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Peer Support for Consumers with Psychosis

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PEER SUPPORT FOR CONSUMERS WITH PSYCHOSIS

by

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PEER SUPPORT FOR CONSUMERS WITH PSYCHOSIS

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The purposes of this project were: 1) to collaboratively adapt an existing cognitive-behavioral intervention for consumers with serious mental illness (SMI) so that it could be provided by peers, and 2) to evaluate the feasibility of the resulting group intervention and perform a preliminary analysis of its effectiveness. Focus groups consisting of 7 consumers with SMI and 9 peer providers assisted in the determination of group content and structure. Results from the focus groups suggested significant overlap between topics covered and educational strategies utilized in traditional psychosocial interventions and preferences for the peer-based group. However, participants expressed a preference for support strategies and nuances in language that differentiated the group from more traditional interventions. Consumers and peer providers also offered helpful suggestions about how to keep individuals engaged in the group, how to address complicated decisions such as when to breach confidentiality, and how to select peer providers to lead the group. After assembling a treatment manual based on group feedback, we conducted a feasibility study with 17 consumers and 3 peer providers during which we monitored fidelity, repeatedly assessed functional outcomes, and collected data related to treatment engagement, personal reactions to the treatment, and adverse events. Results from the feasibility study demonstrated that peer providers did not attain acceptable fidelity ratings, but this was more likely an artifact of the fidelity measure than a reflection of provider ability. With respect to outcomes, the study

demonstrated that consumers experienced an improvement in some domains of psychiatric symptoms and social functioning, but did not experience a change in stigma beliefs. Contrary to our expectation, there was no observed relationship between stigma beliefs and treatment engagement. Finally, consumers and peer providers provided positive ratings of the intervention, and few adverse events were reported during the study period. This study is significant in that it represents a key step toward the integration of the mental health professional and consumer communities for the betterment of those affected by SMI.

DEDICATION

To my parents,

who instilled in me the value of education

and supported me throughout all of my academic pursuits.

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It is difficult to put into words how thankful I am for the many individuals who contributed to this project, and who facilitated my growth as a researcher, scholar, and clinician along the way.

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INTRODUCTION

Serious mental illness (SMI) includes a heterogeneous set of diagnostic categories (e.g., schizophrenia, schizoaffective disorder, bipolar disorder) resulting in serious functional impairment. It is well-documented that those with SMI, particularly individuals who experience psychosis, demonstrate deficits in cognition (Kalkstein, Hurford, & Gur, 2010), social functioning (Hooley, 2009), occupational performance (Marwaha & Johnson, 2004), and independent living (Harvey, Velligan, & Bellack, 2007). Regarding economic impact, a recent estimate of the annual costs associated with schizophrenia in the United States was $62.7 billion (Wu et al., 2005). These data highlight the need for comprehensive evidence-based treatments that promote expeditious recovery.

A number of evidence-based psychosocial interventions have been established to address the diverse needs of people with SMI. Among these are assertive community treatment, supported employment, cognitive behavioral therapy for psychosis, family-based services, token economy, skills training, and psychosocial interventions for alcohol and substance use disorders as well as for weight management (Dixon et al., 2010). Although each of these interventions has demonstrated efficacy in rigorous clinical trials, there are barriers to their implementation and dissemination. For example, political reasons and budgetary limitations prevent the widespread availability of evidence-based practices, and, where evidence-based practices are available, there is a high proportion of individuals who do not engage in services. New strategies for increasing the availability of services and encouraging their use are needed.

The present study assessed the adaptation and effectiveness of a specific evidence-based practice, cognitive behavioral therapy for psychosis (CBTp), in a peer-provided, group format. In order to provide context for the current study, the principles of and research evidence supporting cognitive behavioral therapy for psychosis (CBTp) are briefly reviewed in Chapter 2. Next, challenges to the successful delivery of CBTp are highlighted. In Chapter 3, a rationale for the adaptation of an existing CBTp intervention for provision by peers is provided. In the same chapter, peer-provided services, including peer-led support and education groups, are described, and the research evidence supporting them is reviewed. Chapter 4 specifies the research questions to be addressed in this study, and the proposed hypotheses. Chapters 5 through 7 describe the study design, procedures, results, and conclusions.

CHAPTER 2

COGNITIVE BEHAVIORAL THERAPY FOR PSYCHOSIS (CBTp)

Review of the Empirical Literature

Cognitive behavioral therapy for psychosis (CBTp), an empirically supported treatment for psychosis, emphasizes individual case formulation with special interventions for problems such as hallucinations and delusions. It is based on the stress-vulnerability model, which assumes that biological vulnerability to mental illness (e.g., family history of mental health problems, substance use) and stress factors (e.g., major life changes, trauma) interact to produce mental health problems. Cognitive-behavioral techniques used to treat psychosis are built upon those that have been proven to be useful in the treatment of depression and anxiety (Kingdon, 1998). CBTp trains individuals to increase awareness of their mental health problems and to develop methods to effectively manage and cope with them. For example, by learning to control basic psychological processes such as attention, and through distraction, individuals learn to reduce negative affect associated with their experiences. Behavioral experiments and reality testing can be used to critically evaluate upsetting, irrational beliefs. Arousal reduction techniques (e.g., muscle relaxation, breathing training) may also be used to reduce stress and mitigate associated mental health problems. Activity scheduling, relapse prevention planning, normalization, and cognitive restructuring are additional CBTp interventions. CBTp may be delivered in an individual or group format, and is typically provided over the course of three to nine months (Tarrier, 2008).

There is a substantial evidence-base for the efficacy of CBTp. For example, the largest meta-analysis of CBTp studies to date (34 studies) demonstrated significant

effects for positive symptoms (32 studies), negative symptoms (23 studies), functioning (15 studies), mood (13 studies), and social anxiety (2 studies), with Glass' delta effect sizes in the "moderate" range (i.e., .35 to .44; Wykes, Steel, Everitt, & Tarrier, 2008). CBTp has been evaluated in people who have been living with SMI for quite some time (see Tarrier & Wykes, 2004 for a review), individuals with acute or early psychosis (Lewis et al., 2002; Tarrier et al., 2004; Power et al., 2003; Jolley et al., 2003; Wang et al., 2003; Gleeson et al., 2009; Uzenoff, Perkins, Hamer, Wiesen, & Penn, 2008; Penn et al., 2011; Lecomte et al., 2008), and individuals with prodromal symptoms (Morrison et al., 2004). In addition, specific interventions involved in CBTp (e.g., relapse prevention planning) have been studied. Evidence for the use of CBTp within various SMI subpopulations, and for targeted interventions, is now provided.

CBTp for chronic psychosis. In a meta-analysis of 16 randomized controlled trials comparing CBTp to treatment as usual, Tarrier and Wykes (2004) demonstrated a mean effect size of .40 pertaining to symptom improvement for studies carried out with individuals who had experienced SMI long term and had not previously experienced improvement in mental health problems through medication. They concluded that there is evidence that CBTp is an efficacious and effective treatment for psychosis, but urged caution against exaggerated claims of the magnitude of treatment benefit. The authors indicate that the most compelling evidence of its efficacy comes from studies conducted with individuals with more chronic conditions.

CBTp for acute or early psychosis. Studies have shown that individual CBTp for acute or early psychosis may produce beneficial long-term effects on psychiatric symptoms, and that it may provide the following benefits over routine care: fewer days

spent in the hospital, fewer hospital admissions, reduction in relapse rates, increased insight and better adaptation to one's illness, improved quality of life, superior work functioning, and better treatment adherence (Lewis et al., 2002; Tarrier et al., 2004; Power et al., 2003; Jolley et al., 2003; Wang et al., 2003; Gleeson et al., 2009; Uzenoff et al., 2008; Penn et al., 2011). Nevertheless, according to a meta-analysis of 3 studies (Tarrier & Wykes, 2004), there was a significant amount of variance in the degree to which CBTp improved positive symptoms in inpatients with acute illness (effect sizes ranged from -0.49 to 0.93). Therapy was carried out as part of a *therapy envelope*, in which a range of duration of therapy was delivered in a flexible manner. The Socrates study (Lewis et al., 2002) was the largest and methodologically rigorous study, and had an effect size of 0.12. However, two of the three studies were quite small, and the methodology used in one study may have caused bias. Thus, additional research is needed to elucidate the impact of individual CBTp on positive symptoms in individuals experiencing acute or early psychosis.

Group CBTp for early psychosis has been shown to improve positive and negative symptoms, self-esteem, and active coping skills (Lecomte et al., 2008).

CBTp for prodromal psychosis. Morrison and colleagues (2004) demonstrated that CBTp proved to be more beneficial than treatment as usual in preventing progression into psychosis in individuals with prodromal symptoms. This study also indicated that CBTp prevented the prescription of antipsychotic medications, and reduced positive symptoms. Similarly, Bechdolf, Wagner, and Klosterkotter (2006) demonstrated in a large sample of individuals with prodromal symptoms that CBTp was more efficacious than supportive therapy at preventing the onset of psychosis over a 12 month period.

These studies provide preliminary evidence of the efficaciousness of CBTp in this population.

Specific CBTp interventions. According to Tarrier and Wykes (2004), there is a dearth of research comparing various CBTp interventions in order to determine "active ingredients" (p. 1387). Thus, at this time it is unclear whether general adherence to CBTp principles or strict use of certain techniques is most important. Nevertheless, there is some preliminary evidence demonstrating the superiority of targeted interventions for specific outcomes, as detailed below.

Based on their meta-analysis of 6 studies, Tarrier and Wykes (2004) conclude that when relapse prevention is central a CBTp intervention, rather than just one of many components, it is more effective at reducing relapse rates. More specifically, Tarrier (2008) claims that studies have shown that CBTp focused on relapse prevention resulted in a mean relapse reduction of 21% while other studies in which relapse prevention is only one part of the treatment resulted in a mean reduction of only 1.4%.

The Wykes et al. (2008) meta-analysis found that interventions with a greater emphasis on behavioral treatment produced greater effect sizes. Outcomes of interest included positive and negative symptoms, functioning, mood, hopelessness/suicidality, and social anxiety (Wykes et al., 2008).

Challenges with the Delivery of CBTp

According to Ganju (2003), a 2002 national survey revealed that only about 25 percent of states implemented evidence-based practices (except for supported employment) on a statewide basis. Ganju (2003) highlighted a number of factors that have contributed to the disparity between knowledge and practice, including: lack of

insurance reimbursement, lack of training, poor funding, lack of knowledge about the advantages of evidence-based practices, resistance to changing the existing organizational structure and hierarchy within service systems, lack of support at the policy or administrative level, rapid turnover in leadership and staff, and limited mechanisms to provide incentives or sanctions within the current mental health system. There is no evidence to suggest that these conditions have improved since the publication of this article. Regarding CBTp in particular, there is a general lack of access in the United States compared to countries with universal health care, such as the United Kingdom. Wykes and colleagues (2008) speculate that service structures in the United Kingdom are more supportive of the work of clinical psychologists' and nonmedical approaches to drug resistant psychotic symptoms, which may provide insight into this disparity.

