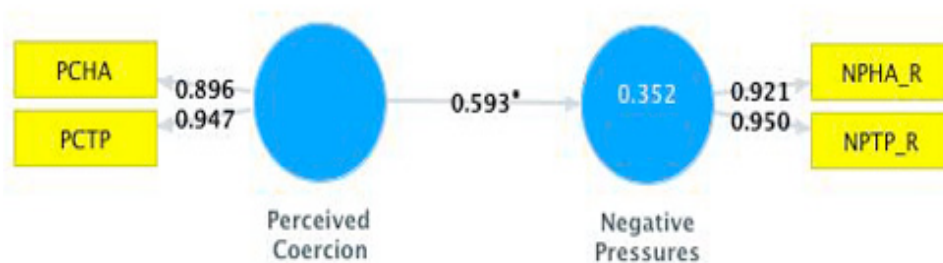


Figure 3.1. PLS path model of relationships between Perceived Coercion and Negative Pressures

* Significant at $\alpha = .05$

The strength of the positive relationship between Perceived Coercion and Negative Pressures was indicated by the statistically significant path coefficient ($\beta = .593$, $t = 8.62$, $p < .05$), 95%CI [.45, .72]. The effect size ($R^2 = .352$) indicated that a large proportion (35.3%) of the variance in Negative Pressures was explained by Perceived Coercion and the β coefficient ($\beta = .593$) indicated that the relationship was strong. The $Q^2 = .279$ indicated that Perceived Coercion had a moderate to large predictive relevance for Negative Pressures.

Next, PLS-SEM was used to test the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta<0$ that PC and PNP will be linearly related to PPJ indicating a negative association between the constructs. A path model was constructed, combining the elements of PC and PNP (PCHA, PCTP, NPHA_R, and NPTP_R) into a new latent construct called PC-NP. Similarly, a new latent construct called Procedural Justice was operationalized by

combining PJHA and PJTP. PJHA was reverse coded, but not relabelled such that higher values indicated higher levels of perceived procedural justice. Table 3.5 indicates the statistics used to assess the measurement model. The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.2

Table 3.5. Statistics for the Evaluation of the Measurement Model Fig. 3.2

Construct	Indicators	ρ_c	ω^2	AVE	F-L
PC-NP	PCHA	0.89	0.65	0.82	No
	PCTP		0.76		
	NPHA_R		0.64		
	NPTP_R		0.67		
Procedural Justice	PJHA	0.94	1.04	0.90	Yes
	PJTP		0.75		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)



Figure 3.2. PLS path model of relationships between PC- NP and Procedural Justice

* Significant at $\alpha = .05$

The strength of the negative relationship between PC-NP and Procedural Justice was indicated by the statistically significant path coefficient ($\beta = -.70$, $t = 15.29$, $p < .001$), 95%CI [-.79, -.61]. The effect size ($R^2 = .491$) indicated that a large proportion (49.1%) of the variance in Procedural Justice was explained by PC-NP and the β coefficient ($\beta = -.700$) indicated that the relationship was strong. The $Q^2 = .367$ value indicated that PC-NP had large predictive relevance for Procedural Justice.

Bivariate Pearson product moment correlations were conducted to further examine the relationships between patient perceptions of treatment and hospitalization.

Additionally, they stand as a means for comparison with past empirical findings using the same measurement scales. The matrix of correlation coefficients (Pearson's r) in Table 3.6 confirmed that the six measures were significantly, moderately to strongly inter-correlated with each other with an error rate of $\alpha = .001$.

Table 3.6. Correlation Matrix between Patient Perceptions at Baseline

	PCHA	PCTP	NPTP	NPHA	PJTP	PJHA
PCHA	1					
PCTP	.566*	1				
NPTP	.620*	.607*	1			
NPHA	.335*	.594*	.661*	1		
PJTP	-.538*	-.466*	-.540*	-.312*	1	
PJHA	-.386*	-.555*	-.543*	-.371*	.629*	1

Note. * Significant at $\alpha = .001$

The two dimensions of the Perceived Coercion Scale (PCHA and PCTP) were a) positively correlated with each other; b) positively correlated with the two dimensions of the Negative Pressures Scale (NPHA and NPTP); and c) negatively correlated with the two dimensions of the Procedural Justice Scale (PJHA and PJPT). The two dimensions of the Negative Pressures Scale (NPHA and NPTP) were also negatively correlated with the two dimensions of the Procedural Justice Scale (PHJA and PJPT). The results of the correlation analysis supported the hypothesis that perceived coercion and negative pressures will be positively associated with one another and negatively associated with procedural justice. This was true for perceptions of hospitalization as well as subsequent treatment.

Test results are consistent with the stated hypotheses for RQ1 as well as previous findings that perceived coercion and negative pressures are positively associated with one another and negatively associated with procedural justice.

3.5. RQ2: Are Patient Perceptions Stable Over Time?

This section presents the evidence to test H2 that patient perceptions will change over time. It is hypothesized that PC and PNP will decrease and PPJ will increase over

time for those participants who remain in the study. The descriptive statistics for PCHA, PCTP, NPHA, NPTP, PJHA, and PJPT across the six repeated measures (denoted BL to F5) are presented in Table 3.7. Six 1-way repeated measures ANOVAs (within-subjects effects) were used to conduct tests of the hypothesis pair $\mu_1 = \dots = \mu_6$ vs. $H_1: \sim H_0$. at the conventional $\alpha = .05$ error rate. The Bonferroni correction was applied and the each test was conducted at $\alpha = .008$. The results are presented in Table 3.8. Because the GLM analysis could not accept missing values, only those patients who participated at the baseline and in all five follow ups could be included in the GLM analysis. Further, the repeated measures ANOVA assumes sphericity. In other words, it assumes that the variances of the difference between all combinations of related groups are not equal. When this assumption is violated, it results in an increase in the type I error rate and therefore a decrease in power (Tabachnick & Fidel, 2001). The Huynh-Feldt correction for sphericity was used to counter this and is the reported F value.

Table 3.7. Descriptive Statistics for Patient Perceptions Over Time

Time	PCHA		PCTP		NPHA		NPTP		PJHA		PJPT	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
BL	2.90	1.17	2.57	0.98	3.82	1.04	3.93	0.92	2.29	0.74	2.01	0.73
F1	2.69	1.07	2.27	0.99	3.96	0.88	4.15	0.78	1.94	0.75	1.98	0.84
F2	2.65	1.15	2.32	0.89	3.86	1.02	4.24	0.59	1.94	0.71	1.98	0.80
F3	2.61	1.03	2.17	0.89	3.90	0.92	4.16	0.63	1.95	0.77	1.90	0.52
F4	2.73	1.11	2.27	1.00	3.89	0.88	4.13	0.56	2.01	0.77	1.98	0.57
F5	2.75	1.10	2.22	0.95	3.81	0.85	4.11	0.62	2.00	0.75	1.98	0.59

Note. BL = Baseline; F1 to F5 = Five follow up

Results indicated that the mean scores did not significantly vary over time at FW $\alpha = .05$ for PCHA, PCTP, NPHA, NPTP or PJTP. There was a significant effect of time for PJHA indicating that the mean scores for PJHA differed across follow-up periods ($F(4.47) = 4.83, p = .001, \eta^2 = .097$) and the effect size was moderate. PJHA and PJTP retained their original coding for this analysis such that lower values indicated higher levels of perceived procedural justice. Inspection of the means across follow-up periods illustrates that PJHA appears to decrease from baseline to follow-up 1 and then remain stable. In other words, it appears that participants reported their hospitalization process as less just at baseline; however, they appeared to perceive more fairness in the

process at follow-up one. This higher level of perceived fairness in their hospitalization appears to have remained stable from follow-up 1 to follow-up 5.

Table 3.8. General Linear Model Repeated Measures Analysis (Within-Subjects Effects) for Patient Perceptions of Hospital Admission and Treatment over Time

	N	Huynh-Feldt F	df	p	η^2	1- β
PCHA	31	1.05	4.45	.503	.034	.196
PCTP	45	1.82	4.61	.116	.040	.591
NPHA	29	1.40	4.018	.237	.048	.427
NPTP	40	1.16	4.63	.329	.029	.391
PJHA	46	4.83	4.47	.001*	.097	.968
PJPT	44	0.23	4.58	.938	.005	.103

Note. η^2 = partial eta squared; 1- β = observed power, * = significant at $\alpha = .008$

Reliable change indices were calculated to further evaluate change in perceptions over time for individuals versus aggregate level changes. RCI scores were calculated for each participant from baseline to follow-up 1 (reflecting short-term change) and again from baseline to follow-up 5 (reflecting long-term change). This was done for all six domains of patient perception (PCHA, PCTP, NPHA, NPTP, PJHA, and PJTP) using the formula illustrated in the Statistical Analyses section. The results of these analyses are presented in Table 3.9.

A majority of participants' perceptions about hospitalization and treatment did not change from baseline to follow-up 1 (91.6 to 97.5%) or baseline to follow-up 5 (91.8 to 100%). However, there was some change for all six dimensions of patient perceptions across short-term as well as long-term follow-up for a small proportion of participants. This suggests that although patient perceptions may be stable at an aggregate level, individuals may still experience changes in perceptions over time. In particular, PJHA had the largest proportion of individuals who reported a reliable decrease over short term (8.3%, N=6) and long term (4.2%, N=2) follow-up suggesting that they reported less injustice, or more justice, in their hospitalization experience over time. The largest proportion of change was in the short term (from baseline to follow-up 1)

Table 3.9. Proportion of Participants with Reliable Change in Perceptions of Hospital Admission and Treatment over Time

	N		Reliable Increase		Reliable Decrease		No Change	
	ST	LT	ST	LT	ST	LT	ST	LT
PCHA	52	39	1(1.9%)	0(0%)	2(3.8%)	1(2.5%)	50(96.0%)	38(97.4%)
PCTP	80	49	0(0%)	0(0%)	2(2.5%)	4(8.1%)	78(97.5%)	45(91.8%)
NPHA	53	36	0(0%)	1(2.7%)	1(1.8%)	0(0%)	51(96.0%)	35(97.2%)
NPTP	78	45	3(3.8%)	1(2.2%)	1(1.2%)	0(0%)	74(94.8%)	44(97.7%)
PJHA	72	47	0(0%)	1(2.1%)	6(8.3%)	2(4.2%)	66(91.6%)	44(93.6%)
PJTP	80	48	0(0%)	0(0%)	4(5.0%)	0(0%)	75(93.7%)	48(100%)

Note. ST = short term follow-up from baseline to follow-up 1; LT = long term follow-up from baseline to follow-up 5. Data is presented in N (%) format where n = the number of participants in a given category and % = the proportion of valid respondents that this represents.

3.6. RQ3: Are Patient Perceptions Related to Treatment Indices at Baseline?

This section presents the evidence to test H3 regarding relationships between patient perceptions and treatment indices. First, PLS-SEM was used to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta>0$ that Procedural Justice will be linearly, positively related to all three treatment indices. The five dimensions of URICA were initially combined as reflective indicators; however, URICA_RTC was deleted due to multicollinearity among the indicators. The remaining four indicators were combined to operationalize a new latent construct, called Treatment Motivation. Similarly, a new latent construct called Therapeutic Alliance was operationalized by combining the four CALPAS dimensions. Compliance was included in the model with a single reflective indicator. These newly operationalized variables were used in future PLS-SEM analyses

Table 3.10 indicates the statistics used to assess the measurement model constructed to determine if Procedural Justice predicted the three treatment indices (Treatment Motivation, Therapeutic Alliance, and Compliance). The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.3.