Additional barriers prevent the delivery of CBTp even in service systems where it is routinely offered. A well-documented challenge to clinical research and treatment (including CBTp) that is particularly salient to individuals with psychosis is a lack of engagement in services, both in terms of delays in help-seeking behaviors (Marshall et al., 2005) and high rates of treatment attrition (Fischer et al., 2008; Nosé, Barbui, & Tansella, 2003; O'Brien, Fahmy, & Singh, 2009). There are many correlates of lack of treatment engagement that have been identified in the literature. Kreyenbuhl, Nossel, and Dixon (2009) reported that common characteristics of individuals with psychosis who drop out of treatment include younger age, male gender, ethnic minority background, low social functioning, social isolation, low socioeconomic status, comorbid serious mental illness and substance use problems, higher levels of psychopathology, limited insight, and poor therapeutic alliance. The authors stress the importance of providing client-centered

care and engaging in shared decision-making in order to educate consumers about evidence-based treatments, address their preferences and values, and empower them to be active participants of the decision-making process. They also recommend that additional research be conducted in order to identify effective interventions for improving treatment engagement (Kreyenbuhl, Nossel, & Dixon, 2009).

Stigma. An additional barrier to treatment engagement is stigma (Fung, Tsang, & Corrigan, 2008; Sirey et al., 2001a; Sirey et al., 2001b). Goffman (1963) defines stigma as occurring when a person possesses "some attribute or characteristic that conveys a social identity that is devalued in a particular social context" (p. 505). These attributes or characteristics become associated with negative evaluations and stereotypes among members of society, which serve as a basis for exclusion or avoidance of people who possess the attributes or characteristics (Major & O'Brien, 2005).

The stigma of mental illness has primarily been described using two models: public stigma vs. self-stigma. Public stigma refers to beliefs held by the general population that result in prejudice and discrimination (Corrigan et al., 2010). Popular beliefs held by the general public about people with mental illness are that they are dangerous or incompetent (Corrigan & Kleinlein, 2005). Self-stigma occurs when the individual applies stigmatizing beliefs to the self (e.g., I am dangerous because I have a mental illness; Corrigan, Watson, & Barr, 2006).

Public stigma. Individuals with serious mental illness (SMI) are a highly stigmatized group. In fact, Alcrecht, Walker, and Levy (1982) showed that "mental illness" is amongst the most socially rejected conditions, comparable to drug addiction,

prostitution, ex-convict status, and alcoholism. Stier and Hinshaw (2007) reported that the desire for social distance increases with the severity of mental illness.

In order to understand current conceptions about people with SMI, an exploration of their origins is needed. Modern notions of mental illness date back to at least the turn of the nineteenth century, around the time of the rise of institutionalization. Individuals with mental illnesses were seen as having biological or medical problems rendering them unable to reason and in need of treatment by physicians or psychiatrists (Luchins, 1993). Mental illness labels conveniently identified these individuals. According to Luchins (1993), social control theorists, such as Foucault, Scull, and Szasz, opined that institutionalization was society's solution to dealing with socially deviant people and that the concept of "mental illness" was fabricated in order to provide a justification for segregating these people from the general public. Thus, according to this perspective, the notion of mental illness was contrived for social purposes. Unfortunately, the confinement of the mentally "insane," along with the criminal, poor, and unemployed, led society to feel threatened by them. Although the 1950s was characterized by the community mental health movement, in which the general public began to accept that many people with mental illness could be treated in the community rather than the hospital, a lack of public education and anti-discrimination laws perpetuated the stigma associated with being mentally ill (Wright, Gronfein, & Owens, 2000). Some argue that the deinstitutionalization movement actually *increased* stigma, given that a lack of community-based services increased the number of people with SMI who found themselves in socially undesirable positions, such as homeless, in jail, or residing in sub-

optimal board and care facilities (Hinshaw, 2005). These historical influences have undoubtedly shaped modern conceptualizations of mental illness.

According to a model by Link, Struening, Neese-Todd, Asmussen, and Phelan (2001), people develop beliefs about mental illness early in life from their social world. Research has found that stigma processes are present in children as young as third grade (Hinshaw, 2005). Beliefs about mental illness are influenced by a variety of sources, including teaching within families, personal experience with those who are mentally ill, and relationships with peers. Based on their conceptions, people learn and expect that individuals with mental illness should be rejected as friends, employees, neighbors, or romantic partners and should be devalued (Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001).

The media also has a particularly powerful effect upon the formation of stigma, as it is not only rich in messages about the mentally ill (Wahl, 1992), but has been shown to characterize people with mental illness (particularly those with SMI such as schizophrenia) as violent, unpredictable, weak, or incapable of contributing meaningfully to society. The media also tends to present exaggerated, distorted, or inaccurate information about mental illness (Klin & Lemish, 2008). Empirical research has demonstrated that exposure to messages in the media about people with mental illness is associated with more negative attitudes toward these people (see Wahl, 1992 for a review). Link, Phelan, Bresnahan, Stueve, and Pescosolido (1999) found that there was a moderate correlation between perceived dangerousness and desire for social distance, which suggests that images depicted by the media of violent, mentally ill offenders likely affects distancing behavior.

Mental illness stigma is likely perpetuated by the fact that psychiatric labels provide a means of social categorization. As suggested by Otten (2003), the mere existence of distinct social categories can cause competition among members of different groups. People may employ negative stereotyping to the out-group in order to achieve in-group and self-esteem enhancement (Oakes, Haslam, & Turner, 1994). For example, Fein and Spencer (1997) found that when participants did not have an opportunity to receive self-affirmation or received negative feedback on an intelligence questionnaire, they were more likely to negatively evaluate a member of a stereotyped group. These researchers also found that derogation of the stereotyped group member mediated an increase in self-esteem. Martinez, Piff, Mendoza-Denton, and Hinshaw (2011) found that when people become aware that an individual had a general mental illness label (as opposed to a general physical illness label), they automatically viewed this individual with a lowered human status, and saw him as more threatening and dangerous. The automaticity of this reaction is convergent with other social psychological research showing that stereotyping can be an automatic process in the presence of triggering stimuli (e.g., Brewer, 1988; Fiske & Neuberg, 1990; Devine, 1989).

Other maintaining factors of mental illness stigma include a lack of contact with the mentally ill due to social distancing (which prevents people from receiving feedback contrary to stigmatizing beliefs), and the need for a sense of social order (Stier & Hinshaw, 2007). From an evolutionary perspective, stigma also appears to be perpetuated by cognitive adaptations that dissuade people from interacting with those who might be poor social exchange partners, such as those with unpredictable behaviors perceived to be associated with a mental illness (Kurzban & Leary, 2001).

In sum, public stigma results from social learning that has its roots in early nineteenth century ideology about mental illness. Behavioral anomalies are associated with psychiatric labels, which provide a means to identify the mentally ill and serve as triggers of stigmatization.

Self stigma. Corrigan, Watson, and Barr (2006) posit that self-stigma arises as a result of the combination of *stereotype awareness,* or cognizance of general negative beliefs and attitudes about mental illness reflected by society, *stereotype agreement,* the endorsement of these negative beliefs and attitudes, and *self-concurrence,* the belief that stereotypes about mental illness are applicable to the self. They demonstrated that knowledge of public stigma was not significantly associated with stereotype agreement or self-concurrence, but that stereotype agreement and self-concurrence were significantly related. These findings suggest that self-stigma is not contingent upon knowledge of public stigma but rather agreement with stigmatizing beliefs and attitudes. People who have been given a mental illness label, and perhaps have experienced a psychiatric hospitalization, are particularly at risk for self-concurrence, as dominant beliefs about mental illness then become personally relevant. People may fear that they will be stereotyped, devalued, or rejected because they have been identified as having a mental illness (Link et al., 2001).

Endorsing self-stigmatizing beliefs, in turn, is associated with poor self-esteem (Link et al., 2001). However, as suggested by Crocker and Major (1989), individuals need to not only *identify* with dimensions of their group which are evaluated poorly, but need to *value* those dimensions. Attributes of a stigmatized group that are evaluated

poorly but which are not personally important or central to one's self-definition are less likely to impact self-esteem (Crocker & Major, 1989).

In addition to being correlated with lack of treatment engagement, self-stigma and low self-esteem have been shown to negatively affect psychological well-being even after psychiatric symptoms remit (Link, Struening, Rahav, & Phelan, 1997). They may also interfere with the pursuit of recovery goals (e.g., obtaining employment, living independently; Link, 1982), and may impede the development of social networks (Perlick et al., 2001).The early age of onset that characterizes psychotic disorders (i.e., early twenties in men and late twenties in women) makes young adults with early psychosis particularly vulnerable to the stigma associated with the illness (Miller & Mason, 1999). These data collectively establish the need to reduce self-stigma in individuals with psychotic disorders.

Summary

In summary, CBTp has been shown to improve a number of outcomes in individuals at various stages of serious mental illness. While these findings are encouraging, there are barriers to the successful delivery of CBTp in mental health systems in the United States. One of these barriers is the stigma associated with being diagnosed with and receiving treatment for a mental illness.

CHAPTER 3

PEER PROVIDED SERVICES

Definition and Rationale

A potential solution to the challenges associated with the delivery of CBTp is to adapt existing interventions for provision by peer providers. For the purposes of this project, "peer providers" are paid or volunteer service providers with lived experiences of mental illness. Peer providers offer support to persons with similar mental health conditions in order to affect social or personal change (Gartner & Riessman, 1982). Peer provided services have the potential to produce important savings in the costs associated with mental health services, as they have been shown to reduce hospitalization rates and the need for other mental health services. Some peer provided services, such as self-help groups, are relatively inexpensive to the system (Solomon, 2004), and thus may be more easily disseminated than traditional services.

Working with peers may especially be helpful to individuals with psychosis because their work is thought to lead to increases in hope, autonomy, and self-efficacy, as well as a reduction in stigma (Davidson, Chinman, Sells, & Rowe, 2006; Dixon et al., 2010). It is anticipated that these gains would lead to increased treatment engagement. Indeed, in a randomized controlled trial, Sells, Davidson, Jewell, Falzer, and Rowe (2006) found that when individuals worked with peer specialists as part of a case management team, they showed significantly increased contacts with providers over the first six months of the study, compared to participants in the control condition who did not have the opportunity to work with peer specialists (individuals in the control condition actually demonstrated decreased contacts over the same six month period). At

six months, participants in the experimental condition reported feeling better liked, understood, and accepted by their providers than those in the control condition (Sells et al., 2006), suggesting that peer providers may tend to have a particularly strong ability to establish effective working alliances early in the treatment process.

A history of peer provided services is discussed next, to provide context for the use of peer providers in this study.