Table 3.10. Statistics for the Evaluation of the Measurement Model, Fig. 3.3

Construct	Indicators	ρ_c	ω^2	AVE	F-L
Procedural Justice	PJHA	0.94	0.95	0.89	Yes
	PJTP		0.83		
Treatment Motivation	URICA_PC	0.62	0.57	0.60	Yes
	URICA_C		0.77		
	URICA_A		0.56		
	URICA_M		0.52		
Therapeutic Alliance	CALPAS_PC	0.82	0.68	0.57	Yes
	CALPAS_PWC		0.06		
	CALPAS_TUI		0.76		
	CALPAS_WSC		0.79		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

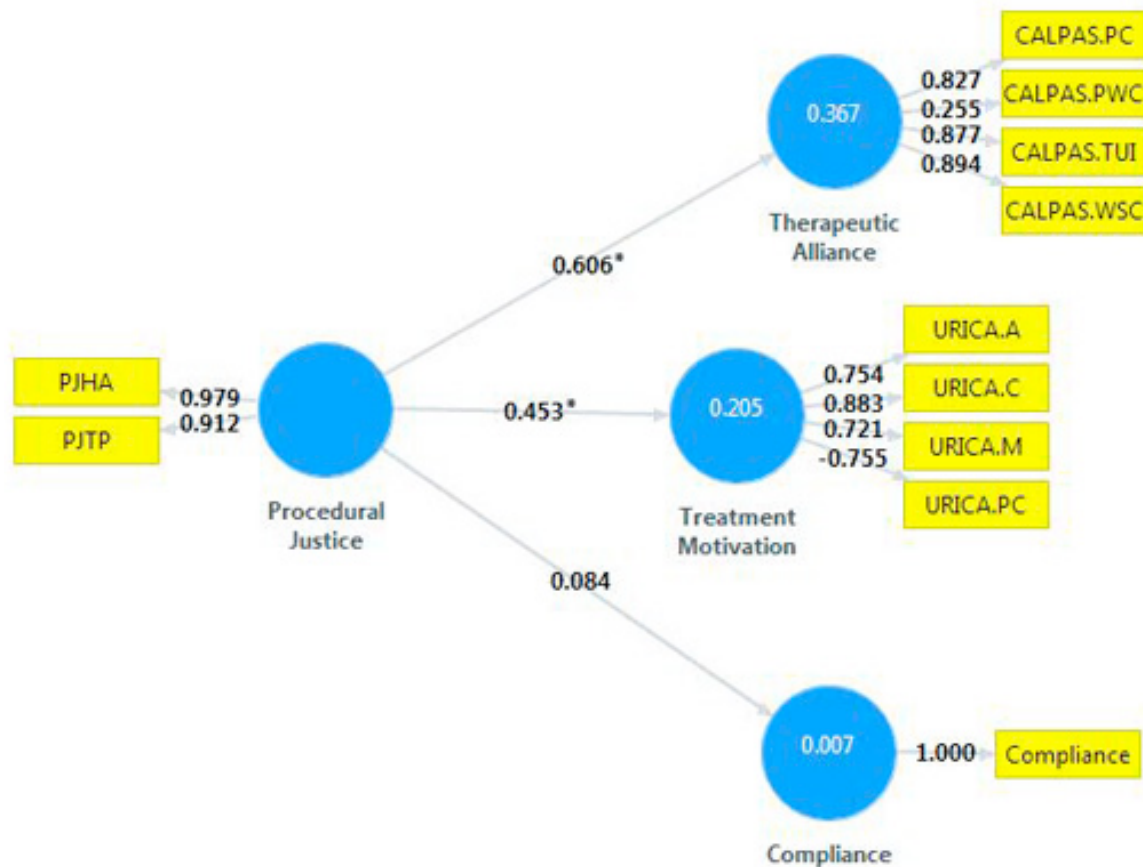


Figure 3.3. PLS path model of predictive relationships between Procedural Justice and treatment indices (Therapeutic Alliance, Treatment Motivation and Compliance)

Note. * Significant at $\alpha = .05$

Procedural Justice predicted Treatment Motivation. The strength of the positive relationship was indicated by the statistically significant path coefficient ($\beta = .453$, $t = 4.18$, $p < .001$), 95%CI [.26, .63]. The effect size ($R^2 = .205$) indicated that a large proportion (20.5%) of the variance in Treatment Motivation was explained by Procedural Justice and the β coefficient ($\beta = .45$) indicated that the relationship was moderate to strong. Similarly, Procedural Justice predicted Therapeutic Alliance. The strength of the positive relationship was indicated by the statistically significant path coefficient ($\beta = .606$, $t = 9.92$, $p < .001$), 95% CI [.48, .72]. The effect size ($R^2 = .367$) indicated that a large proportion (36.7%) of the variance in Therapeutic Alliance was explained by Procedural Justice and the β coefficient ($\beta = .60$) indicated that the relationship was strong. Compliance ($\beta = .084$, $t = 0.82$, $p = .368$) was not predicted by Procedural

Justice and the null hypothesis was accepted for this relationship. Results from a blindfolding procedure indicated that Procedural Justice had moderate predictive relevance for Therapeutic Alliance ($Q^2 = .177$) and weak to moderate predictive relevance for Treatment Motivation ($Q^2 = .097$).

Next, PLS-SEM was used to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta<0$ that PC-NP will be linearly related to all three treatment indices and the relationships will be negative. Table 3.11 indicates the statistics used to assess the measurement model. The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.4.

Table 3.11. Statistics for the Evaluation of the Measurement Model, Fig. 3.4

Construct	Indicators	ρ_c	ω^2	AVE	F-L
PC-NP	PCHA	0.89	0.52	0.67	Yes
	PCTP		0.88		
	NPHA_R		0.52		
	NPTP_R		0.76		
Treatment Motivation	URICA_PC	0.55	0.65	0.59	Yes
	URICA_C		0.69		
	URICA_A		0.60		
	URICA_M		0.40		
Therapeutic Alliance	CALPAS_PC	0.82	0.74	0.57	Yes
	CALPAS_PWC		0.09		
	CALPAS_TUI		0.69		
	CALPAS_WSC		0.76		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

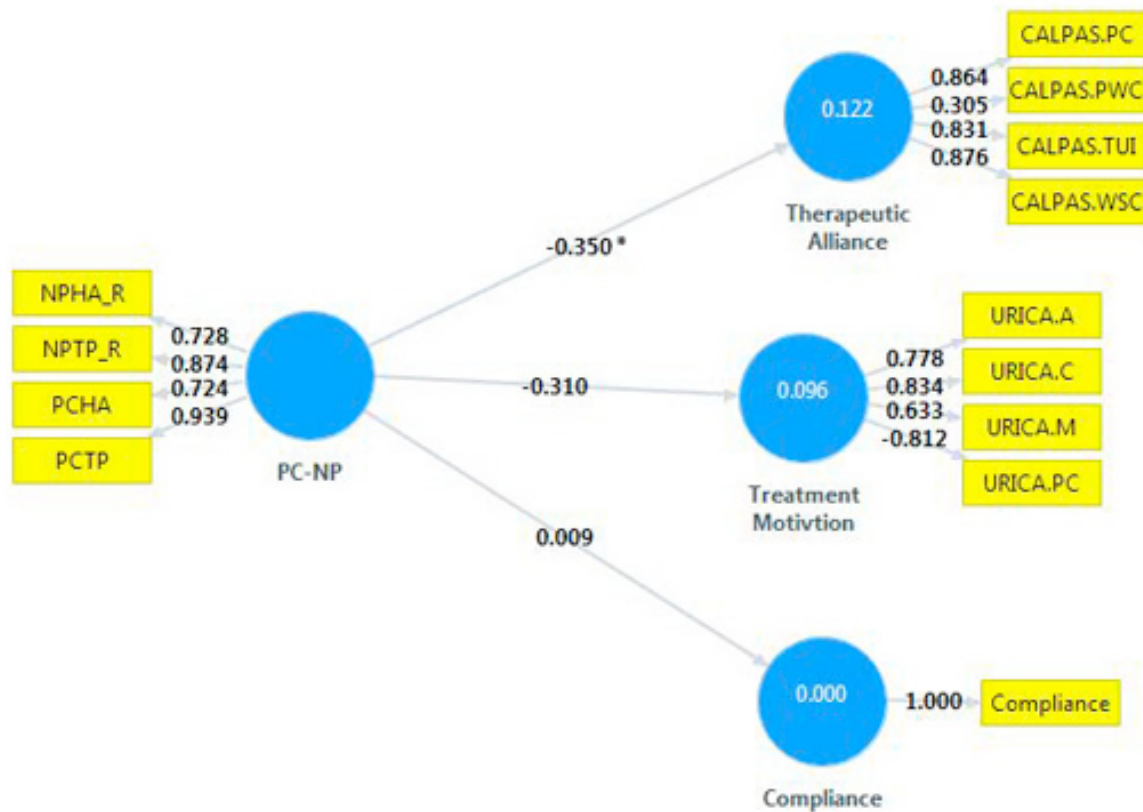


Figure 3.4. PLS path model of predictive relationships between PC-NP and treatment indices (Therapeutic Alliance, Treatment Motivation and Compliance)

Note. * Significant at $\alpha = .05$

PC-NP predicted Therapeutic Alliance. The strength of the negative relationship was indicated by path coefficient ($\beta = -.350$, $t = 4.45$, $p < .001$), 95% CI [-.52, -.23]. The effect size ($R^2 = .122$) indicated that a moderate proportion (12.2%) of the variance in Therapeutic Alliance was explained by PC-NP and the β coefficient ($\beta = -.35$) indicated that the relationship was moderate. PC-NP did not predict Treatment Motivation ($\beta = -.310$, $t = 1.10$, $p = .269$), 95% CI [-.48, .41] or Compliance ($\beta = .009$, $t = 0.09$, $p = .926$), 95% CI [-.17, .19] and the null hypothesis was not rejected for the tests of these two relationships. Results from a blindfolding procedure indicated that PC-NP had weak predictive relevance for Therapeutic Alliance ($Q^2 = .044$) and also Treatment Motivation ($Q^2 = .032$). Based on the $R^2 = .096$, PC-NP explains a moderate (9.6%) proportion of the variance in Treatment Motivation.

Based on the results of hypothesis testing, the implications of the PLS path models defined in Figures 3.3 and 3.4 were that Compliance and Treatment Motivation should not be included in the mediation analysis, whereas it was justified to analyze mediating effects of PC-NP on the relationship between Therapeutic Alliance and Procedural Justice. Despite failure to reject the null at an a priori error rate of $\alpha = .05$, due to the predictive relevance of PC-NP for Treatment Motivation indicated by $Q^2 = .032$, and the exploratory nature of the present study, Treatment Motivation was also included in the mediation analysis.

First PLS-SEM was used to model PC-NP as a mediating variable between Procedural Justice and Therapeutic Alliance. The model was used to test the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta>0$ that Procedural Justice will be linearly related to Therapeutic Alliance after accounting for PC-NP, and the relationship will be positive. Table 3.12 indicates the statistics used to assess the measurement model. The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.5.

Table 3.12. Statistics for the Evaluation of the Measurement Model, Fig. 3.5

Construct	Indicators	ρ_c	ω^2	AVE	F-L
PC-NP	PCHA	0.89	0.82	0.67	Yes
	PCTP		0.88		
	NPHA_R		0.57		
	NPTP_R		0.70		
Procedural Justice	PJHA	0.94	0.99	0.89	Yes
	PJTP		0.80		
Therapeutic Alliance	CALPAS_PC	0.82	0.67	0.57	Yes
	CALPAS_PWC		0.06		
	CALPAS_TUI		0.78		
	CALPAS_WSC		0.80		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

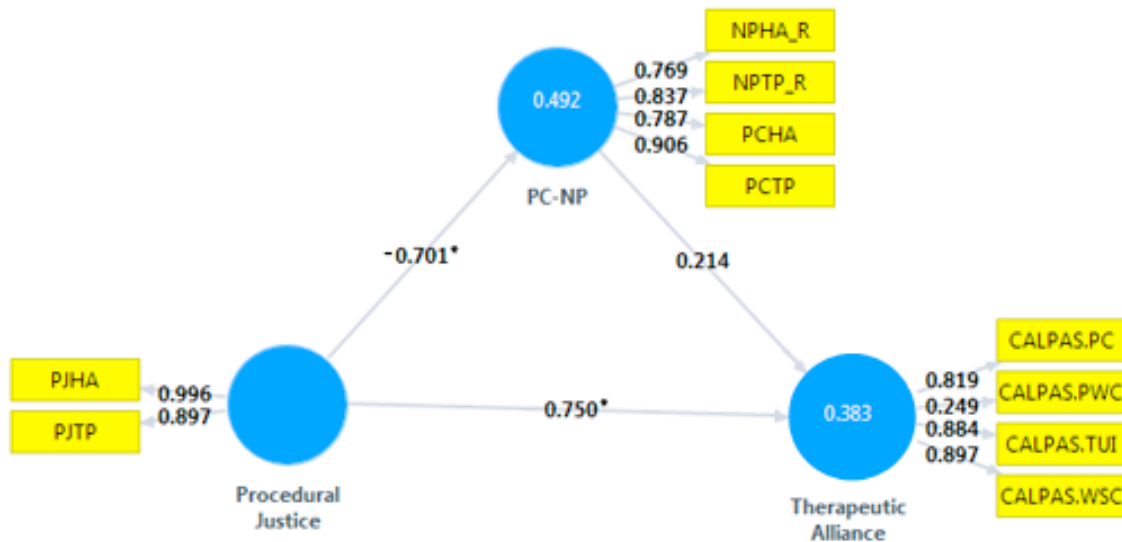


Figure 3.5. PLS path model of PC-NP as a mediating variable in the predictive relationship between Procedural Justice and Therapeutic Alliance

Note. * Significant at $\alpha = .05$

The model indicated that Procedural Justice predicted Therapeutic Alliance after accounting for PC-NP. The R^2 value indicated that a large proportion of the variance in Therapeutic Alliance (38.3%) was explained by the model. The path coefficient between Procedural Justice and Therapeutic Alliance ($\beta = .750$, $t = 6.86$, $p < .001$), 95% CI [.56, .98] indicated the relationship was strong and positive. Results from a blindfolding procedure indicated that Procedural Justice had moderate predictive relevance for Therapeutic Alliance ($Q^2 = .178$) after controlling for PC-NP.