History and Theoretical Foundations

In the 1980s, both consumers of mental health services and professionals started to become disillusioned with the mental health system due to perceived problems with the system being narrowly focused on a medical model of mental illness, not meeting consumers' needs, and not promoting their autonomy. A grassroots movement, called the *recovery movement* or the *consumer movement*, began to take shape (Bellack, 2006). Recovery from mental illness was seen not merely as symptom remission, as it had been viewed traditionally according to the medical model, but as a process in which consumers were able to move past the challenges presented by mental illness to live rewarding, fulfilling lives. An often quoted definition of recovery comes from Anthony (1993), who stated that recovery is:

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

With this shift in thinking about recovery came greater interest in and advocacy for consumer choice and involvement in mental health care. For example, in 2005, the Substance Abuse and Mental Health Services Administration (SAMHSA) worked with

consumers and professionals to identify ten facets of recovery and recovery-facilitating services, of which self-direction, individualized or person-centered, empowerment, peer support, and responsibility were included. Peer provider positions provided an avenue for consumers to take greater responsibility, empower themselves and others, and facilitate recovery.

Recently, there has been a nationwide effort to integrate peer providers into mental health service systems. Both the President's New Freedom Commission (Hogan, 2003) and the Veterans Administration (Goldberg & Resnick, 2010) call for the implementation of peer provided services, and the Schizophrenia Patient Outcomes Research Team (PORT; Dixon et al., 2010) encourages that they be studied.

Peer provided services are rooted in several social psychological theories, including self-efficacy theory, social learning theory, social comparison theory, social support, experiential knowledge, and the helper-therapy principle (Salzer et al., 2002). Bandura (1997) defines perceived self-efficacy as the "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Self-efficacy theory recognizes that judgments about personal efficacy are contingent upon the larger social context in which people find themselves. Cook and colleagues (2011) posit that self-efficacy is enhanced by observing peers achieve gains through their efforts. Enhanced self-efficacy, in turn, is expected to motivate and facilitate goal directed behavior, which has important implications for engagement in services and thus treatment outcomes. Improved self-efficacy has also been shown to reduce feelings of stigma (Salzer, 1997).

Social learning theory (Bandura, 1977), which is based on the premise that psychological factors (e.g., attention, motivation) and the social environment influence how an individual behaves, implies that behavior change occurs through interaction with peers. Salzer and colleagues (2002) hypothesize that consumers are more motivated to select peers vs. non-peers as role models because they are seen as more credible exemplars. Observation of the behaviors of peer providers who are further along in the recovery process, then, produces a drive and a means to develop skills and build optimism.

According to social comparison theory, humans have an innate interest in evaluating their own opinions and abilities. Evaluation of one's own abilities is achieved through comparison to others. People who are similar naturally choose one another as targets of comparison (Festinger, 1954). Cook and colleagues (2011) suggest that upward social comparison with peer providers encourages observers to approximate the performance of these individuals, as they are seen as belonging to the same social group. When individuals with SMI see themselves as belonging to the same social group as other fellow consumers, this can lead to positive outcomes. For example, Watson, Corrigan, Larson, and Sells (2007) speculate that group identification can serve as a protective factor against the negative outcomes associated with stigma. In addition, Corrigan et al. (2010) found that disclosure of mental illness mediates the effect of self-stigma on quality of life, providing additional evidence that group identification can lead to positive outcomes. Nevertheless, the impact of group identification appears to be contingent upon several factors. For instance, Rusch and colleagues (2009) found that high group identification predicted positive reactions to stigma when the in-group with

mental illness was valued highly or when discrimination toward this group was viewed as unfair.

Social support is an important feature of peer provided services. These services increase the number of support people in consumers' lives and change their perceptions of support (Salzer et al., 2002). Increased social support is vital to promoting health behavior change (Cook et al., 2011).

Experiential knowledge that comes from first-hand experience of mental illness can provide alternative worldviews to learned knowledge that is delivered through non-peer provided services. Sharing and learning of experiential knowledge gives consumers a more active role in services and decreases isolation and demoralization. Experiential knowledge can also enhance empowerment and autonomy (Salzer et al., 2002).

Finally, the helper-therapy principle, which acknowledges that some individuals are helped by helping others, is applicable to peer provided services. Peers receive the following benefits from helping others in similar circumstances:

1. Heightened sense of interpersonal competence by positively influencing another's life.
2. Achievement of equality in the give and take between the self and others.
3. Gains in personal knowledge.
4. Social approval (Salzer et al., 2002).

Other benefits to peer providers include vocational and interpersonal skill development, and enhancement of their own recovery (Moll, Holmes, Geronimo, & Sherman, 2009).

Review of the Empirical Literature

Research has shown that peer providers can act as case managers, assertive community treatment team members, and facilitators of support and education groups with the same level of effectiveness as non-peer professional providers (Solomon & Draine, 1995; Clarke et al., 2000; Pickett et al., 2010; Cook et al., 2009; Cook et al., 2010; Cook et al., 2011). Peer providers are seen as vital members of recovery-oriented systems of care through their contributions as advocates, teachers, and role models.

To date, only one study has evaluated the performance of peer providers while delivering CBT. Salyers and colleagues (2010) found that peer providers were able to achieve acceptable fidelity levels when providing Illness Management and Recovery (IMR), a cognitive-behavioral intervention designed to promote recovery and illness self-management. Nevertheless, in this study there was an overall low number of consumers who received IMR. This was partially due to the fact that IMR specialists reported having difficulty dedicating time to providing IMR while balancing their other responsibilities on the treatment team. It was also noted that peer providers needed more training and monitoring than non-peer IMR specialists due to their level of training (Salyers et al., 2010). These results suggest that while training peer providers to provide traditional CBT may yield acceptable fidelity, adapting the intervention based on their perspectives and incorporating their unique skill sets may produce greater "buy in" and facilitate training.

Given that one of the purposes of the present study is to develop a peer-led support and education group, this type of intervention is the focus of the next section.

Peer-led support and education groups. An important function of peer providers is to facilitate support and education groups. Peer-led support and education

groups can be distinguished from self-help or mutual support groups because they are not reciprocal in nature, but entail provision of services and support by peers to those who are not as far along in their recovery. Although it is a common practice for peer providers to facilitate such groups, there are relatively few empirical investigations of these interventions (Davidson et al., 2006). Studies investigating the effectiveness of peer support and education in groups with physical illnesses (e.g., HIV, diabetes, asthma) have demonstrated that they are associated with positive health behavior change (Bartlett, 1983; Hope, 2003; Wilson & Pratt, 1987). There is also preliminary evidence of the effectiveness of peer-led groups for those recovering from mental illness. Two such groups are the Building Recovery of Individual Dreams and Goals through Education and Support (BRIDGES) program and Wellness Recovery Action Planning (WRAP).

BRIDGES. The Building Recovery of Individual Dreams and Goals through Education and Support (BRIDGES) group was collaboratively developed by mental health consumers, family members, and state mental health administrators. The purpose of BRIDGES is to "empower adults with psychiatric disabilities by providing them with basic education about the etiology and treatment of mental illness, self help skills, and recovery principles" (Pickett et al., 2010, p. 97). This goal is accomplished through eight weekly classes focused on recovery, psychiatric diagnoses, crisis and suicide prevention, skills for building social support, education about treatment options, psychiatric rehabilitation and employment, communication and problem-solving training, and self-advocacy. BRIDGES instructors are trained peer providers. According to S. Diehl (personal communication, November 21, 2011), classes consist of scripted lectures given by facilitators, discussion questions, and interactive exercises which help consumers

develop new skills. There is also a BRIDGES support group which is moderately structured and is open to all consumers of mental health services regardless of whether they have previously taken BRIDGES classes. During these support groups, members participate in an opener, problem management related to issues generated by two or three consumers per group, and statements of BRIDGES affirmations (S. Diehl, personal communication, November 21, 2011). Pickett et al. (2010) demonstrated that participants of the BRIDGES program experienced a decrease in symptoms, symptom associated distress, and maladaptive coping strategies, and experienced an increase in feelings of hopefulness, self-advocacy, empowerment, and recovery.

WRAP. Wellness Recovery Action Planning (WRAP) is probably the most widely disseminated peer-led support and education group in the United States. As of early 2011, the Copeland Center for Wellness and Recovery (the developers of WRAP) had trained over 2000 WRAP group facilitators. Every state has publically funded WRAP programs, and training and program development are spreading internationally to countries such as Canada, Japan, Hong Kong, New Zealand, Australia, England, Scotland, and Ireland (Cook et al., 2011). WRAP strives to help consumers achieve holistic health, wellness, and social support, and to assist them in developing and utilizing their natural strengths. Over eight weekly sessions, consumers develop a wellness toolbox which is used to facilitate the recovery process and overcome functional challenges. They learn to identify early warning signs and symptom triggers, and create crisis plans in order to avoid relapse. Studies have shown that WRAP is associated with a decrease in symptom severity, and increases in feelings of recovery, hopefulness, physical health, self-advocacy, and quality of life (Cook et al., 2009; Cook et al., 2011).

Challenges with Peer Provided Services

The research literature on peer provided services for those with serious mental illness is scant. Methodological limitations to the extant research include weak experimental designs (i.e., lack of randomized controlled trials), lack of uniformity in the definition of peer provided services, and a failure to specify how consumers were selected and trained to provide such services. Research is needed to determine how peer provided services benefit those with serious mental illness, how consumers should be selected and trained to provide services, and what types of peer provided services are the most effective (Dixon et al., 2010).

There are additional challenges and tensions associated with incorporating peer providers into traditional mental health systems. These include discrimination by non-peer staff, inadequate compensation for work, lack of clarity about confidentiality/disclosure of personal information, role conflicts, and dual relationships/boundary issues (Moll et al., 2009; Gates & Akabas, 2007; Davidson et al., 2006). In order to minimize these conflicts, appropriate training of peer and non-peer staff is essential. Training of peer providers should include a discussion about how they can self-disclose in a way that builds empathy, and how they can provide various kinds of support (e.g., emotional, informational) and validation. Training should also include a discussion of guidelines related to dual relationships, staff roles, and confidentiality. Additional safeguards against these tensions should include matching peer providers and the consumers they serve appropriately (e.g., avoiding matches between peer providers and consumers who have had a close, personal relationship or are living in the same residence), and ensuring that peer provider roles are explicitly specified (Salzer et al.,

2002). In defining peer provider roles, employers need to consider the extent to which peer roles are supplementary, complementary, or an alternative to existing services (Moll et al., 2009). Gates and Akabas (2007) reported that the prototypical agency that has been successful at integrating peer staff is one in which:

1. There is a clear understanding from the top down about the importance of the peer role to the mission of the agency.
2. There is training provided to peers, non-peers, and consumers that reinforces the relationship between the peer provider and the agency mission.
3. Peer and non-peer staff roles are clearly defined.
4. There are clear policies and practices regarding sharing information, recruitment and hiring of peers, and effective communication/support through supervision and training.

Summary

To conclude, translating existing evidence-based CBTp interventions into a peer provided, group format offers a potential solution to the problems associated with the delivery of traditional CBTp. It is expected that a group format and provision of services by non-professional peers will allow for a more rapid and cost-efficient dissemination of services. It is also expected that working with peers will ensure client-centered care and minimize stigma, thereby increasing treatment engagement. There are national efforts to promote the wider dissemination of peer provided services, and preliminary evidence suggests that they are effective. However, there are still many unanswered research questions that have yet to be addressed. The present study, described in the next section, sought to advance the extant literature regarding these services.

CHAPTER 4

THE PRESENT STUDY

Study 1

Study 1 of the current research adapted an existing CBTp intervention in order to develop a peer-led support and education group. This goal was accomplished through holding focus groups with consumers of mental health services and peer providers to determine how to adapt the existing intervention in a way that best complemented the consumer perspective. Group feedback and consultation with experts in the field were used to develop a manual-based group treatment. A group format was selected since it can provide social support and increase feelings of normalcy through the sharing of similar experiences (Lecomte, Leclerc, Wykes, & Lecomte, 2003; Newton, Larkin, Melhuish, & Wykes, 2007) and enhance treatment engagement (Miller & Mason, 2001). It also allows for a more rapid dissemination of services. Although there is empirical evidence that the few peer-led support and education groups in existence (e.g., BRIDGES, WRAP) are associated with positive outcomes (Pickett et al., 2010; Cook et al., 2009; Cook et al., 2011) these interventions were not selected for this study, as they would not provide comparability to existing evidence-based CBTp interventions. Although components of both BRIDGES and WRAP are similar to CBTp interventions (e.g., communication and problem-solving training, relapse prevention), they are each limited in scope, which would make comparison difficult. For instance, BRIDGES has a heavy psychoeducation component, but relatively little time is spent developing coping skills for dealing with symptoms. In addition, WRAP is primarily focused on relapse prevention, while many existing CBTp interventions are more comprehensive.

There were several research questions associated with Study 1. For instance, what aspects of CBTp would translate into a peer provided context? How would aspects of CBTp be similar or different when provided by peers? What educational and support strategies would be most appealing to consumers and peer providers and why? What would be peer providers' views on confidentiality, boundaries, and self-disclosure? What would consumers have to say about why they stay engaged in treatment and what helps them to do so? What characteristics would be considered to be important in matching consumers and peer providers? We expected answers to these questions to unfold during the course of our discussions with participants. These answers were expected to be key to decision making processes in adapting the intervention.

Because this was the first study to adapt an existing CBTp intervention for peer providers, we chose not to offer formal hypotheses for Study 1. We viewed this study as involving an exploratory process that would promote the growth and knowledge of both the researchers and consumers who took part in it. However, we suspected that one difference between existing CBTp interventions and the peer-led support and education group might be that of language usage. Some peer-led support and education groups, such as WRAP, avoid the use of language about psychiatric diagnosis, choosing instead to emphasize health, wellness, strengths, and social support (Cook et al., 2009). We also expected that, because of the nature of peer provided services, there would be more self-disclosure on the part of the facilitators than what would be expected in a traditional CBTp intervention. We anticipated that these differences would produce an intervention that would be congruent with both the peer provided service model and the principles of CBTp. The product of Study 1 was expected to be a deliverable, assembled modality.

Study 2

Study 2 preliminarily evaluated the feasibility and effectiveness of the peer-led support and education group. These goals were accomplished by conducting a small, open feasibility study in which we assessed fidelity and functional outcomes, and collected data related to treatment engagement, personal reactions to the treatment, and adverse events.

The primary research questions associated with Study 2 pertained to the provision of the intervention and the effects of the treatment upon consumers. More specifically, would peer providers deliver the intervention with the same degree of fidelity as would be expected of non-peer CBTp therapists? What would be the relationship between participation in the group and functional outcomes, stigma beliefs, and adverse events? What would be the longitudinal relationship between stigma beliefs and treatment engagement? Finally, how would consumers and peer providers evaluate the intervention?

The hypotheses of Study 2 were as follows:

1. Given that previous research has found that that peer providers can act in traditional, non-peer roles with the same level of effectiveness as non-peer professional providers (Solomon & Draine, 1995; Clarke et al., 2000; Pickett et al., 2010; Cook et al., 2009; Cook et al., 2010; Cook et al., 2011; Salyers et al., 2010), we expected that *peer facilitators would deliver the intervention with an acceptable degree of fidelity to CBTp principles. Fidelity levels were expected to be comparable to those reported in previous research involving non-peer professional providers.*

2. *Participation in the intervention would be associated with improvement in symptoms, social functioning, and stigma beliefs.* This hypothesis was based upon previous research which has shown that CBTp and peer-led support and education groups are associated with a decrease in symptoms (Wykes et al., 2008; Pickett et al., 2010; Cook et al., 2009; Cook et al., 2011), that group CBTp increases social support (Lecomte et al., 2003; Newton et al., 2007), and based on arguments that working with peers reduces self-stigma (Davidson et al., 2006; Dixon et al., 2010).
3. *Decreases in stigma beliefs would be significantly associated with increased treatment engagement.* A rationale for this hypothesis was based on results from Tsang, Fung, and Corrigan (2006), who demonstrated a negative relationship between self-stigma and treatment engagement.
4. *Participants and providers would give positive feedback about their experiences with the group, and there would be few adverse events reported during the study period.* We expected that participants and providers would evaluate the group positively given that consumers and peer providers were involved in the adaptation process. We expected that few adverse events would be reported during the study period given that CBTp has been shown to be associated with a reduction in relapses (Tarrier & Wykes, 2004), and peer provided services have been demonstrated to reduce hospitalization rates (Solomon, 2004).

CHAPTER 5

METHOD

Study 1

The purposes of Study 1 were accomplished by holding focus groups with consumers of mental health services and peer providers to facilitate the treatment adaptation process.

Participants. In accordance with established focus group guidelines (Stewart, Shamdasani, & Rook, 2007), focus groups were kept small enough to enable all participants to actively participate but large enough to produce data saturation, meaning that no new discussion themes would emerge. Participants were 7 consumers with psychosis (hereafter called "consumers" or "consumer participants") and 9 peer providers (total $N = 16$). Consistent with other studies using similar samples (e.g., Waldheter et al., 2008; Penn et al., 2011; McCay et al., 2007; Lecomte et al., 2003), *inclusion criteria for consumers* were as follows: (a) age 19 or older; (b) current diagnosis of Schizophrenia, Schizophreniform Disorder, Schizoaffective Disorder, or Psychotic Disorder NOS; (c) ability to receive treatment on an outpatient basis; (d) competence[1] and willingness to sign an informed consent form; (e) English-proficiency. Individuals with comorbid substance abuse were eligible for the study. *Exclusion criteria for consumers* included: (a) neurological condition (e.g., seizure disorder, dementing or degenerative disorders, lesions or substantial congenital abnormalities, clinically significant head trauma that has been documented via a neurological exam); (b) diagnosis of mental retardation; (c) diagnosis of substance-induced psychotic disorder or current psychotic disorder due to a general medical condition. *Inclusion criteria for peer providers* were as follows: (a) age

19 or older; (b) current or past psychiatric diagnosis[2]; (c) current engagement in paid or volunteer service provision to those with mental illnesses; (d) competence and willingness to sign an informed consent form; (e) English-proficiency. *Exclusion criteria for peer providers* were the same as those for consumer participants.

Demographic characteristics of consumer and peer provider participants are given in Table 5.1.

Table 5.1.

Demographic Characteristics of Consumers and Peer Providers (Study 1)

Variable	Consumers (N = 7)			Peer Providers (N = 9)		
	n	*M*	*SD*	*n*	*M*	*SD*
Sex (%)						
Men	5 (71.4)	-	-	2 (22.2)	-	-
Women	2 (28.6)	-	-	7 (77.8)	-	-
Race (%)						
White	7 (100)	-	-	8 (87.2)	-	-
American Indian	0 (0)	-	-	1 (11.1)	-	-
Ethnicity (%)						
Hispanic	0 (0)	-	-	1 (11.1)	-	-
Non-Hispanic	7 (100)	-	-	8 (87.2)	-	-
Highest Education (%)						
Attended HS[a]; No diploma	2 (28.6)	-	-	0 (0)	-	-
Completed HS	1 (14.3)	-	-	1 (11.1)	-	-
Some PS[b]; No 4YR[c] degree	3 (42.9)	-	-	4 (44.4)	-	-
Completed PS; 4YR degree	1 (14.3)	-	-	0 (0)	-	-
Some PG[d]; no degree	0 (0)	-	-	2 (22.2)	-	-
Completed PG; degree	0 (0)	-	-	2 (22.2)	-	-
Highest Occupational Category (%)						
Never Been Employed	0 (0)	-	-	0 (0)	-	-
Unskilled Employee	2 (28.6)	-	-	0 (0)	-	-
Semi-skilled Employee	1 (14.3)	-	-	3 (33.3)	-	-
Skilled Manual Employee	3 (42.9)	-	-	2 (22.2)	-	-
Lesser Professional	1 (14.3)	-	-	3 (33.3)	-	-
Major Professional	0 (0)	-	-	1 (11.1)	-	-
Type of Current Treatment (%)						
Individual CBT[e]	3 (42.9)	-	-	-	-	-
Group CBT	2 (28.6)	-	-	-	-	-
Other individual therapy	5 (71.4)	-	-	-	-	-
Other group therapy	0 (0)	-	-	-	-	-
Peer Support	2 (28.6)	-	-	-	-	-
Medications	7 (100)	-	-	-	-	-
SEE[f]	1 (14.3)	-	-	-	-	-
Family Therapy	1 (14.3)	-	-	-	-	-
Case Management	3 (42.9)	-	-	-	-	-
Other	1 (14.3)	-	-	-	-	-

Table 5.1.

Demographic Characteristics of Consumers and Peer Providers (Study 1) (continued)

Variable	Consumers (N = 7)			Peer Providers (N = 9)		
	n	*M*	*SD*	*n*	*M*	*SD*
Type of Services Provided (%)						
Peer In Conventional Role	-	-	-	6 (66.7)	-	-
Facilitated Groups	-	-	-	6 (66.7)	-	-
Consumer Advocate	-	-	-	6 (66.7)	-	-
One-to-One Peer Support	-	-	-	8 (88.9)	-	-
Crisis Response	-	-	-	4 (44.4)	-	-
Peer Respite/Drop-In	-	-	-	4 (44.4)	-	-
Other	-	-	-	2 (22.2)	-	-
Age	6	40.2	7.96	9	41.7	15.32
Age of Onset of Psychosis	7	20.4	8.46	-	-	-
Age of First Treatment	7	22.7	5.09	-	-	-
Years In Treatment	7	17.1	6.79	-	-	-
Number of Hospitalizations	6	7	7.00	-	-	-
Years As Peer Provider	-	-	-	9	9.6	10.39

[a] HS = High School.
[b] PS= Post Secondary schooling.
[c] YR = Year.
[d] PG=Post Graduate schooling.
[e] CBT=Cognitive Behavioral Therapy.
[f] SEE=Supported Employment and Education.

Dash marks (-) indicate data that were not obtained.

Measures. Demographic information (e.g., date of birth, gender, ethnicity, race, education, occupation) was collected from all participants. Consumers were asked to provide information about the age of onset of psychotic symptoms, the length of time between the onset of symptoms and the first treatment contact, the length of time in treatment for psychosis, and the type of treatment(s) received. They were also asked whether they would be interested in participating in a peer-led support and education group as part of this study. Peer providers were asked to provide information about the length of time that they have served in their role and the type of services they provide, and whether they would be interested in facilitating a group as part of this study. See Appendix A for Demographics Questionnaires.