Next, a model was constructed with PC-NP as a mediating variable between Procedural Justice and Treatment Motivation. This model was used to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta>0$ that Procedural Justice will be linearly related to Treatment Motivation after accounting for PC-NP, and the relationship will be positive. Table 3.13 indicates the statistics used to assess the measurement model. The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.6.

Table 3.13. Statistics for the Evaluation of the Measurement Model, Fig. 3.6

Construct	Indicators	ρ_c	ω^2	AVE	F-L
PC-NP	PCHA	0.89	0.52	0.68	Yes
	PCTP		0.88		
	NPHA_R		0.52		
	NPTP_R		0.76		
Procedural Justice	PJHA		1.03	0.90	Yes
	PJTP		0.76		
Treatment Motivation	URICA_PC	0.55	0.56	0.61	Yes
	URICA_C		0.78		
	URICA_A		0.55		
	URICA_M		0.53		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

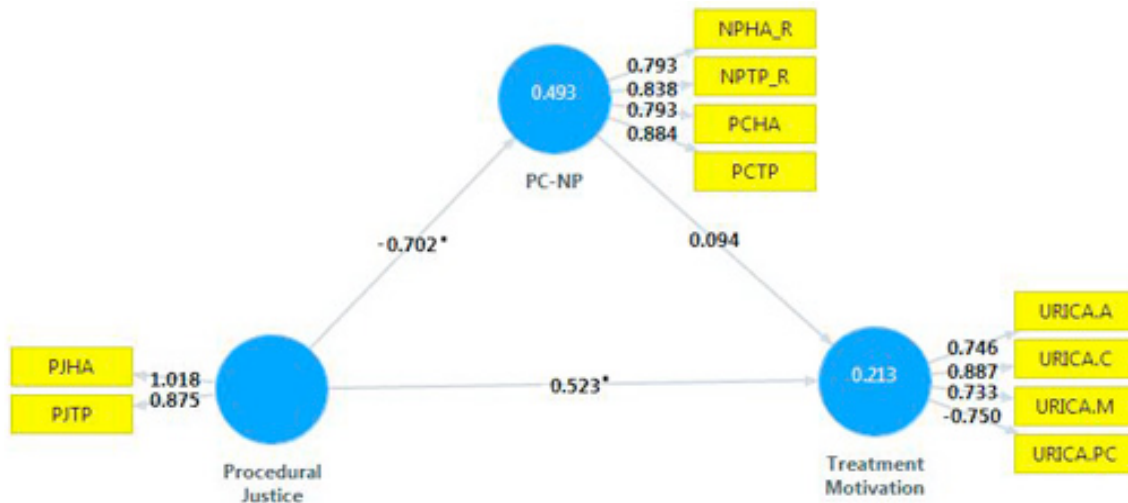


Figure 3.6. PLS path model of PC-NP as a mediating variable in the predictive relationship between Procedural Justice and Treatment Motivation

Note. * Significant at $\alpha = .05$

The results indicated that Procedural Justice predicted Treatment Motivation after accounting for PC-NP. The R^2 value indicated that a large proportion of the variance in Treatment Motivation (21.3%) was explained by Procedural Justice after accounting for PC-NP. The path coefficient between Procedural Justice and Treatment Motivation ($\beta = .523$, $t = 3.25$, $p = .001$), 95% CI [.22, .81] indicated that the relationship was strong and positive. Results from a blindfolding procedure indicated that Procedural

Justice had weak to moderate predictive relevance for Treatment Motivation ($Q^2 = .096$) after accounting for PC-NP.

The results based on PLS-SEM were partially consistent with the stated hypotheses for RQ3. Perceived coercion and negative pressures were negatively associated with therapeutic alliance and treatment motivation, but not compliance indicating that participants who reported higher levels of coercion and negative pressures reported less of an alliance with their treatment provider(s) and lower motivation for treatment. Before controlling for perceived coercion and negative pressures, procedural Justice was positively associated with therapeutic alliance and treatment motivation but not compliance indicating that participants who reported more fairness in the process reported higher levels of alliance with their treatment provider(s) and more motivation for treatment. After accounting for the variance in perceived coercion and negative pressures by including it as a mediating variable in the path model, Procedural Justice at baseline was a significant predictor of both therapeutic alliance and treatment motivation at baseline indicating that Procedural Justice has unique predictive relevance for treatment indices even after controlling for the effects of PC-NP. No patient perceptions were associated with compliance at baseline.

3.7. RQ4: Are Patient Perceptions Related to Treatment Indices at Follow-up?

This section presents the evidence to test H4, that patient perceptions will be related to all treatment indices including therapeutic alliance, treatment motivation and treatment compliance. PPJ will account for unique variance in these relationships after accounting for PC and PNP at all follow-up periods.

The first step was to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta>0$ that Procedural Justice will predict each of the treatment indices (Treatment Motivation, Therapeutic Alliance and Compliance) and the relationships will be positive at the first, second, third, fourth, and fifth follow-ups (using the path model defined in Figure 3.3 excluding mediation). The results are presented in Table 3.14. Procedural Justice had a positive predictive relationship with Therapeutic Alliance across all time points ($\beta = .408$

to .706, $p < .05$); it explained a large ($R^2 = 16.6\%$ to 49.9%) proportion of the variance in Therapeutic Alliance across all time points. The relationships were positive and varied from moderate to strong. The predictive relevance for these relationships varied from weak to moderate ($Q^2 = .061$ to $.281$). Procedural Justice predicted Treatment Motivation ($\beta = .453$ to $.583$, $p < .05$) at all time-points except follow-up 3 ($\beta = .436$, $p > .05$). These relationships were positive and varied from moderate to strong. A large proportion of the variance in Treatment Motivation ($R^2 = 19.0\%$ to 34.0%) was explained across all time points. The predictive relevance for these relationships, including follow-up 3 where the null was not rejected, fell in the moderate range ($Q^2 = .067$ to $.280$). Procedural Justice was not associated with Compliance at any time point ($\beta = .002$ to $.106$, $p > .05$) and the null was not rejected for these relationships.

Table 3.14. Multi-level PLS-SEM Analysis of Relationships between Procedural Justice and Treatment Indices at Baseline (BL) and Five Follow-Ups (F1 to F5) Before Controlling for Perceived Coercion and Negative Pressures (PC-NP)

Time	Path	R ²	β	Q ²	t	p	95% CI
BL	PJ → TA	.367	.606	.177	9.92	.000	[.48, .72]
	PJ → TM	.205	.453	.097	4.18	.000	[.26, .63]
	PJ → Comp	.007	.084	-.020	0.90	.368	[-.09, .26]
F1	PJ → TA	.317	.563	.168	5.84	.000	[.39, .70]
	PJ → TM	.340	.583	.187	5.12	.000	[.38, .73]
	PJ → Comp	.000	.010	-.024	0.07	.470	[-.20, .23]
F2	PJ → TA	.423	.651	.279	9.29	.000	[.55, .77]
	PJ → TM	.295	.543	.280	6.35	.000	[.43, .70]
	PJ → Comp	.000	.008	-.024	0.06	.474	[-.19, .19]
F3	PJ → TA	.166	.408	.061	2.88	.002	[.22, .67]
	PJ → TM	.190	.436	.067	1.69	.045	[-.41, .58]
	PJ → Comp	.011	.106	-.047	0.71	.238	[-.13, .34]
F4	PJ → TA	.349	.591	.196	8.44	.000	[.49, .72]
	PJ → TM	.206	.454	.092	3.77	.000	[.32, .60]
	PJ → Comp	.000	-.008	-.033	0.06	.474	[-.20, .22]
F5	PJ → TA	.499	.706	.281	14.81	.000	[.63, .78]
	PJ → TM	.238	.488	.126	5.03	.000	[.36, .64]
	PJ → Comp	.000	.002	-.012	0.01	.493	[-.23, .21]

Note. Significant at $\alpha = .05$; PJ = Procedural Justice; TA = Therapeutic Alliance; TM = Treatment Motivation; Comp = Compliance

The next step was to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta<0$ that PC-NP would predict each of the treatment indices (Treatment Motivation, Therapeutic Alliance and Compliance) and the relationships would be negative at the first, second, third, fourth, and fifth follow-ups (using the path model defined in Figure 3.4). The results are presented in Table 3.15.

Table 3.15. Multi-level PLS-SEM Analysis of Relationships between Treatment Indices and Perceived Coercion and Negative Pressures (PC-NP) at baseline (BL) and Five Follow-Ups (F1 to F5)

Time	Path	R ²	β	Q ²	t	p	95% CI
BL	PC-NP → TA	.122	-.350	.044	4.45	.000	[-.52, -.23]
	PC-NP → TM	.096	-.310	.032	1.10	.269	[-.48, .41]
	PC-NP → Comp	.000	.009	.015	0.09	.926	[-.17, .19]
F1	PC-NP → TA	.159	-.399	.082	4.56	.000	[-.55, -.27]
	PC-NP → TM	.211	-.460	.108	3.27	.001	[-.61, -.32]
	PC-NP → Comp	.001	.037	.012	0.29	.385	[-.17, .25]
F2	PC-NP → TA	.175	-.418	.279	4.66	.000	[-.58, -.29]
	PC-NP → TM	.212	-.460	.280	5.08	.000	[-.62, -.33]
	PC-NP → Comp	.025	.159	-.024	1.41	.079	[-.02, .34]
F3	PC-NP → TA	.055	-.235	-.004	1.53	.063	[-.51, -.10]
	PC-NP → TM	.254	-.504	.100	2.74	.003	[-.65, -.37]
	PC-NP → Comp	.003	-.057	-.040	0.43	.333	[-.28, .15]
F4	PC-NP → TA	.258	-.508	.142	5.66	.000	[-.67, -.38]
	PC-NP → TM	.229	-.479	.109	3.52	.000	[-.65, .34]
	PC-NP → Comp	.001	-.034	-.029	0.26	.397	[-.24, .17]
F5	PC-NP → TA	.334	-.578	.181	8.18	.000	[-.70, -.48]
	PC-NP → TM	.177	-.421	.074	1.19	.115	[-.59, .49]
	PC-NP → Comp	.001	.036	-.013	0.32	.374	[-.13, .22]

Note. Significant at $\alpha = .05$; PC-NP = Perceived Coercion and Negative Pressures; TA = Therapeutic Alliance; TM = Treatment Motivation; Comp = Compliance

PC-NP had a negative predictive relationship with Therapeutic Alliance ($\beta = -.418$ to $-.578$, $p < .05$) across all time points, except for follow-up 3 ($\beta = -.235$, $p > .06$). It explained a moderate to large ($R^2 = 5.5\%$ to 33.4%) proportion of the variance in Therapeutic Alliance across all time points. The relationships were positive and varied from moderate to strong. The predictive relevance for these relationships varied from

weak to moderate ($Q^2 = .082$ to $.279$). PC-NP predicted Treatment Motivation at follow-ups 1 to 4 ($\beta = -.460$ to $-.504$, $p < .05$), but not 5 ($\beta = -.421$, $p > .05$). These relationships were negative and varied from moderate to strong. A large proportion of the variance in Treatment Motivation ($R^2 = 21.1\%$ to 25.4%) was explained across follow-ups 1 to 4. The predictive relevance for these relationships, including follow-up 5 where the null was not rejected, fell in the moderate range ($Q^2 = .074$ to $.280$). PC-NP was not associated with Compliance at any time point ($\beta = -.034$ to $.159$, $p > .05$) and the null was not rejected for these relationships.

The final step of the mediation analysis was to test the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta>0$ that Procedural Justice would predict each of the treatment indices (Treatment Motivation, Therapeutic Alliance) after controlling for PC-NP and the relationships would be positive at the first, second, third, fourth, and fifth follow-ups (using the path models defined in Figures 3.5 and 3.6). Accepting the alternative hypothesis indicates that procedural justice has incremental validity in the prediction of the treatment indices after controlling for perceived coercion and negative pressures. The results are presented in Table 3.16.

Table 3.16. Multi-level PLS-SEM Analysis of Relationships between Procedural Justice and Treatment Indices at Baseline (BL) and Five Follow-Ups (F1 to F5) After Controlling for Perceived Coercion and Negative Pressures (PC-NP)

Time	Path	R ²	β	Q ²	t	p	95% CI
BL	PJ → TA	.383	.750	.178	6.86	.000	[.56, .98]
	PJ → TM	.213	.523	.096	3.25	.001	[.22, .81]
F1	PJ → TA	.317	.611	.165	3.53	.000	[.32, .88]
	PJ → TM	.341	.571	.186	3.05	.001	[.24, .86]
F2	PJ → TA	.436	.775	.228	6.63	.000	[.58, .97]
	PJ → TM	.299	.473	.191	2.90	.002	[.20, .75]
F3	PJ → TA	.182	.528	.056	2.15	.016	[.10, .89]
	PJ → TM	.247	.220	.097	0.42	.336	[-.28, .56]
F4	PJ → TA	.336	.545	.184	2.82	.002	[.23, .86]
	PJ → TM	.230	.254	.101	1.49	.068	[.00, .52]
F5	PJ → TA	.484	.685	.270	4.40	.000	[.40, .91]
	PJ → TM	.241	.503	.124	3.10	.001	[.27, .78]

Note. Significant at $\alpha = .05$; PJ = Procedural Justice; TA = Therapeutic Alliance; TM = Treatment Motivation.

Procedural Justice had a strong positive predictive relationship with Therapeutic Alliance after controlling for the association with PC-NP across all time points ($\beta = .528$ to $.775$, $p < .05$); it explained a large ($R^2 = 18.2\%$ to 48.4%) proportion of the variance in Therapeutic Alliance across all time points. The predictive relevance for these relationships varied from weak to moderate ($Q^2 = .056$ to $.270$). Procedural Justice predicted Treatment Motivation at follow-ups 1, 2 and 5 ($\beta = .473$ to $.572$, $p < .05$), but not 3 or 4 ($\beta = .220$ and $.254$, $p > .05$). These relationships were positive and varied from moderate to strong. A large proportion of the variance in Treatment Motivation ($R^2 = 18.2\%$ to 34.1%) was explained across all time points. The predictive relevance for these relationships, including follow-ups 3 and 4, where the null was not rejected, fell in the moderate range ($Q^2 = .097$ to $.191$).

The results based on PLS-SEM were partially consistent with H4. Before controlling for perceived coercion and negative pressures, procedural justice was consistently positively associated with two of the treatment indices (Treatment Motivation and Therapeutic Alliance) but not to Compliance in all of the follow-ups. Perceived coercion and negative pressures were negatively associated with treatment motivation and therapeutic alliance across all follow-ups, with the exception of follow-up 3 when it had neither a linear relationship at an error rate of $\alpha = .05$, or predictive relevance indicated by a Q^2 value ≥ 0 with therapeutic alliance. After accounting for perceived coercion and negative pressures, procedural justice was still a positive predictor of therapeutic alliance across all follow-ups. After accounting for PC-NP Procedural Justice was also a positive predictor of Treatment Motivation for all follow-up periods, including 3 and 4 as indicated by the predictive relevance values $Q^2 > 0$.

Taken together this indicates that participants who report higher levels of coercion and threat in their treatment and hospitalization process also report lower levels of alliance with their treatment providers and lower levels of treatment motivation, post-discharge. These relationships are present across 5 follow-ups. Conversely, participants who reported higher levels of fairness in this process also reported more of an alliance with their treatment providers and higher levels of treatment motivation. These relationships were still present even after controlling for the effects of perceived coercion and negative pressures and remained across 5 follow-ups.

3.8. RQ5: Are Antisocial Traits Related to Treatment Indices at Baseline?

This section presents the evidence to test the hypotheses associated with RQ5 that affective/interpersonal antisocial traits will be negatively associated with therapeutic alliance and treatment motivation and behavioral antisocial traits will be negatively associated with compliance. First, Affective Traits were operationalized using a new latent construct with a single reflective indicator (PCL_1). Similarly, Behavioral Traits were operationalized using a single reflective indicator (PCL_2). These constructs were used in subsequent analyses. A model was constructed with Affective Traits as a predictive variable for all treatment indices at baseline (Therapeutic Alliance, Treatment Motivation and Compliance). PLS-SEM was used to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta<0$ that Affective Traits will be negatively associated with Therapeutic Alliance and Treatment Motivation at baseline. There is no hypothesis about the relationship between Affective Traits and Compliance. Table 3.17 indicates the statistics used to assess the measurement model. The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.7.

Table 3.17. Statistics for the Evaluation of the Measurement Model, Fig. 3.7

Construct	Indicators	ρ_c	ω^2	AVE	F-L
Treatment Motivation	URICA_PC	0.56	0.61	0.59	Yes
	URICA_C		0.85		
	URICA_A		0.36		
	URICA_M		0.53		
Therapeutic Alliance	CALPAS_PC	0.79	0.68	0.50	Yes
	CALPAS_PWC		0.52		
	CALPAS_TUI		0.41		
	CALPAS_WSC		0.52		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

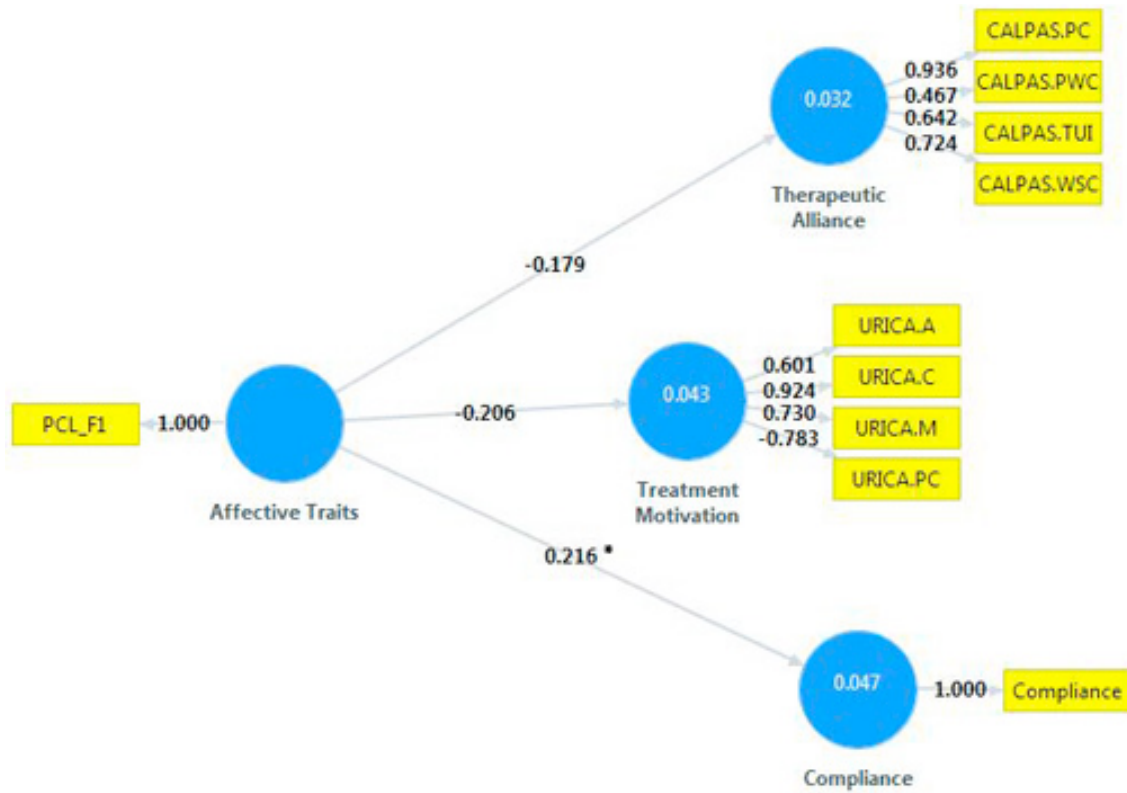


Figure 3.7. PLS path model of the predictive relationships between Affective Traits and treatment indices (Therapeutic Alliance, Treatment Motivation and Compliance)

Note. * Significant at $\alpha = .05$

The path diagram in Figure 3.7 indicates that Affective Traits predicted Compliance ($\beta = .216, t = 2.84, p = .005$), 95% CI [.06, .35], but not Treatment Motivation ($\beta = -.206, t = 1.05, p = .292$), 95% CI [-.41, .24] or Therapeutic Alliance ($\beta = -.179, t = 1.08, p = .278$), 95% CI [-.37, .26]. Affective Traits accounted for a small to moderate proportion of the variance ($R^2 = 4.7\%$) in Compliance and the strength of the positive relationship ($\beta = .216$) was moderate. Results from a blindfolding procedure indicated that Affective Traits had weak predictive relevance for Compliance ($Q^2 = .037$). The null was not rejected for the relationships between Affective Traits and the two other treatment indices (Therapeutic Alliance and Treatment Motivation). These findings indicated that participants with higher levels of affective antisocial traits had higher levels of treatment noncompliance and the association was moderate.

Next, a second model was constructed with Behavioral Traits as a predictive variable for all treatment indices at baseline (Therapeutic Alliance, Treatment Motivation and Compliance). PLS-SEM was used to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta>0$ that Behavioral Traits will be positively associated with Compliance at baseline. There were no hypotheses about the relationships between behavioural traits and the other treatment indices (Therapeutic Alliance and Treatment Motivation). Table 3.18 indicates the statistics used to assess the measurement model. The PLS path model with the β coefficient, indicator weights and R^2 value is illustrated in Figure 3.8

Table 3.18. Statistics for the Evaluation of the Measurement Model, Fig. 3.8

Construct	Indicators	ρ_c	ω^2	AVE	F-L
Treatment Motivation	URICA_PC	0.00	0.82	0.30	Yes
	URICA_C		0.28		
	URICA_A		0.13		
	URICA_M		0.00		
Therapeutic Alliance	CALPAS_PC	0.74	0.20	0.43	Yes
	CALPAS_PWC		0.73		
	CALPAS_TUI		0.32		
	CALPAS_WSC		0.45		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

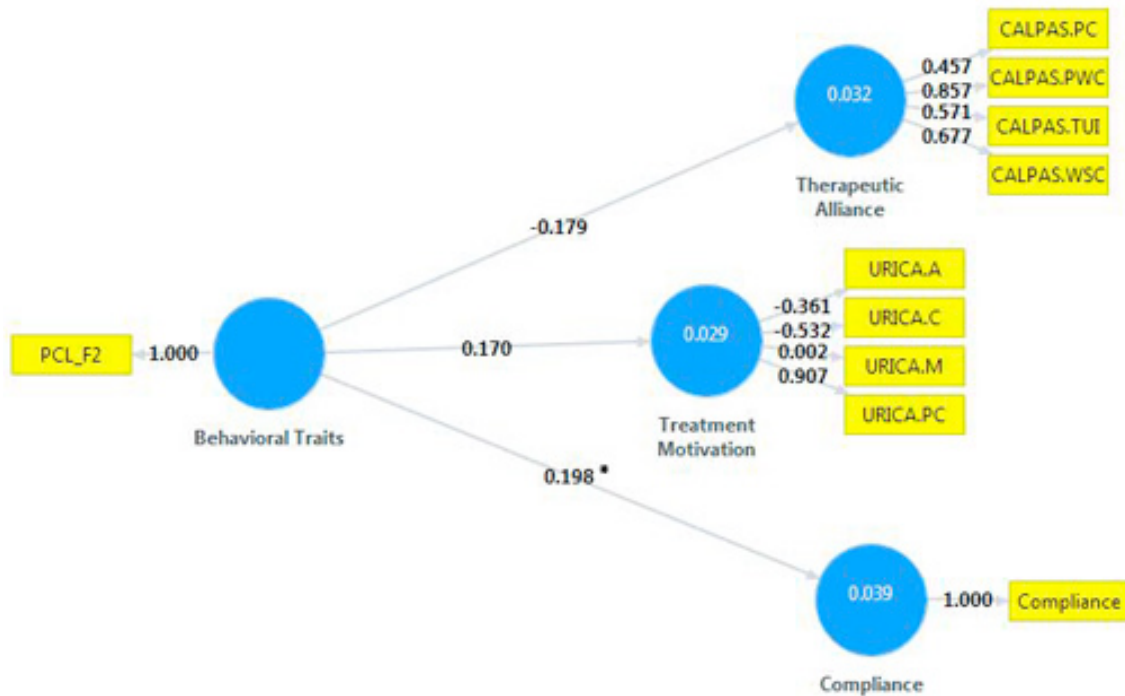


Figure 3.8. PLS path model of the predictive relationships between Behavioral Traits and treatment indices (Therapeutic Alliance, Treatment Motivation and Compliance)