Procedure.

Data collection. The researcher met with interested individuals as part of the screening process. In order to ensure that all individuals met all inclusion criteria and did not meet any exclusion criteria, the researcher obtained written permission from potential participants to contact past or current treatment providers and to access treatment records. Individuals who met eligibility criteria met with the researcher a second time to provide informed consent.

Individuals who met eligibility criteria and provided informed consent attended separate focus groups made up solely of consumers or peer providers. Separate focus groups were conducted because a different set of questions were asked to each group. Each participant attended 3 focus groups that lasted 1-2 hours each and were conducted over a 1 month period. At the first focus group, demographic information was collected. The topic of the first set of focus groups was the content of the peer-led support and

education group. The topic of the second set of focus groups was the structure of the peer-led support and education group. The topics of the third set of focus groups were issues related to treatment engagement (e.g., factors causing one to disengage, potential retention strategies) in the consumer group and issues related to peer provided services (e.g., confidentiality, boundary issues) in the peer provider group. During the third set of focus groups, both groups were also asked questions related to the importance (or lack thereof) of match between peer leaders and group members, as there is evidence that the benefits of peer-led groups are moderated by the fit between group members (Luke, Roberts, & Rappaport, 1994) and that fit between peer providers and consumers impacts outcomes (Salzer et al., 2002). Salzer and colleagues (2002) recommend that factors that should be taken into account include culture, diagnosis, personality, interests, and mental health experiences. Participants were prompted to comment about each of these factors. An interview guide was prepared for each group meeting based on recommendations by Stewart and colleagues (2007) and in collaboration with a local consumer advocate (see Appendix A). All focus groups were held at Keya House, a local peer-run, consumer respite facility that offers a comfortable, home-like environment. The researcher facilitated all groups, and each session was audio-taped for later review. All participants were paid at each focus group session for their time. These decisions were made based on recommendations by Stewart et al. (2007), and previous experience conducting focus groups in our research lab.

Data analysis. The researcher reviewed audio tapes and constructed overview grids according to guidelines established by Knodel (1993). The overview grids contained a descriptive summary of the content of the focus group sessions, such as

topics discussed and extent of consensus among group members. In order to assess validity and stimulate further conversation, the final overview grid from the previous focus group session was presented at the beginning of the next group meeting. The overview grid from the last session was mailed to participants for their review in a pre-addressed, stamped envelope. Participants were invited to comment on any perceived discrepancies between the overview grids and their recollection of the group discussions, as well as expound upon any of the topics discussed.

After we conducted focus groups and summary data were recorded and reviewed, we felt that we had the information necessary to make decisions about how to package the content of the intervention in a way that best complemented the perspective of the recipients and providers. An existing CBTp manual and group feedback were used to adapt the intervention for provision by peers. The existing manual was that pertaining to Individual Resiliency Training (IRT), a well-developed CBTp. IRT is similar in content to Illness Management and Recovery (IMR; Mueser et al., 2006), which has been established as an evidence-based practice for SMI, and can be delivered in an individual or group format (Gingerich, 2005). Because IRT was also a modality under study by NIMH in the Recovery After An Initial Schizophrenia Episode (RAISE) project, permission to adapt it for this study was sought and granted. Based on this information and best practice guidelines for manual development (Carroll & Nuro, 2002; Rounsaville, Carroll, & Onken, 2001), a treatment manual was assembled.

Study 2

The purposes of Study 2 were accomplished by conducting a small, open feasibility study in which we repeatedly assessed functional outcomes, and collected data related to treatment engagement, personal reactions to the treatment, and adverse events.

Participants. Participants were 17 consumers and 3 peer providers. This number is comparable to other pilot feasibility studies with similar samples (Waldheter et al., 2008; Lecomte et al., 2003). *Inclusion and exclusion criteria* were the same as those for Study 1. Results from Study 1 did not indicate the need for more stringent criteria for peer providers.

Demographic characteristics of consumer and peer provider participants are given in Table 5.2.

Table 5.2.

Demographic Characteristics of Consumers and Peer Providers

Variable	Consumers (N = 17)			Peer Providers (N = 3)		
	n	*M*	*SD*	*n*	*M*	*SD*
Sex (%)						
Men	11 (64.5)	-	-	0 (0)	-	-
Women	6 (35.3)	-	-	3 (100)	-	-
Race (%)						
White	16 (94.1)	-	-	3 (100)	-	-
African American	1 (5.9)	-	-	0 (0)	-	-
Ethnicity (%)						
Hispanic	0 (0)	-	-	0 (0)	-	-
Non-Hispanic	17 (100)	-	-	3 (100)	-	-
Highest Education (%)						
Attended HS[a]; No diploma	3 (17.6)	-	-	0 (0)	-	-
Completed HS	5 (29.4)	-	-	0 (0)	-	-
Some PS[b]; No 4YR[c] degree	7 (41.2)	-	-	2 (66.7)	-	-
Completed PS; 4YR degree	2 (11.8)	-	-	0 (0)	-	-
Some PG[d]; no degree	0 (0)	-	-	1 (33.3)	-	-
Completed PG; degree	0 (0)	-	-	0 (0)	-	-
Highest Occupational Category (%)						
Never Been Employed	0 (0)	-	-	0 (0)	-	-
Unskilled Employee	4 (25)	-	-	0 (0)	-	-
Semi-skilled Employee	3 (18.8)	-	-	0 (0)	-	-
Skilled Manual Employee	3 (18.8)	-	-	0 (0)	-	-
Clerical/Sales/Technician	4 (25)			0 (0)	-	-
Minor Professional	0 (0)			2 (66.7)	-	-
Lesser Professional	2 (12.5)	-	-	1 (33.3)	-	-
Major Professional	0 (0)	-	-	0 (0)	-	-
Type of Current Treatment (%)						
Individual CBT[e]	6 (35.3)	-	-	-	-	-
Group CBT	5 (29.4)	-	-	-	-	-
Other individual therapy	10 (58.8)	-	-	-	-	-
Other group therapy	6 (35.3)	-	-	-	-	-
Peer Support	5 (29.4)	-	-	-	-	-
Medications	14 (82.4)	-	-	-	-	-
SEE[f]	3 (17.6)	-	-	-	-	-
Family Therapy	0 (0)	-	-	-	-	-
Case Management	10 (58.8)	-	-	-	-	-

Table 5.2.

Demographic Characteristics of Consumers and Peer Providers (continued)

Variable	Consumers (N = 17)			Peer Providers (N = 3)		
	n	*M*	*SD*	*n*	*M*	*SD*
Other	0 (0)	-	-	-	-	-
Type of Services Provided (%)						
Peer In Conventional Role	-	-	-	1 (33.3)	-	-
Facilitated Groups	-	-	-	1 (33.3)	-	-
Consumer Advocate	-	-	-	1 (33.3)	-	-
One-to-One Peer Support	-	-	-	3 (100)	-	-
Crisis Response	-	-	-	1 (33.3)	-	-
Peer Respite/Drop-In	-	-	-	1 (33.3)	-	-
Other	-	-	-	1 (33.3)	-	-
Age	17	43.6	13.04	3	42.3	16.29
Age of Onset of Psychosis	17	17.2	7.23	-	-	-
Age of First Treatment	17	22.6	9.30	-	-	-
Years In Treatment	17	19.5	11.09	-	-	-
Number of Hospitalizations	17	8.5	8.28	-	-	-
Years As Peer Provider	-	-	-	3	3.7	2.89

[a] HS = High School.
[b] PS= Post Secondary schooling.
[c] YR = Year.
[d] PG=Post Graduate schooling.
[e] CBT=Cognitive Behavioral Therapy.
[f] SEE=Supported Employment and Education.

Dash marks (-) indicate data that were not obtained.

Measures. At this early stage of treatment development, it is recommended that only a few outcomes be assessed in order to determine feasibility and effectiveness (Rounsaville et al., 2001). The primary clinical outcomes in this study were symptoms, social functioning, and stigma beliefs. Other outcomes included treatment engagement and retention, personal reactions to the treatment, and adverse events. We also evaluated fidelity to the principles of CBTp.

Demographics questionnaire. Consumer participants completed a demographics questionnaire assessing date of birth, gender, ethnicity, race, education, occupation, age of onset of psychotic symptoms, length of time between the onset of symptoms and the first treatment contact, length of time in treatment for psychosis, and type of treatment(s) received. Peer providers were asked to complete a demographics questionnaire assessing date of birth, gender, ethnicity, race, education, occupation. The peer provider demographics questionnaire also asked them to provide information about the length of time that they had served in their role(s) and the type of services that they have provided.

Symptoms. The Brief Symptom Inventory (BSI; Derogatis, 1975) was selected to assess psychiatric symptoms in consumer participants due to its brevity, good psychometric properties, and use in previous peer-led intervention studies (e.g., Cook et al., 2011). The BSI is a 53-item self-report measure that assesses psychiatric symptoms within the domains of Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. There are also three global indices (i.e., Global Severity Index (GSI), Positive Symptom Total (PST), and Positive Symptom Distress Index (PSDI)) which measure level of symptomatology, number of symptoms, and intensity of symptoms, respectively. Items

are rated on a 5-point scale ranging from 0 (not at all) to 4 (extremely). All BSI subscales, as well as the three index scores, were included in the analyses in this study. Internal reliability estimates for the symptom domains range from .71 (Psychoticism) to .85 (Depression). Test-rest reliability estimates range from .68 (Somatization) to .91 (Phobic Anxiety) for the symptom domains, and from .87 (Positive Symptom Distress Index) to .90 (Global Severity Index) for the global indices. The BSI has also been shown to be strongly correlated with similar measures (e.g., MMPI, SCL-R-90; Derogatis, 1993).

Social functioning. The Social Functioning Scale (SFS; Birchwood, Smith, Cochrane, Wetton, & Copestake, 1990), a self-report measure, was used to assess social functioning in consumer participants within the domains of social engagement/withdrawal, interpersonal behavior, pro-social activities, recreation, independent living skills, and employment/occupation. Examinees are asked about the extent to which they interact with others (e.g., "how often will you start a conversation at home?"), how often they engage in various activities (e.g., bought items from stores without help, played a musical instrument, gone to the movies, gone to a party), how well they feel that they perform various tasks (e.g., cooking, budgeting), and about their employment status. Subscale scores and the total score were included in the analyses in this study (higher scores reflect better social functioning). The SFS demonstrates high internal reliability, strong construct and criterion-related validity, and sensitivity to change (Birchwood et al., 1990). This instrument has been used in other CBTp studies (e.g., Waldheter et al., 2008).