Note. * Significant at $\alpha = .05$

The $\rho_c = 0.00$ in Table 3.18 indicated that Treatment Motivation has almost no reliability as a composite and the indicator weights, indicated that the composite was mostly defined by URICA_PC ($\omega^2 = .82$) in this model compared with the other indicators used to operationalize Treatment Motivation ($\omega^2 = .00$ to $.28$). The path diagram in Figure 3.8 indicated that Behavioral Traits predicted Compliance ($\beta = .198$, $t = 2.48$, $p = .032$), 95% CI [.06, .35] but not Treatment Motivation ($\beta = .170$, $t = 2.48$, $p = .032$), 95% CI [-.29, .31] or Therapeutic Alliance ($\beta = -.179$, $t = 2.11$, $p = .038$), 95% CI [-.38, .22]. Behavioral Traits accounted for a small proportion of the variance ($R^2 = 3.9\%$) in Compliance and the strength of the positive relationship ($\beta = .198$) was weak. Results from a blindfolding procedure indicated that Behavioral Traits had weak predictive relevance for Compliance ($Q^2 = .028$). The null was not rejected for the relationships between Behavioral Traits and the two other treatment indices (Therapeutic Alliance and Treatment Motivation).

The evidence based on PLS-SEM partially supported H4, because affective antisocial traits did not predict therapeutic alliance or treatment motivation; however, affective as well as behavioral antisocial traits predicted treatment compliance such that higher levels of antisocial traits predicted treatment noncompliance.

3.9. RQ6: Are Relationships Between Patient Perceptions and Treatment Indices Significant After Controlling for Antisocial Traits at Baseline?

RQ6 was not tested due to findings of the previous analyses. Specifically, antisocial traits were related to treatment compliance but not to therapeutic alliance or treatment motivation. Similarly, patient perceptions were related to therapeutic alliance and treatment motivation but not to compliance. The implications were that antisocial traits should not be modeled as a mediating variable in the relationships between patient perceptions and treatment indices.

3.10. RQ7: Are Relationships Between Antisocial Traits and Treatment Indices Significant After Controlling for NEM?

This section presents the evidence to test the hypotheses associated with RQ7, that relationships between affective antisocial traits and treatment indices will not be mediated by NEM and will remain significant, whereas relationships between behavioral antisocial traits and treatment indices will be fully mediated by NEM.

The first step was to determine whether antisocial traits were significantly related to NEM. Initially, the six STAXI variables were combined as reflective indicators; however, due to unacceptably low weights on multiple indicators, only STAXI_SA and STAXI_TA were retained. These two variables were used to operationalize a new latent construct, called Anger. Similarly, a new latent construct called Anxiety was operationalized by combining STAI-SA and STAI-TA. Two models were constructed and PLS=SEM was used to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta \neq 0$ that

antisocial traits would be related to NEM at baseline. The statistics used to assess the measurement models are presented in Table 3.19 and Table 3.20.

The results of PLS-SEM are presented in Figures 3.9 and 3.10. Two models were constructed to determine if Affective (see Fig. 3.9) and Behavioral (see Fig. 3.10) Traits predicted Anger and Anxiety.

Table 3.19. Statistics for the Evaluation of the Measurement Model, Fig. 3.9

Construct	Indicators	ρ_c	ω^2	AVE	F-L
Anger	STAXI_SA	0.80	0.47	0.67	Yes
	STAXI_TA		0.87		
Anxiety	STAI_SA	0.90	0.69	0.83	Yes
	STAI_TA		0.97		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

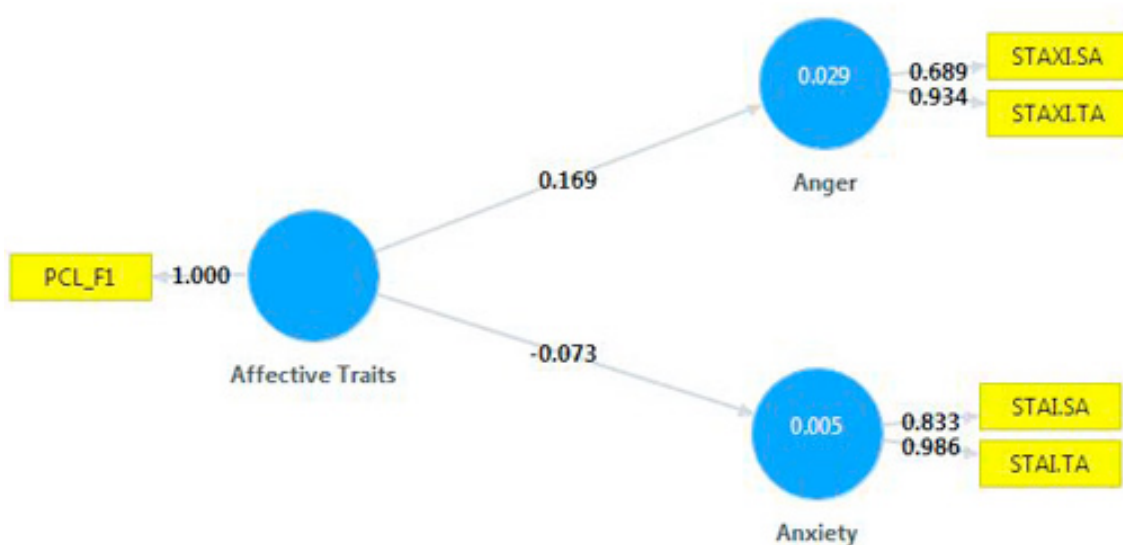


Figure 3.9. PLS path model of the predictive relationships between Affective Traits and NEM (Anger and Anxiety)

Note. * Significant at $\alpha = .05$

Table 3.20. Statistics for the Evaluation of the Measurement Model, Fig. 3.10

Construct	Indicators	ρ_c	ω^2	AVE	F-L
Anger	STAXI_SA	0.66	0.10	0.55	Yes
	STAXI_TA		1.00		
Anxiety	STAI_SA	0.85	1.00	0.75	Yes
	STAI_TA		0.51		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)

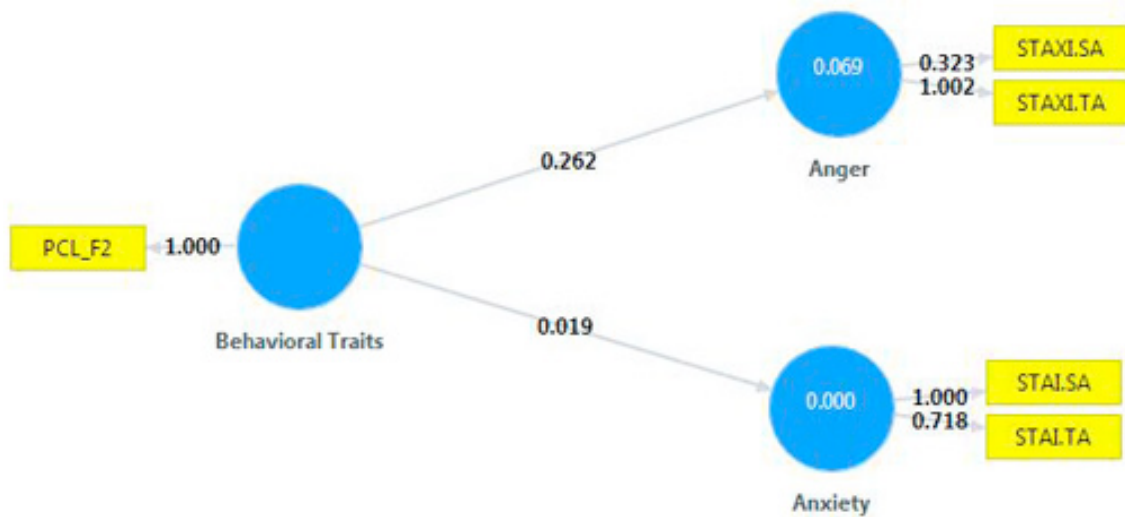


Figure 3.10. PLS path model of the predictive relationships between Behavioral Traits and NEM (Anger and Anxiety)

Note. * Significant at $\alpha = .05$

Affective Traits did not predict Anger ($\beta = .169$, $t = 1.71$, $p = .087$), 95% CI [-.06, .36] or Anxiety ($\beta = -.073$, $t = 0.60$, $p < .543$), 95% CI [-.25, .19] and the effect sizes for the model were small ($R^2 = 2.9\%$ and 0.5% respectively). A lack of predictive relevance was indicated by Q^2 values below 0 for both constructs ($Q^2 = -.010$ and $-.015$). Similarly, Behavioral Traits did not predict Anger ($\beta = .262$, $t = 1.80$, $p = .072$), 95% CI [-.23, .46] or Anxiety ($\beta = .019$, $t = 0.16$, $p = .872$), 95% CI [-.19, .21] based on the results of the hypothesis tests. The effect sizes for the model were moderate for Anger and nonexistent for Anxiety ($R^2 = 6.9\%$ and 0.00%). Weak predictive relevance was indicated for Anger ($Q^2 = .010$) but not Anxiety ($Q^2 = -.009$). Consequently, Anxiety was excluded from the mediation analysis, but it was justified to model Anger as a mediating variable in the relationship between Behavioral Traits and Compliance.

The model constructed to test the mediating effect of Anger on the relationship between Behavioral Traits and Compliance is presented in Figure 3.11. The PLS-SEM path model was used to conduct tests of the hypothesis pair $H_0: \beta=0$ vs. $H_1: \beta \neq 0$ that the relationship between Behavioral Traits and Compliance would no longer be significant after controlling for Anger indicating full mediation. The statistics used to assess the measurement model are presented in Table 3.21.

Table 3.21. Statistics for the Evaluation of the Measurement Model, Fig. 3.11

Construct	Indicators	ρ_c	ω^2	AVE	F-L
Anger	STAXI_SA	0.66	0.10	0.55	Yes
	STAXI_TA		1.00		

Note. ρ_c = composite reliability; ω^2 = indicator reliability; AVE = Average Variance Extracted; and F-L = Fornel-Lacker Criterion was met (Yes/No)



Figure 3.11. PLS path model of Anger as a mediating variable in the predictive relationship between Behavioral Traits and Compliance

Note. * Significant at $\alpha = .05$

The results of the PLS-SEM path model indicated that Behavioral Traits predicted Compliance ($\beta = .210$, $t = 2.63$, $p < .05$), 95% CI [.06, .36] after accounting for Anger with a small to moderate effect size ($R^2 = 4.1\%$). The relationship was moderate in strength and positive. The weak predictive relevance of Behavioral Traits for Compliance after controlling for the effects of Anger was indicated by ($Q^2 = .013$).

The results of PLS-SEM were not consistent with H7. Both behavioral and affective antisocial traits predicted noncompliance but not therapeutic alliance or treatment motivation. The relationships indicated that higher levels of antisocial traits

was associated with treatment noncompliance. Further, affective traits did not predict anger or anxiety. Behavioral antisocial traits were moderately related to anger but not to anxiety. The association between behavioral traits and compliance was still significant after controlling for the effects of anger.

Chapter 4. Discussion

The purpose of the present study was to identify variables that influence treatment engagement (therapeutic alliance, treatment motivation and treatment compliance) in individuals in coercive contexts that are relevant across populations, settings and treatment techniques. In order to achieve this, I examined factors thought to influence relationship principles (patient perceptions of the hospital admission process and subsequent treatment) and patient characteristics (antisocial traits; NEM) associated with negative treatment outcomes. I looked at these variables in a sample of recently discharged civil psychiatric patients.

First, I evaluated patient perceptions of coercion, threat and fairness in their hospitalization and treatment including their relationships to one another, and their stability over time. I also looked at their relationship to treatment indices prospectively over 6 time points. I also explored antisocial personality traits including their relationship to treatment indices. Finally, I examined the influence of NEM (operationalized as dispositional anger and anxiety) on relationships between antisocial traits and treatment indices.

These findings build upon previous research on mandated treatment in several ways. First, this study was the first to examine perceptions of both hospital admission and treatment prospectively as they related to several measures of treatment engagement over time. Further, it examined the unique contribution of procedural justice in these relationships. This is also the first study to date to explore the impact of negative emotionality and antisocial traits on treatment engagement in civil psychiatric patients.

4.1. RQ1: Are Patient Perceptions Related to One Another?

PLS-SEM models were constructed to test the hypothesis that perceived coercion and negative pressures would be positively associated with one another and negatively associated with procedural justice at baseline. Findings indicated that PC predicted PNP; the constructs were strongly, positively associated ($\beta = .593$) and PC accounted for a large amount of the variance in PNP (35.3%). PC and PNP were combined to form a single composite which was then used to predict PPJ. Results indicated that PC and PNP (PC-NP) had a strong, negative association with PPJ ($\beta = -.700$) and accounted for a large proportion of the variance (49.1%).

Bivariate correlations were conducted to further illustrate the strength and direction of these relationships and serve as a method of comparison with alternate research using the same scales of measurement. The results of the correlation analysis supported the hypothesis. Perceptions of hospital admission were significantly, positively correlated with perceptions of treatment. This was true for PC, PNP and PPJ. Further, both dimensions (hospitalization and treatment) of PC and PNP were positively associated with one another and negatively associated with PPJ indicating that participants who reported feeling more coerced, threatened and forced also reportedly felt like the treatment and hospitalization process was less just.

The relationships found in the present sample are consistent with previous findings (Hiday, Swartz, Swanson, & Wagner, 1997; Hodge et al., 1997; Lidz et al., 1995; McKenna, Simpson, & Laidlaw, 1999; McKenna et al., 2003; Swartz, 2001).

4.2. RQ2: Are Patient Perceptions Stable over Time?

A 1-way, repeated measures ANOVA was constructed and RCIs were calculated to test the hypothesis that patient perceptions would change over time. The results of the ANOVA revealed that PJHA changed over time. All perceptions including PCHA, PCTP, NPHA, NPTP and PJTP were stable across 6 time-points including baseline and 5 subsequent follow-up assessments for the sample. Visual inspection of mean values suggested that PJHA decreased from baseline to follow-up 1 but remained stable from

follow-up 1 through follow-up 5, indicating that, at baseline, participants reported less justice in their hospitalization process than they did at follow-up 1 through 5. This is a recollection, at each time point, of the same experience of being admitted to hospital. Interestingly, while PJHA changed over time, PJTP remained stable. The results of the RCI revealed that although perceptions remained stable for a majority of the sample, a small proportion of participants reported reliable increases or decreases in perceptions. This was true for a short-term follow-up period (baseline to follow-up1) as well as a long-term follow-up period (baseline to follow-up 5).

This is consistent with previous findings that patient perceptions including PC, PNP and PPJ, are stable for up to 10 weeks (Binder et al., 2005; Gardener et al., 1999; Guarda et al., 2007) and patient perceptions at admission are unchanged during subsequent OPC (Scheid-Cook, 1991; 1993). Interestingly, previous research suggests that perceptions and attitudes towards treatment remain stable despite changes in perceived need for hospitalization (Gardener et al., 1999) and psychiatric symptoms (Heathcote et al., 2010). Moreover, perceived need for hospitalization was related to higher levels of PC and PNP and lower levels of PPJ at baseline (Guarda et al., 2007). The present study built on previous findings by identifying individual level change in perceptions for a small number of participants.

Together, these findings suggest that patient perceptions are related to or influenced by different factors at baseline, but are not likely to change over time. This is consistent with evidence that perceptions may carry over to influence subsequent treatment related experiences in civil psychiatric patients (Cascardi et al., 2001) as well as MHC participants (Heathcote et al., 2010).

The present findings are *inconsistent* with previous research that found changes in PC over time. Specifically, PC increased over time in a sample of civil psychiatric patients who were diagnosed with schizophrenia or schizoaffective disorder (Jaeger et al., 2013). One possible explanation for the difference in findings is Jaeger and colleagues' (2013) diagnostic limitations to just patients with a specific diagnostic presentation as compared with the sample of the present study which included all patients across multiple diagnostic categories. Another possible explanation is the

differences in the way PC was measured. Jaeger and colleagues (2013) dichotomized PC based on a split at the third quartile of scores. Participants were classified as having at least partial PC or absence or marginal PC. Conversely, PC was found to decrease from baseline to three month follow-up in a sample of civil psychiatric patients across multiple sites in Europe (Fiorillo et al., 2012). Fiorillo and colleagues (2012) operationalized PC using the Cantrill Coercion Ladder which is a visual analogue measure, unlike the MAE PC measure which may partially account for this difference in findings.

Similarly, in a MHC context, PPJ increased over time for up to 4 months (Kopelovich, Yanos, Pratt, & Koerner, 2013). One possible explanation for this difference is the context. Kopelovich and colleagues' (2013) sample consisted of MHC participants who were offered, and had chosen, participation in a diversion program as a voluntary alternative to incarceration. The present sample consisted of patients who had recently been hospitalized psychiatrically. First, this suggests that at baseline, they met commitment criteria and had a more severe symptom presentation than individuals who were deemed appropriate for outpatient community treatment (e.g., individuals eligible for a community diversion program). Further, the process of psychiatric hospitalization, unlike entrance into the diversion program, did not include an explicit choice and did not inherently involve having done something that carried the expectation of punitive legal consequences. The act of being involved, over time, in a process that offered a less restrictive choice when no choice was expected may be responsible for the relative increase in PPJ.

Though my findings provided support for the stability of patient perceptions, the results should be considered with caution due to the significant attrition of participants over time. Moreover, the observed power levels were low for many of the analyses and therefore, the type II error rate was high. Because the GLM analysis that was used to test this hypothesis could not accept missing values, the findings include data for only those patients who participated at baseline and in all five follow-ups. It is impossible to examine the stability over time of perceptions for those participants who were lost to follow-up. Previous analyses conducted revealed that there were no significant differences in patient perceptions between participants who dropped out after baseline

versus those who completed at least one follow-up; however, this cannot be generalized to perceptions that occur in the future for these participants.

4.3. RQ3: Are patient perceptions related to treatment indices at baseline?

PLS-SEM path analysis was used to examine relationships between patient perceptions and treatment indices at baseline. Specifically, PCHA, PCTP, NPHA and NPTP were combined to operationalize PC-NP; PJHA and PJTP were combined to operationalize Procedural Justice; four of the URICA variables were combined to operationalize Treatment Motivation; and all of the CALPAS variables were combined to operationalize Therapeutic Alliance. Treatment compliance remained as a single reflective indicator.

The findings indicated that a large proportion of the variance in therapeutic alliance ($R^2 = 36.7\%$) and treatment motivation ($R^2 = 20.5\%$) was explained by procedural justice. Both therapeutic alliance and treatment motivation were positively correlated with procedural justice such that participants who reported more perceived fairness in the process reported higher levels of treatment motivation and therapeutic alliance. The relationship between procedural justice and therapeutic alliance was strong ($\beta = .606$), while the relationship between procedural justice and treatment motivation was moderate to strong ($\beta = .453$). Procedural justice was not related to treatment compliance.

A moderate to large proportion of the variance in therapeutic alliance ($R^2 = 12.2\%$) and treatment motivation ($R^2 = 9.6\%$) was explained by PC-NP. Treatment motivation and therapeutic alliance were negatively correlated with PC-NP such that participants who reported more perceived coercion, threat and force reported lower levels of treatment motivation and therapeutic alliance. The relationships between PC-NP and therapeutic alliance ($\beta = -.350$) as well as treatment motivation ($\beta = -.310$) were moderate in strength. PC-NP was not related to treatment compliance. Finally, PC-NP was modeled as a mediating variable in a path model in order to determine whether the relationships between procedural justice and treatment indices had incremental validity

after controlling for the association with PC-NP. Results indicated that procedural justice predicted both therapeutic alliance ($\beta = .750$) and treatment motivation ($\beta = .523$) after controlling for PC-NP. The model accounted for a large proportion of the variance ($R^2 = 38.3\%$) in therapeutic alliance and treatment motivation ($R^2 = 21.3\%$) and the relationships were strong and positive indicating that after controlling for the effects of PC-NP, procedural justice had strong, positive predictive relationships with both treatment indices such that higher perceptions of fairness in the process was an incremental predictor of higher reported alliance with treatment provider(s) and higher levels of reported treatment motivation.

Research examining the relationship between patient perceptions and therapeutic alliance is limited, and the findings are inconsistent. However, the present results were in keeping with a majority of previous findings. Specifically, higher levels of PC have been associated with more negative ratings of treatment providers (Kaltiana-Heino et al., 1997) as well as poorer therapeutic alliance (Donnelly et al., 2011; Sheehan & Burns, 2011; Theodoridou et al., 2012) and trust (Donnelly et al., 2011) in the treatment relationship. Similarly, higher levels of PPJ and lower levels of PNP have been linked with increased therapeutic alliance among civil psychiatric patients (Roche et al., 2014) and PPJ was related to increased therapeutic alliance, relationship satisfaction and in session behaviors in probationers mandated to psychiatric treatment (Skeem et al., 2007). In a healthcare decision making context, participants who endorsed higher levels of PPJ reportedly expected their treatment providers to rate them higher and expected their relationships with an organization to improve relative to those who endorsed lower levels of PPJ (Murphy-Bergman, Cross & Fondcaro, 1999). A cross sectional study of civil psychiatric patients measured PC, PNP and PPJ at baseline and measured therapeutic alliance using the Working Alliance Inventory (WAI) 28 days after admission (Roche, Madigan, Lyne, Feeney, & O'Donoghue, 2014). The authors' concluded that PNP at baseline was negatively correlated with therapeutic alliance and PPJ was positively correlated with therapeutic alliance. There was no association between PC and therapeutic alliance.

There is limited evidence about the relationship between perceptions and treatment motivation; however, in Skeem and colleagues' (2007) study, PPJ was also

associated with increased levels of treatment motivation among probationers mandated to psychiatric treatment.

The present findings were also consistent with research that suggests that there is no significant relationship between patient perceptions and treatment compliance operationalized as treatment attendance. Cusak et al. (2014) found that PC was not related to the number of behavioral health service visits at baseline (including case management, other outpatient services, and medication management). Similarly, Bindman et al., (2005) and Rain et al. (2003) found no relationship between PC at baseline and subsequent treatment adherence. This included data that were collected via staff ratings (Bindman et al., 2005) as well as a combination of patient and clinician reports and record reviews (Cusak et al., 2014; Rain et al., 2003).

Additional analyses indicated that relationships between procedural justice and treatment indices had incremental validity after controlling for the association with perceived coercion and negative pressures at baseline in the present sample. Fostering perceptions of fairness in the process may hold the potential to improve patient relationships with treatment providers as well as their motivation to engage in treatment and readiness to change. Similarly, minimizing perceptions of threat and coercion may hold this same potential, though perceptions of procedural justice influence treatment indices over and above perceptions of coercion and threat. This supports suggestions that concerns about process may override coercion and threat. In other words, even if treatment for SMI is experienced as threatening and forceful, the negative implications that this has for treatment engagement may be managed by increasing perceptions of a just process. One possibility is to intervene to increase PPJ and thereby decrease PC and PNP during initial contact with a patient, since we know these variables are inversely related.

One study to date tested an intervention designed to reduce perceptions of coercion in a civil psychiatric population. The author designed an intervention based on the principles of procedural justice as defined by Lidz et al. (1995) “which refers to the meaningful participation in decision-making processes and the perception of being listened to and taken care of in a respectful way” (Sorgaard, 2004 pp. 300.) The

intervention included a) engaging the patients in formulating the plan for their treatment, b) performing regular joint patient and staff evaluations about the progress and c) renegotiating treatment plans if necessary. The joint treatment planning included regular meetings between the patient and the treatment providers (at least weekly) and case notes were written jointly. Results indicated that the intervention was not associated with a reduction in the mean scores for PC. It was also unrelated to measures of patient satisfaction. There was, however, a significant change in the proportion of patients who used the lowest categories of the coercion measure when evaluating the help they received during their hospital stay as well as staff's understanding of their problems (Sorgaard, 2004).