Stigma beliefs. Consumer participants were administered the Self-Stigma of Mental Illness Scale (SSMIS; Corrigan et al., 2006), a 40-item self-report measure designed to assess 4 levels of stigma (stereotype awareness, stereotype agreement, self-concurrence, and self-esteem decrement). Stereotype awareness assesses the degree to which individuals with mental illness are cognizant of the negative beliefs held by his or her society (e.g., "I think the public believes most persons with mental illness will not recover or get better"). The stereotype agreement scale indicates the extent to which individuals also endorse the negative beliefs held by society (e.g., "I think most persons with mental illness will not recover or get better"). Self-concurrence establishes the degree to which individuals apply negative stereotypes to themselves (e.g., "Because I have a mental illness, I will not recover or get better"), while self-esteem decrement measures the impact on self-esteem as a consequence of applying negative stereotypes to the self (e.g., "I currently respect myself less because I will not recover or get better"). Each item is rated on a 9-point agreement scale (9= strongly agree), with higher scores representing stronger stigma beliefs. Subscale scores were used in the analyses in this study. The SSMIS demonstrates satisfactory internal consistency and test-retest reliability as well as construct validity (Corrigan et al., 2006).

Treatment engagement and retention. Treatment engagement was assessed at each session via selected/modified items from the Psychosocial Treatment Compliance Scale (PTCS; Tsang et al., 2006). The PTCS is a 17-item scale rated by treatment providers, which assesses two aspects of treatment engagement: participation (e.g., completion of homework, following instructions) and attendance (e.g., attendance of sessions, punctuality). We chose to include only 15 items from the original scale; deleted

items were those that did not appear applicable to a peer-led support and education group (e.g., "was willing to follow family's/friends' advice in attending psychosocial treatment"). The PTCS is rated on a 5-point Likert scale (1 = Never; 5 = Always), with higher scores representing better treatment engagement. Composite scores of Participation and Attendance were used in the analyses in this study. This scale has been shown to have excellent test-retest reliability and internal consistency, and convergent validity. It has also been shown to be negatively correlated with scales from the SSMIS (Tsang et al., 2006). Treatment retention was calculated as the percentage of consumers who remained in the group until its completion.

Personal reactions to the treatment. Quantitative and qualitative feedback about the intervention were elicited using Likert-type rating scales (i.e., scores ranged from 1 to 5) and open-ended questions about experiences with the treatment. We asked consumer participants about the perceived utility of the intervention, the quality of the service received, whether the information presented was appropriate and understandable, and the extent to which participants felt supported. We asked peer providers about the extent to which the manual was useful and understandable, the extent to which they believed that the intervention was helpful to participants, and their level of comfort with facilitating groups. All participants were given the opportunity to provide free responses to the questions "What should we keep the same about or start/stop doing in this group?" and "Any other comments?"

Adverse events. Psychiatric hospitalizations and use of emergency services (e.g., crisis center, emergency room) were tracked throughout the intervention.

Fidelity assessment. Fidelity to the principles of CBTp were evaluated using the Cognitive Therapy Rating Scale (CTRS; Young & Beck, 1980). This assessment has been used in numerous CBTp studies (e.g., Sensky et al., 2000; Durham et al., 2003; Turkington, Kingdon, & Turner, 2002). The CTRS is an observer-rated scale that contains 11 items which are rated on a 7-point Likert-type scale (range = 0-66; higher scores are "better"). It assesses general skills such as establishing an agenda, obtaining feedback, demonstrating understanding, interpersonal effectiveness, collaboration, and efficient use of time. It also evaluates specific cognitive behavioral skills such as empiricism, focus on cognitions and behaviors, change strategies, application of cognitive behavioral techniques, and homework assignment. Vallis, Shaw, and Dobson (1986) found that the intraclass correlation coefficient for the CTRS total was .59 when ratings were made by a single rater, and .77 when ratings were made by two raters. They recommend that at least two raters are involved in the fidelity assessment process when using the CTRS in order to maximize reliability. Vallis and colleagues (1986) also found that the CTRS demonstrates acceptable interrater reliability (with correlations between raters for the CTRS total score ranging from .44 to .84), and that its total score is a valid indicator of cognitive therapy competency.

See Appendix A for Demographics Questionnaires, Modified/abbreviated PTCS, Participant and Provider Feedback Surveys, and Adverse Event Tracker.

Procedure.

Data collection. Individuals who met eligibility criteria provided informed consent. At the consenting session, consumer participants completed the Demographics Questionnaire, BSI, SFS, and SSMIS (T0), while peer providers completed the

Demographics Questionnaire. After roughly 1 month, during which time peer providers attended a 2-day training to prepare them to facilitate the group, the group intervention began. At the first session, consumer participants again completed the BSI, SFS, and SSMIS before completing any group activities (T1). Having two assessments prior to beginning treatment allowed for the utilization of a waiting-list control design, necessitating fewer participants and providing stronger evidence of a treatment effect than a simple pre/post design. This design has been used in other CBTp group treatment studies (e.g., Knight, Wykes, & Hayward, 2006). Participants attended 12 one-hour group sessions delivered once per week for 3 months. At each session, consumer participants answered a brief questionnaire assessing for adverse events and a participant feedback survey and peer provider participants complete the PTCS. Peer provider participants completed a provider feedback survey after the second group meeting each week. At session 6 and 12 as well as one month following the group, participants repeated the BSI, SFS, and SSMIS (T2 T3, and T4 respectively). Consumer participants were compensated $20 at T0, T1, T2, T3, and T4. Peer providers were compensated $20 at each treatment session. All treatment sessions were audio-recorded to assist with supervision and fidelity assessment. The researcher provided supervision to peer providers after all sessions.

The researcher and a fellow graduate student listened to audiotapes of all sessions and separately completed the CTRS for both peer facilitators. As a measure of reliability, we calculated the intraclass correlation (ICC) derived from the two sets of ratings.

Data analysis. As a test of hypothesis 1, mean CTRS total scores derived from the two sets of ratings were evaluated. Because Vallis, Shaw, and Dobson (1986) found that the approximate mean score of “acceptable” treatment sessions rated with the CTRS was

47, we expected that scores around this value would indicate fidelity to the principles of CBTp. We compared CTRS total score ratings to those reported in previous CBTp studies by conducting a single sample t test. This allowed us to test the null hypothesis that mean CTRS scores in this study were not statistically different from 47.

In order to assess change over time in symptoms, social functioning, and stigma beliefs, multilevel modeling (MLM; Singer & Willett, 2003) was conducted using SAS PROC MIXED. MLM is a statistical procedure well-suited to answer questions about individual variation (i.e., level-1 or within-person effect) *and* group variation (i.e., level-2 or between-person effect). Unconditional piece-wise models of within-person change were utilized, using the BSI, SFS, and SSMIS subscale scores as the dependent variables. The three global indices from the BSI and the total SFS score also served as dependent variables. Changes during the control period (T0-T1), treatment period (T1-T3), and follow-up period (T3-T4) were assessed. Days in the study was used as the metric of time. According to custom (Singer & Willett, 2003), nested models differing in random effects only were compared using restricted maximum likelihood (REML). Wald's test with Satterthwaite denominator degrees of freedom was used to assess the significance of fixed effects. The 95% confidence interval (CI) for random variation around each fixed effect was calculated as ± 1.96 standard deviations of its accompanying random variance term. Effect sizes in the form of Pseudo-R^2 were reported for significant effects in order to allow for comparability between this and other CBTp studies. Where relevant, Pseudo-R^2 was calculated by: 1) subtracting the relevant random effects variances for the outcome of interest pertaining to the most recently specified model from the random effects variances for the outcome of interest pertaining to the model that was conducted

immediately preceding this model, and then 2) dividing by the random effects variances for the outcome of interest from the previous model. In addition, number of sessions attended was entered as a covariate into all models (i.e., both as a main effect and as an interaction with each fixed effect) to assess for whether there appeared to be a dose-treatment response.

As a test of hypothesis 2, saturated means models for each outcome was specified and the p-values from the Type 3 Test of Fixed Effects (i.e., a multiple degree of freedom test for the categorical main effect of time, also known as an omnibus ANOVA F-test) were examined in order to determine if there were significant mean differences over time in symptoms, social functioning, and stigma beliefs. For these models only, time was rounded to perfect intervals (i.e., 0 days, 30 days, 72 days, 114 days, and 144 days). We expected to find significant mean differences for each of these outcomes, reflecting decreases in symptoms and stigma beliefs, and an increase in social functioning. We then estimated three fixed slopes and three random slopes of symptoms, social functioning, and stigma beliefs (for the control period, treatment period, and follow-up period). We next assessed the p-values of the three fixed slopes for each outcome. With respect to symptoms and stigma beliefs, we expected for there to be non-significant slopes during the control and follow-up periods, and significant, negative slopes during the treatment period. With regard to social functioning, we expected for there to be non-significant slopes during the control and follow-up periods, and a significant, positive slope during the treatment period.

Secondary analyses involved the prediction of treatment engagement (participation and attendance) by stigma beliefs in order to test our third hypothesis that

decreased stigma beliefs is directly linked to increased engagement. Thus, we estimated unconditional polynomial models of treatment engagement using the PTCS subscale scores as the dependent variables in order to examine the pattern of the means, variances, and covariances of treatment engagement over time. Then, we estimated conditional polynomial models of within-person change using PTCS subscale scores as the dependent variables, and SSMIS subscale scores during the treatment period as the time-varying predictor variables. The predictor variables were parameterized using a variant of person-mean centering (see Singer & Willett, 2003 for a description of person-mean centering). This approach was used in order to facilitate interpretation of the effects of baseline stigma beliefs and change in stigma beliefs over the course of the study on treatment engagement. The effect of change in stigma beliefs (i.e., the level-1 or within-person effect) was created by subtracting stigma beliefs at T1 from stigma beliefs at subsequent time points (only stigma beliefs from T1-T3 were included in these analyses). The effect of baseline stigma beliefs on average (i.e., the level-2 or between-person effect) was created by centering baseline stigma beliefs at the grand mean values of baseline stigma beliefs at T1 in our sample (i.e., 53 for stereotype awareness, 27 for stereotype agreement, 21 for self-concurrence, and 22 for self-esteem decrement). Weeks in the group was used as the metric of time, and was centered at session one such that the intercept represented baseline status in all models. According to hypothesis 3, it was expected that there would be significant main effects of baseline stigma beliefs such that as stigma beliefs decreased, treatment engagement became higher overall. We also expected that there would be significant main effects of change in stigma beliefs such that as stigma beliefs decreased over time, treatment engagement became higher overall.

Personal reactions to the treatment and adverse events were also assessed as a test of hypothesis 4. We expected that consumers would rate the intervention as being useful, appropriate, understandable, supportive, and of good quality. It was also expected that peer providers would rate the manual as being useful and understandable, and the intervention as being helpful to participants. We also expected peer providers to indicate that they felt comfortable facilitating the group. Regarding adverse events, we expected that there will be few adverse events reported during the study period, with most participants reporting no hospitalizations or use of emergency services.

CHAPTER 6

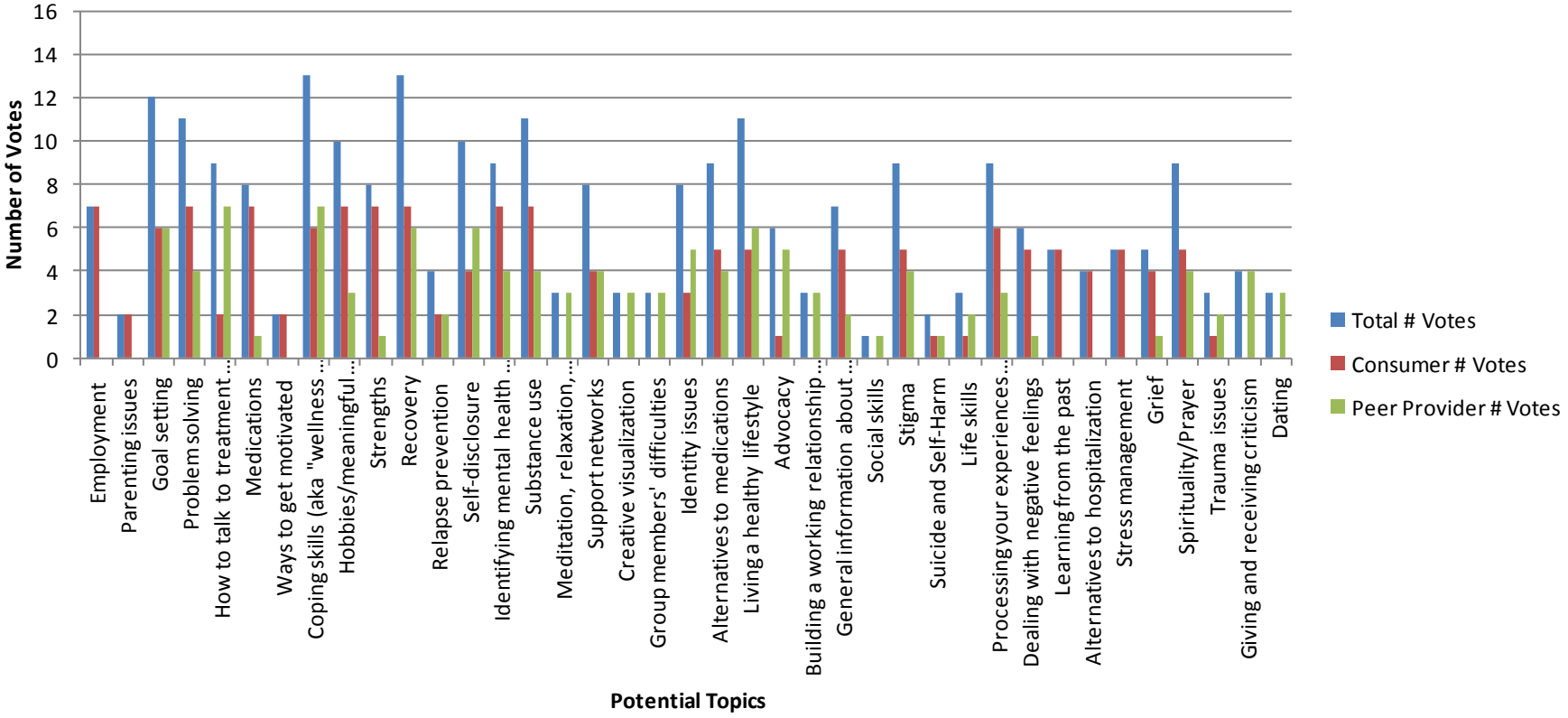
RESULTS

Study 1

In order to answer the first research question associated with Study 1 (what aspects of CBTp would translate into a peer provided context?), participants' preferences for group topics were reviewed. As shown in Figure 6.1, the most popular topics for the peer-led support and education group among consumers and peer providers (≥10 votes total) included coping skills, recovery, goal setting, problem-solving, substance use, living a healthy lifestyle, hobbies, and self-disclosure. These topics are common in other CBTp modalities, and are all topics encompassed by IRT.

With respect to the second research question associated with Study 1 (how would aspects of CBTp be similar or different when provided by peers?), we examined answers to a question that prompted participants to speculate about how a group that is led by a peer should be similar or different from a group that is led by a non-peer. Participants tended to agree that group facilitators, regardless of background, should provide a safe environment for group members to openly share their experiences. This included maintaining confidentiality and being accepting of different points of view. Participants also agreed that all types of facilitators should provide structure and leadership, be knowledgeable about mental illness, present information, and help group members to set personal goals and build relationships. With respect to potential differences between the two types of facilitators, participants postulated that peer facilitators might be more empathetic given that they have lived experience of mental illness. Participants also stated that peer facilitators would share personal experiences more readily while non-peer

Figure 6.1 Participants' Votes for Topics



facilitators would present more educational information. In addition, participants thought that peer facilitators would set less strict boundaries between themselves and the group members, and be more concerned with drawing out ideas from group members than providing prescriptive advice. Participants said that they would anticipate that there would be less of an implied separation between peer facilitators (i.e, the authority) and group members (i.e., the less powerful participants).

As was anticipated, there were differences in language usage about certain topics. For example, some participants expressed disfavor for the word "relapse," as they said that it implies that an individual is responsible for an exacerbation in symptoms. One participant contrasted "relapse" of one's mental illness to "relapse" of substance abuse:

> …if you're looking into substance abuse a relapse is and I…you know, I don't have an addiction problem, but it is a choice to pick up a substance. Now, I can have my symptoms because I chose not to do my daily maintenance things but I can have those symptoms come up even when I'm doing my daily maintenance things. So there is no element of choice there. And I feel like relapse indicates a choice at some level.

Participants who expressed concern over the word "relapse" indicated that if this topic were covered during the peer-led support and education group, it should be up to individual group participants about what to label this term. Another phrase that received attention was "coping skills." A participant commented that this term implied that the skills should be used in response to something negative, when in fact they should be used under all circumstances to maintain wellness:

> Well I like to use the term wellness tools. Because, to me, sometimes coping skills means that you're in a crisis. And, I think…maybe just knowing that you can use these tools…learn to use them on a regular ongoing basis to either help yourself feel well or to help yourself stay well if you are already feeling well.

These discussions about language reflect thoughtful consideration of the implications of various terms frequently used during the delivery of traditional CBTp.

Figures 6.2 and 6.3 answer research question 3 (what education and support strategies would be most appealing to consumers and peer providers?). As shown in Figure 6.2, the most popular educational strategies among consumers and peer providers (≥10 votes) included individual workbooks, reading of the material by group members, guest speakers, home practice assignments, small group discussions, partner discussions, provision of personal examples by the group leaders and members, and group exercises. These educational strategies are also common in other CBTp modalities.

As shown in Figure 6.3, the most popular support strategies among consumers and peer providers (≥10 votes) included a group social event, using external supports, having "social time" at each group, and having "support time" at each group. These strategies may distinguish a peer-led support and education group from more traditional CBTp modalities.

In order to answer the fourth research question (what would be peer providers' views on confidentiality, boundaries, and self-disclosure?), peer provider participants' responses pertaining to these issues were examined. There was a diversity of opinion regarding the acceptability of breaching confidentiality. Some believed that this should be done only in cases of imminent danger, some thought that disclosing information to a supervisor or treatment team would be appropriate, and some opined that a peer provider should never disclose confidential information about a consumer with whom he or she is working. There was also a diversity of opinion regarding the distinction between *peers* vs. *friends.* Some believed that peers and consumers could be friends while working together, while some believed that setting firm boundaries in order to maintain a more

Figure 6.2 Participants' Votes for Educational Strategies

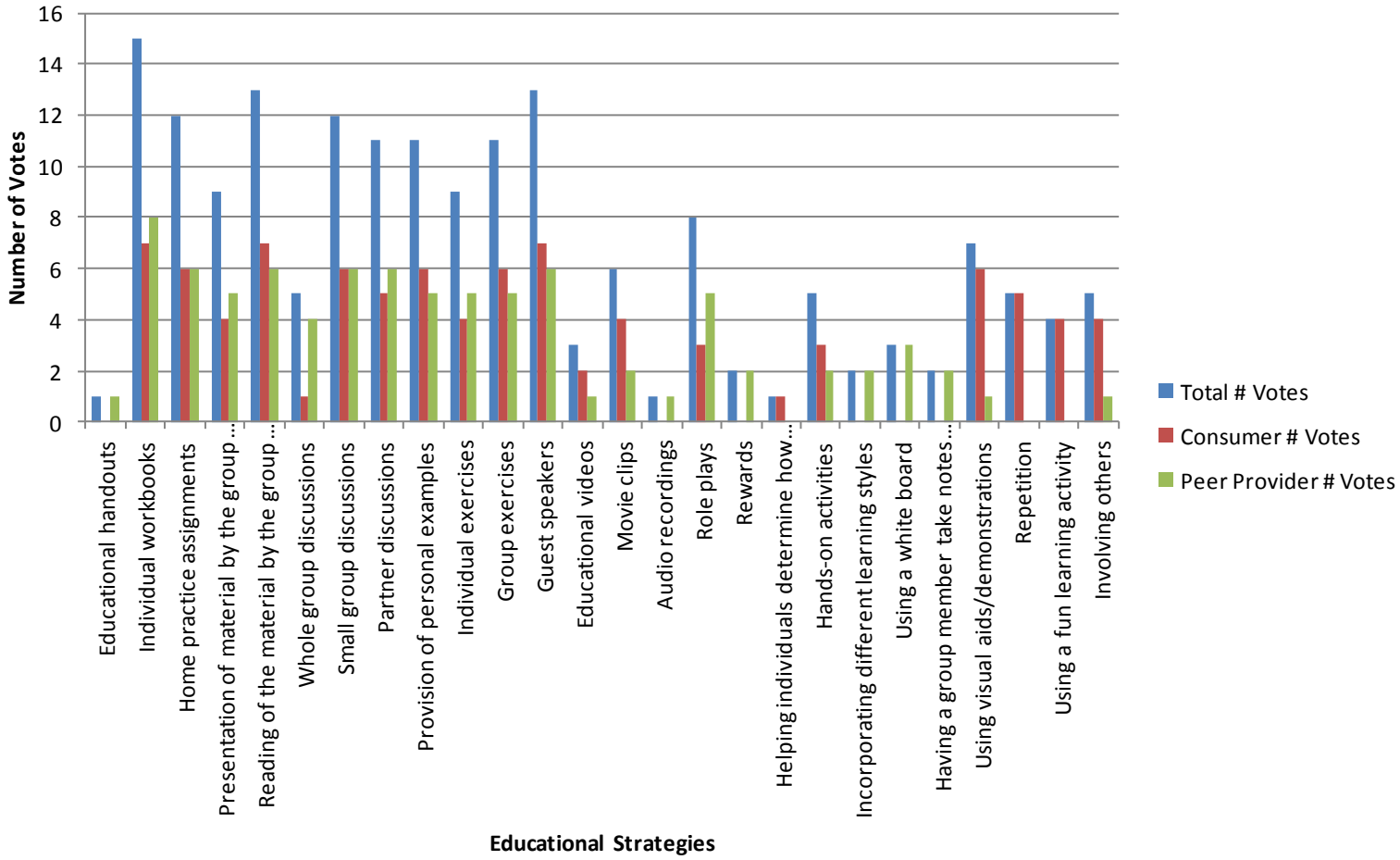
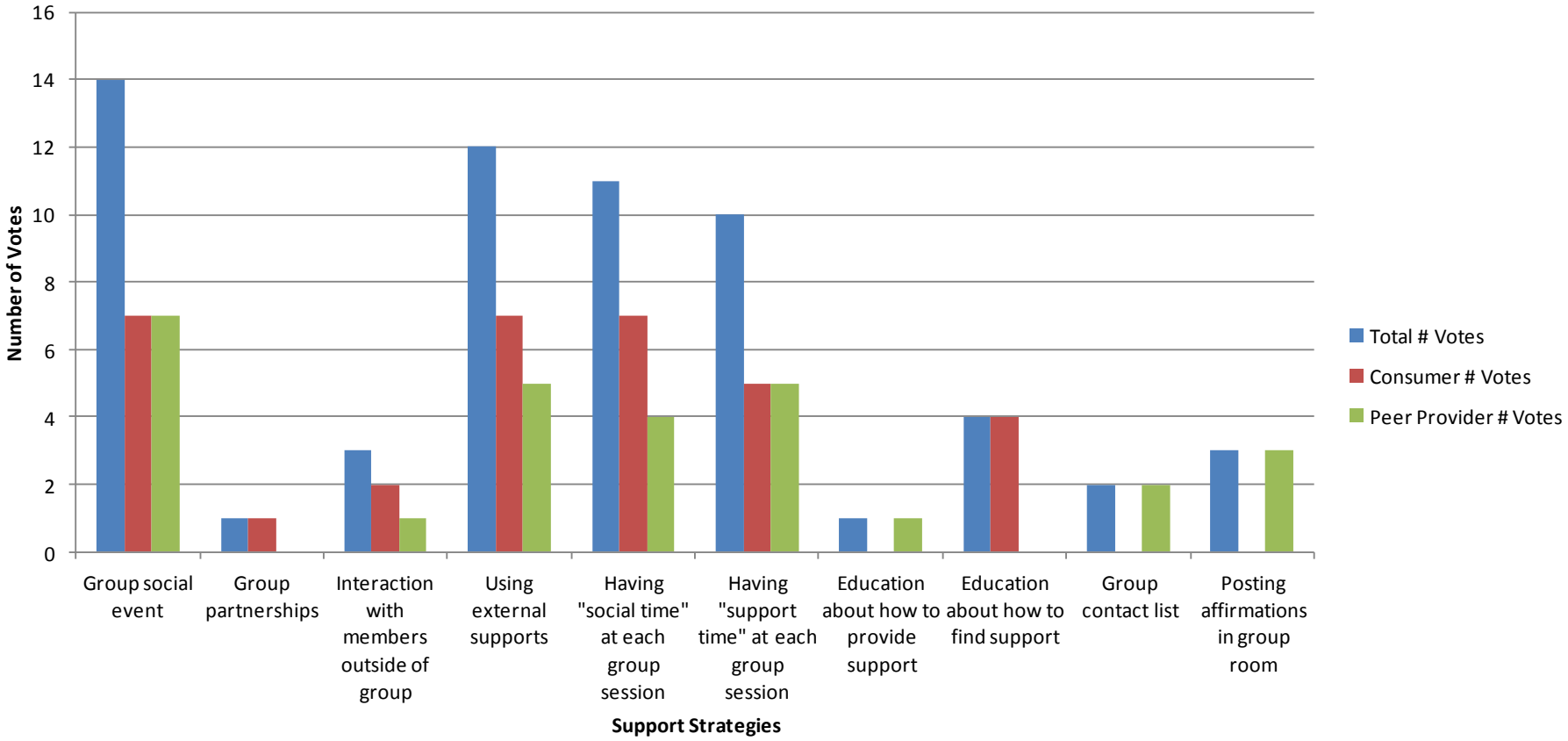