One explanation for the lack of relationship between PC and PPJ in Sogaard's (2004) study may be related to the study author's measure of PC. The Coercion Ladder is a visual analogue scale, which requires participants to mark on a 10-step hierarchy, their level of experienced coercion. This relies on each individual respondent's definition of coercion and may not be tapping the same construct operationalized by the MAE scale, the measure used in a majority of previous research as well as the present study. In a study of civil psychiatric patients in Norway, the MAE PC scale and the Coercion Ladder were correlated at $r = 0.58$ (Iverson, Hoyer, Sexton & Gronli, 2002).

4.4. RQ4: Are Patient Perceptions Related to Treatment Indices at Follow-up?

PLS-SEM was used to evaluate the relationships between patient perceptions and treatment indices over five follow-up time points. There was variation within the number of days between follow-up assessments; however, the mean number of days between assessments at each wave of the study was similar across waves of the study ($M = 39.3$ to 41.5) as was the variance ($S. D. = 13.6$ to 17.5) (see Table 2.2). There was substantial attrition over each follow-up wave so that less than half of the original sample remained at follow-up 5 (43.9%). In order to explore the potential impact of drop-out on variables of interest, t tests and chi-squared analyses were used to compare participants who dropped out after baseline to those who completed at least one follow-up. Participants who dropped out after baseline had more education than those who did not.

This was consistent with anecdotal observations by study coordinators suggesting that participants who dropped out of the study were often doing better, e.g. working and resuming their lives.

The only other variables that differed for participants who dropped out after baseline versus those who completed at least one follow-up were related to therapeutic alliance. Participants who dropped out reported less patient commitment to treatment, lower patient working capacity and less of a working strategy consensus in their treatment. Therefore, findings related to follow-ups 1 to 5 may over-estimate the levels of therapeutic alliance relative to civil psychiatric patients, generally.

Path models were constructed at each follow-up wave to examine relationships between Procedural Justice and all three treatment indices (therapeutic alliance, treatment motivation and treatment compliance); PC-NP and treatment indices; and the relationships between procedural justice treatment indices after controlling for the effects of PC-NP.

Procedural justice predicted therapeutic alliance and treatment motivation across all time points. A large proportion of the variance in therapeutic alliance ($R^2 = 36.7\%$) and treatment motivation ($R^2 = 20.5\%$) was explained by procedural justice at baseline. The same model at follow-ups 1 through 5 also explained large proportions of the variance ($R^2 = 16.6\%$ to 49.9%). Treatment motivation and therapeutic alliance were positively correlated with procedural justice at all time points indicating that participants who reported higher levels of procedural justice also reported more therapeutic alliance and higher levels of treatment motivation across time points and the relationships varied from moderate to strong ($\beta = .408$ to $.706$). Procedural justice was unrelated to compliance at all time points.

PC-NP predicted therapeutic alliance at all time points except for follow-up 3. A moderate to large proportion of the variance in therapeutic alliance ($R^2 = 12.2\%$) was explained by PC-NP at baseline. A large proportion of the variance in therapeutic alliance ($R^2 = 15.9\%$ to 33.4%) was explained by PC-NP at follow-ups 1 through 5 with a trend for the effect sizes to increase over time. The strength of the negative associations between PC-NP and therapeutic alliance ($\beta = -.418$ to $-.578$) were moderate to strong

across follow-ups. PC -NP also predicted treatment motivation at all time points except for follow-up 5. A large proportion of the variance in treatment motivation ($R^2 = 21.1\%$ to 25.4%) was explained by PC-NP from follow-ups 1 through 4 and the strengths of the negative relationships were moderate ($\beta = -.460$ to $-.504$). The findings indicate that, across prospective follow-up points ($M = 39.3$ to 41.5 days; $S. D. = 13.6$ to 17.5 between 5 follow-ups), participants who reported higher levels of PC-NP also reported less therapeutic alliance and lower levels of treatment motivation. Treatment compliance was unrelated to PC-NP as well as procedural justice at all time points. Relationships at follow-up were consistent with those that were present at baseline indicating that these relationships held over time in the present sample. Interestingly, the effect size for the association between PC-NP and therapeutic alliance had a tendency to increase over time ($R^2 = 15.9\%$ to 33.4%) and the variance explained doubled from follow-up 1 to 5.

The relative increase in effect size for follow-up periods versus baseline may be related to participant attrition. Specifically, although treatment dropout was unrelated to patient perceptions at baseline versus follow-up 1, participants who dropped out initially reported lower levels of therapeutic alliance. The strength of the positive association between therapeutic alliance and PC-NP may have been influenced by the relatively higher levels of therapeutic alliance among participants who remained in the study versus those who dropped out after baseline. Moreover, analyses examining intermittent missing data at baseline revealed that participants who did not respond to questions about perceptions of coercion and fairness in their treatment at baseline reported a stronger therapeutic alliance than those who did. This relationship was significant for measures of the therapists' role in treatment, but not measures of the patient's role (e.g. patient commitment and patient working capacity). This may also contribute to the relatively stronger relationship between PC-NP and therapeutic alliance at follow-up versus baseline.

Mediation analyses revealed that procedural justice was still positively associated with both treatment indices (therapeutic alliance and treatment motivation) after accounting for PC-NP by including it as a mediating variable at all time points, indicating a lack of full mediation. The relationships between procedural justice and therapeutic alliance, controlling for PC-NP were strong across all time points ($\beta = .528$ to $.775$). The

model explained a large ($R^2 = 18.2\%$ to 48.4%) proportion of the variance in Therapeutic Alliance across all time points. Procedural justice predicted treatment motivation after controlling for PC-NP at follow-ups 1, 2 and 5 but not 3 or 4. The relationships were positive and strong ($\beta = .473$ to $.572$). Although the null was accepted at the a priori Type I error rate, the relationships in follow-ups 3 and 4 did demonstrate predictive relevance ($Q^2 = .097$ to $.101$). As a result, I concluded that procedural justice was positively associated with treatment motivation after controlling for PC-NP across all time points; it accounted for a large proportion of the variance in treatment motivation across all follow-ups ($R^2 = 18.2\%$ to 34.1%)

These results are partially consistent with the stated hypotheses. The direct relationships present at baseline were also present at all follow-ups. Procedural justice was consistently positively correlated with therapeutic alliance and treatment motivation, PC-NP were consistently negatively correlated with therapeutic alliance and treatment motivation, and treatment compliance was unrelated to either measure of patient perceptions at all time points. The positive association between procedural justice and the treatment indices (therapeutic alliance and treatment motivation), was still present after controlling for the effects of PC-NP at all time points. Results indicate that PPJ may override concerns about PC and PNP with respect to the influence of perceptions on therapeutic alliance and treatment motivation over time.

This is the first study to date to examine relationships between all three patient perceptions (PC, PNP and PPJ) and treatment indices prospectively. While findings in the present study were in keeping with a majority of evidence about these relationships at baseline (discussed above), further research is needed.

4.5. RQ5: Are Antisocial Traits Related to Treatment Indices at Baseline?

PLS-SEM was used to evaluate relationships between treatment indices and antisocial traits at baseline. Affective antisocial traits (PCL_1) and behavioral antisocial traits (PCL_2) were examined separately. Results indicated that both affective and behavioral antisocial traits predicted compliance but not therapeutic alliance or treatment

motivation. Affective traits accounted for a small proportion of the variance in compliance ($R^2 = 4.7\%$) and the strength of the positive relationship ($\beta = .216$) was weak. Results indicated that higher levels of affective antisocial traits were predictive of treatment non-compliance. Similarly, behavioral antisocial traits accounted for a small proportion of the variance in compliance ($R^2 = 3.9\%$) and the strength of the positive relationship ($\beta = .198$) was weak. Results indicated that higher levels of behavioral antisocial traits were predictive of treatment non-compliance. These findings are partially consistent with the stated hypotheses.

The relationships between antisocial traits and compliance are consistent with the findings in the literature about treatment compliance but inconsistent with findings that suggest that relationships exist between antisocial traits and indices such as treatment motivation and therapeutic alliance. For example, individuals with personality disorder generally, as well as antisocial traits specifically are less motivated to engage in treatment and more likely to drop out of treatment than those without pathological personality traits (Hilsenroth et al., 1998).

This is consistent with McCarthy and Duggan's (2010) findings that participants who were expelled for behavioral problems met more DSM IV criteria for ASPD than those who dropped out due to non-engagement or those who completed treatment. The study sample was comprised of forensic patients who participated in a personality disorder treatment service. The personality disorder treatment program is a "multi-faceted, two-year structured program of psychosocial cognitive-behavioral group work, individual psychoeducation and milieu therapy" (McCarthy & Duggan, 2010 p. 115). Similarly, in a therapeutic community treatment program for adult male offenders, participants with higher PCL-R scores, indicative of higher levels of psychopathy "showed less clinical improvement, displayed lower levels of motivation and were discharged from the program earlier" than participants with lower PCL-R scores (Ogloff et al., 1990 p. 181).

One possible explanation for the weak association between antisocial traits and compliance as well as the lack of association between antisocial traits and other treatment indices is the low base rate of antisocial traits in the present sample.

Specifically, 81.9% of participants earned a PCL:SV total score below the screening cut-off criteria of 12. While this proportion is in keeping with the wide range of prevalence (10 to 40%) in patients with Axis I disorders (Blackburn & Coid, 1999; Hare, 1991; Tengström, Grann, Langström & Kullgren, 2000), it may not be a high enough rate to detect an effect. In particular, there may be a moderating effect between antisocial traits and treatment indices, such that only individuals who meet a certain threshold of antisocial traits experience impairments in developing a working relationship with a treatment provider or struggle with treatment motivation which would be masked if antisocial traits were not high enough in our sample.

As an example, one may posit that affective deficits leave an individual without characteristics that are essential in developing interpersonal connection. Callous lack of empathy, superficiality, deceit and lack of remorse can impede the development of a working alliance based on trust. It is possible that the level of affective deficits must be higher than that of the present sample in order to impede the ability for a person to develop a trusting relationship given that they comply with treatment.

4.6. RQ6: Are relationships between patient perceptions and treatment indices significant after accounting for antisocial traits at baseline?

RQ6 was not tested due to the results of previous analyses discussed above. Specifically, antisocial traits were related to treatment compliance but not to therapeutic alliance or treatment motivation. Similarly, patient perceptions were related to therapeutic alliance and treatment motivation but not to compliance. The implications were that antisocial traits should not be modeled as a mediating variable in the relationships between patient perceptions and treatment indices.

This is the first study to date to attempt to examine whether antisocial traits account for significant variance in the relationship between patient perceptions and treatment indices. Extant findings suggest that individuals with antisocial traits may have difficulty in interpersonal relationships that hold implications for how others (including treatment providers) are perceived. For example, in an RCT of CBT for men with ASPD,

Davidson and colleagues (2010) found that patients often held negative beliefs that interfered with treatment and the development of a therapeutic alliance, including paranoid themes and expectations of injury or rejection. The authors noted that a lack of trust as well as suspicion about the motives of the treating therapist were common among participants.

These underlying negative beliefs may impact how a patient perceives an experience. For example, they may perceive the process as less just and more coercive based on suspicion and an assumption that the treating organization does not have their best interests at heart. Future research should examine these relationships in populations with a relatively high incidence of behavioral and affective antisocial traits. Researchers are encouraged to examine whether there is a moderating effect of severity on the relationship between antisocial traits and treatment indices such that only individuals with the highest degree of pathology experience impediments to treatment engagement as discussed above.

4.7. RQ7: Does NEM Mediate Relationships between Antisocial Traits and Treatment Indices?

First, PLS-SEM was used to evaluate relationships between antisocial personality traits and NEM at baseline. Several of the STAXI variables were deleted due to low indicator weights. STAXI_SA and STAXI_TA were combined to operationalize anger and the STAI variables were combined to operationalize anxiety. Affective traits did not predict anger or anxiety and a lack of predictive relevance was found for both constructs ($Q^2 = -.010$ and $-.015$). Behavioral traits did not predict anger or anxiety based on the results of hypothesis testing of the β coefficients; however behavioral traits did have weak predictive relevance for anger ($Q^2 = .010$) but not anxiety ($Q^2 = -.009$). Behavioral traits accounted for a moderate amount of variance in anger ($R^2 = 6.9$). The weak to moderate positive relationship ($\beta = .262$) indicated that participants with higher levels of behavioral traits reported higher levels of dispositional anger.

Next, PLS-SEM was used to evaluate the relationship between behavioral antisocial traits and compliance was still present after controlling for anger. Anxiety was

excluded because it wasn't related to antisocial traits in previous analyses. Results indicated that after controlling for anger, behavioral traits and compliance were still weakly, positively associated ($\beta = .210$) with a small to moderate effect size ($R^2 = 4.1\%$). When anger is included in the model, the variance explained is reduced relative to the model of the association between behavioral traits and compliance without controlling for anger ($R^2 = 6.9$). It is possible that anger partially mediates the relationship between behavioral traits and compliance; however this difference is small and it is not clear if it is clinically meaningful. Future research should examine this relationship in a sample with a higher antisocial traits.

These findings are consistent with research indicating that higher levels of behavioral antisocial traits are more strongly associated with NEM, while affective traits are unrelated or inversely related (Gudonis et al., 2009). Dispositional anxiety was unrelated to both behavioral and affective antisocial traits in the present sample. This is inconsistent with Skeem et al.'s (2007) findings that Swedish prison inmates with higher levels of behavioral psychopathic traits had greater trait anxiety and greater somatic anxiety than those with lower levels of behavioral traits, and Hare's (1991) findings that factor 2 of the PCL-R (characterized by behavioral traits) is positively correlated with NEM, including dispositional anxiety across samples. This difference could also be attributed to the low base-rate of participants with a pathological number of antisocial traits in the present sample. Future research should examine these relationships in an offender population in which personality disorder is more prevalent than a civil psychiatric sample.

These findings were not consistent with the stated hypotheses for RQ7. Both behavioral and affective antisocial traits predicted compliance but not therapeutic alliance or treatment motivation. The relationships indicated that higher levels of antisocial traits was associated with treatment non compliance. Further, affective traits did not predict anger or anxiety. Behavioral antisocial traits was moderately associated with anger, but not to anxiety. The association between behavioral traits and compliance was still significant after controlling for the effects of anger, though it appeared to be reduced.

4.8. Implications

4.8.1. Perceptions and treatment indices

The findings of the present research have significant clinical implications for coercive treatment contexts. First, the current findings are consistent with previous research indicating that PC and NP are inversely related to PPJ. Further, patient perceptions were related to treatment indices across long-term follow-up and PPJ is uniquely related to therapeutic alliance and treatment motivation after controlling for PC and PNP. Because patient perceptions at baseline are stable over time, it follows that an individual's experience early on during a mental health crisis such as contact with law enforcement or hospital admission may carry over to influence subsequent treatment in the hospital as well as in the community post-discharge. This further emphasizes the importance of the nature of the initial experience and how the patient views it. Because initial impressions about a treating organization may color a patient's perceptions of that experience with the treatment associated with that organization, it is important to identify the psychological mechanisms underpinning patient reactions at baseline. The present study examined the influence of NEM and antisocial traits to this end discussed below.

These findings also reiterate the importance of the therapeutic alliance for active treatment engagement. In the present sample, the only variables related to initial drop-out were measures of the therapeutic alliance. Further, PPJ was uniquely associated with therapeutic alliance and treatment motivation after controlling for PC and PNP for all time points. This suggests that interventions targeted at increasing PPJ and decreasing PC and NP early on in the course of a coercive treatment process may help to foster positive working alliances with treatment providers that are stable over time.

4.8.2. Antisocial traits

Both affective and behavioral antisocial traits were associated with noncompliance, but not to therapeutic alliance or treatment motivation. The results indicated higher levels of antisocial traits were associated with treatment noncompliance. This implies that patients with antisocial traits are still able to develop a good working

alliance and engage under the right circumstances, even if they may be more likely to act out during treatment or be noncompliant, making it more difficult to achieve gains.

These results should be interpreted with caution as they are partially inconsistent with previous findings and theory about personality pathology suggesting that individuals with more affective deficits characterized by a lack of ability to experience deep or true emotion, may have less of an ability to make a true interpersonal connection, preventing them from forming a strong working alliance. Further, personality pathology is characterized in part by difficulty forming and maintaining relationships. Antisocial personality traits in particular are associated with perceptions of suspicion, deceitfulness and a lack of ability to trust; all of which may impact therapeutic alliance. Similarly, impulsivity, lack of insight and failure to take responsibility may all impact treatment motivation. These relationships should be further examined in future research.

4.8.3. Negative emotionality

Dispositional anxiety was unrelated to antisocial traits and dispositional anger was moderately related to behavioral traits. It did not fully mediate the relationship between behavioral traits and compliance, however the effect size was reduced by a small amount suggesting a partial mediation. This is only partially consistent with previous findings that, factor 1, defined in part by a lack of ability to experience deep or true emotion, is associated with a reduction in negative emotional arousal whereas factor 2, which is highly associated with anger, hostility and aggression, was positively associated with negative emotional states (Hare, 2003) and similar analyses should be conducted in a population with a higher base rate of antisocial traits.

4.9. Strengths and Limitations

This study had a number of strengths. First, it employed a truly prospective design. It also evaluated civil psychiatric patients who had been recently discharged and their interaction with community treatment over time, allowing for generalization to this population and context. It also employed multiple data collection methods including

participant self-report, records, collateral information whenever possible and evaluation based on observations of research assistant interviewers.

This is also the first study to date to consider the interaction between patient perceptions, antisocial traits, NEM and treatment engagement prospectively. It adds to the current body of literature by answering the call of Casonguay and Beutler (2006) to identify variables tied to the therapy relationship (patient perceptions) and patient characteristics (antisocial traits and NEM) that cut across specific treatment techniques and patient populations.

This study also had several limitations. First, like many longitudinal clinical studies, it suffered from substantial attrition; there was also intermittent missing data at each time point. This limited the ability to generalize findings to participants who dropped out and could potentially introduce bias at each time point. In an attempt to mitigate this problem, analyses of intermittent missing data at baseline were taken into consideration when interpreting the present findings. While this degree of attrition introduces problems, it is consistent with the rate of study drop out in other large scale, prospective, longitudinal studies such as the MacArthur Study (Steadman et al., 1998).

Further, although multiple sources were used for data collection, a majority of the data was obtained via participant self-report. This can be problematic for a number of reasons. First, it may introduce a response bias based on social desirability. Moreover, confusion or lack of insight due to psychiatric symptoms may also impact data, especially for respondents with more severe symptoms. This may introduce more bias in sicker participants as well as bias closer to baseline when patients are closer to their hospitalization and therefore less psychiatrically stable as a group.

Another limitation of this study was the ways that “treatment” and “treatment provider” were operationalized. Participants were asked to consider all of the treatment they received including medication, case management and any outpatient services including, but not limited to, psychotherapy and vocational interventions. In rating their “treatment provider,” patients were to consider the larger organization and individuals providing these services as a whole. This may mask variation within their perceptions of

these services and may not translate to the relationship a patient may develop with a single mental health provider providing regular psychotherapy.

4.10. Directions for Future Research

While this study aimed to identify the impact of patient perceptions and treatment interfering patient characteristics on treatment engagement, future research examining these relationships is needed. Additional research should evaluate whether these relationships are present in different coercive treatment contexts including MHC, prison and other correctional settings, civil psychiatric inpatients and forensic inpatients. Findings to date suggest that PC and PNP are inversely related to therapeutic alliance and treatment motivation, and PPJ is positively correlated (Roche et al., 2014; Sheehan & Burns, 2011; Theodoridou et al., 2012), but there is a dearth of findings about these relationships over time. Future research should also target relationships between patient perceptions and treatment indices prospectively to determine whether relationships at baseline are present as treatment continues.

Future research should also investigate differences in type of treatment. Specifically, a therapeutic alliance in a psychotherapy relationship with a single treatment provider, which strengthens over time, may hold different implications than a relationship with a case manager or medication provider. Examining different types of treatment may further inform how patients experience and engage with it. It may also provide information about which forms of treatment are suitable for individual patients based on non-diagnostic characteristics.

Further investigation into the relationships between antisocial traits, NEM and treatment indices in a sample with a high level of antisocial traits may reveal whether severity of pathological personality traits acts as a moderator so that only those with the highest presentation of personality dysfunction have a poor prognosis for psychotherapy or other forms of treatment.

Finally, researchers are encouraged to develop interventions that target anger and perceived procedural justice in an effort to impact treatment engagement. Anger, in

particular, is an emotion with unique influences and important implications and dispositional anger is higher in individuals with antisocial traits. For example, evidence suggests that anger influences information processing in ways that may hinder treatment engagement. Angry people tend to search for blameworthiness and associate negative intentions to the behaviour of others. This can lead to cognitive distortions such as catastrophizing, dichotomous thinking and overgeneralization, and may bias one's attention to anger inducing stimuli (Litvak, Lerner, Tiedens, & Shonk, 2010). Anger has also been found to be associated with a desire to change a situation for the better, even through destructive means such as aggression (Schultz, Grodack, & Izard, 2010). In the context of mandated treatment, anger may play a role in impeding treatment engagement by decreasing perceptions of fairness and benevolent intent in treatment providers and increasing the tendency for behavioural problems.

Research examining the utility of the treatment and management of anger found that measuring anger was not useful in distinguishing violent from non-violent rapists (loza and Fanous, 2000) and prisoners who participated in an anger management program demonstrated an increase in knowledge relative to controls, but this increase in knowledge did not influence other outcomes (Howells et al., 2005). It is possible that anger does influence outcomes, however a lack of treatment response occurs as a result of the need to address the anger in order to foster engagement in treatment. In other words, you can't treat a patient for anything, including anger, while anger is in the way. Moreover, information (e.g. psychoeducation which is a common format in anger management programs) does not equal treatment and it is necessary to address the reason for and the nature of the anger response in order to develop a positive working relationship.

Empirical findings suggest that emotional states may mediate the relationship between patient perceptions and the reactions that follow. Situations that are threatening or unfair often elicit negative emotions. Perceptions of justice in particular are associated with strong emotional reactions (Cropanzo & Folger, 1989) and judgments about procedural justice may also be influenced by prior emotional states (Van den bos, 2003). Anger is a common emotional response to perceptions of injustice and the evaluation that one has been wronged in some way or one's individual rights have been violated

(Schulzt et al., 2010). Murphy-Berman and colleagues (1999) reported that respondents who felt as though they had been treated fairly by health care providers were more likely to report increased levels of pride and pleasure as well as decreases in negative emotions such as anger in response to their treatment. Four studies to date have examined the mediating role of emotions in the relationship between perceptions of procedural justice and behavioural reactions in various scenarios. Negative and positive emotions have been found to mediate relationships between perceptions of procedural justice and exit versus loyalty behaviour in a bank (Chebat & Slusarczyk, 2005) and retaliatory behaviour (Gordijn, Yzerbyt, Wigboldus, & Dumont, 2006).

The first study to examine the mediating role of emotions in the relationship between procedural justice and compliance behaviours in a real life scenario (Murphy & Tyler, 2008) demonstrated that procedural justice influenced both positive and negative emotions (happiness and anger) and that these emotions mediated the relationship between judgments of process and self-reported compliance behaviours. The authors concluded that “it is these positive and negative emotional reactions to perceived justice or injustice that go on to predict who will and will not comply with authority decisions and rules” (Murphy & Tyler, 2008 pp.652).

Research should also explore new patient characteristics tied to patient perceptions and treatment indices in an effort to inform interventions designed to foster treatment engagement early on.

4.11. Conclusions

In summary, a patient may always feel coerced or pressured to some degree in a coercive treatment context. However, interventions aimed at increasing perceptions of fairness and decreasing anger may influence subsequent therapeutic alliance and treatment motivation, especially in patients high in antisocial traits. Further, identifying individuals high in behavioral and affective antisocial traits may further inform treatment strategy based on relative risk for treatment noncompliance and an increased likelihood of dispositional anger.

Findings suggest that interventions designed to target treatment interfering perceptions, when introduced at the outset of patient contact, may help influence therapeutic alliance and treatment motivation and this effect may carry on over the course of treatment. Interventions designed to reduce anger and increase procedural justice, especially in patients with antisocial traits may lead to positive outcomes by increasing treatment engagement and decreasing drop-out.

Chapter 5. References

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