Figure 6.3 Participants' Votes for Support Strategies



professional relationship was appropriate. There was general agreement that self-disclosure is made when it would be beneficial to the consumer.

Research question 5, (what would consumers have to say about why they stay engaged in treatment and what helps them to do so?) was addressed through consumer participants' responses pertaining to this issue. Participants identified a variety of motivating factors for staying engaged in treatment, including court orders, focusing on how services are helpful, viewing engagement in services as an opportunity to receive support and resources, and having responsibilities as part of service involvement. Barriers to treatment engagement included forgetting about appointments, being tired, being depressed, not seeing the service as helpful, not having preferences met, transportation issues, and schedule conflicts. Participants named a number of potential solutions to these barriers, and offered specific suggestions for how to maximize engagement in the peer-led support and education group. Participants suggested that if a group member unexpectedly missed a group meeting, the peer facilitator should call that group member and provide encouragement to come back to the group. Participants also recommended that group members use calendars, have access to multiple modes of transportation, and get external support for depression if necessary. Lastly, participants suggested that the peer facilitators could provide incentives for attendance and schedule meetings for the same time each week in order to build the meetings into participants' routines.

Finally, the last research question (what characteristics would be considered to be important in matching consumers and peer providers?) was answered through examination of consumer and peer providers' responses to questions about this issue. There was a diversity of opinion regarding how peer providers and the consumers with

whom they would should be matched, both within and between participant groups. Consumers identified age as well as experiences with the mental health system and recovery as important factors. They also identified a number of qualities and characteristics that they would find to be valuable in a peer provider, including generosity, knowledgeable (possibly with a college degree), willingness to share life experiences, understanding and empathetic, confidence, and good leadership skills. Some (but not all) consumers also identified religious background, mental health diagnosis, and common interests as important factors. Consumers generally agreed that cultural background was not an important matching factor.

Peer providers identified age, lived experience of mental illness, experience with the mental health system, a desire to continue to recover, and similar level of cognitive skill as important factors in matching peer providers with the consumers with whom they work. Some felt that cultural background was an important matching characteristic, but others argued that cultural awareness and mutual respect was more important than background. There was general consensus that mental illness diagnosis, personality characteristics, and common interests were not important matching factors.

The resulting intervention. Having its foundations both in IRT and in consumer and peer provider feedback, the resulting intervention was given the acronym "PRESS," standing for Peer-Provided Recovery Education and Social Support. It consisted of 12 sessions, with each session focusing on one topic related to recovery. Session 1 provided an introduction to PRESS, as well as helped individuals to develop personal definitions of recovery and to identify their own sources of resiliency. Sessions 2 and 3 taught systematic approaches to goal setting, problem solving, and decision making. Session 4

focused on stigma and discrimination and what consumers can do to fight against it. On a related note, session 5 provided consumers with a decision making tool for thinking about self-disclosure, and a step by step process to follow when having conversations involving self-disclosure. The topic of sessions 6 and 7 was wellness tools (i.e., coping skills); session 6 focused on the specific wellness tool of thought challenging (i.e., cognitive restructuring), while session 7 mostly entailed behavioral wellness tools such as distraction. Session 8 covered living a healthy lifestyle, and consumers were given tips and strategies for improving nutrition, exercise, and daily activity. Session 9 focused on making decisions about substance use. In session 10, consumers were asked to attend to hobbies and leisure activities in which they currently engaged, and additional activities that they would like to try. Session 11 covered three types of knowledge needed for getting one's recovery goals and needs met: recovery goals and needs, resources to meet those goals and needs, and how to speak with appropriate people to get recovery goals and needs met. Finally, in session 12, consumers were asked to reflect upon lessons learned throughout PRESS.

Groups were structured according to consumers' and peer providers' preferences, while at the same time adhering to CBTp principles. Peer providers began each group by asking a social opener question. They then set an agenda and asked for feedback. Home practice assignments from the previous week were then reviewed. Ten minutes were allotted for an individual to share his or her personal story (thereby giving members practice with self-disclosure) or to bring up an issue for which the group could provide support and feedback. The remainder of each session was spent discussing the daily topic, completing pertinent exercises, and closing with home practice options.

Discussions were guided by group handbooks; members usually chose to take turns reading the material, and peer providers asked discussion questions designed to help consumers apply the material to their personal experiences. Peer providers used additional teaching strategies such as short videos, scripted role plays, and white board visual aids. A week after the groups ended, participants were invited to attend a social event, held at a local bowling alley.

In accordance with feedback provided during the focus groups, several strategies were used to address lack of engagement in services. Peer providers made phone calls to participants who did not attend group, giving encouragement to return. Participants were given cab fare money to attend groups if they had no other mode of transportation and could not afford cab fees. Meetings were scheduled for the same time each week.

Peer providers were given guidelines related to confidentiality, risk assessment, and reporting; these were agreed upon before the start of the group. They were instructed to privately address any suicidal or homicidal thinking reported during group with the individual group member. Instructions were to gather additional information, including frequency of thoughts, presence of active intent and plan, lethality and availability/feasibility of the plan, and potential obstacles to implementation of the plan. Appropriate actions based on the results of the risk assessment were specified, including calling the police for a welfare check if necessary. Peer providers were not provided with explicit guidelines related to maintaining boundaries and making decisions about self-disclosure, but these topics were addressed in supervision.

Study 2

Hypothesis 1. The intraclass correlation derived from the two sets of independent fidelity ratings was .44. The average CTRS total scores (i.e., mean total ratings from two independent raters for all peer providers) in this study (M = 35.7, SD = 8.59) was significantly less than the hypothesized value of 47, $t(39) = -8.31$, $p < .01$.

When average CTRS total scores were broken down by peer provider, the first peer provider's scores (M = 31.7, SD= 9.69) was significantly less than the hypothesized value of 47, $t(16) = -6.51$, $p < .01$. The second peer provider's scores (M = 40.2, SD= 4.73) was significantly less than the hypothesized value of 47, $t(19) = -6.40$, $p < .01$. The third peer provider's scores (M= 28.3, SD= 7.25) were also significantly less than the hypothesized value of 47, $t(2) = -4.46$, $p < .05$.

In a follow up analysis, fidelity ratings were examined in a multilevel model with crossed random effects, in which individual fidelity ratings (the combination of each peer provider with each rater) were nested within peer provider and within rater, which were crossed random effects. The extent to which systematic variability in mean fidelity ratings existed for each dimension of sampling was first examined in a series of empty models (i.e., only a fixed intercept and no predictors). Relative to a model with only a residual variance, the addition of a random intercept variance for peer provider significantly improved model fit, $-2\Delta LL(\sim 1) = 8.1$, $p < .01$ (AIC and BIC were also smaller for the later model), indicating significant differences between peer providers in mean fidelity ratings, and that ratings of the same peer provider were positively correlated. The addition of a random intercept for raters also significantly improved model fit, $-2\Delta LL(\sim 1) = 28.4$, $p < .01$ (AIC and BIC were also smaller for the later

model), indicating significant differences between raters in mean fidelity ratings as well, and that ratings from the same rater were also positively correlated. Of the total estimated fidelity ratings variance, roughly 17% was due to between-peer provider differences in mean fidelity ratings (given by the peer provider random intercept), approximately 41% was due to between-rater differences in mean fidelity ratings (given by the rater random intercept), and the remaining 42% was due to the peer provider by rater interaction (i.e., residual variance). Construction of 95% random effects confidence intervals, which were calculated as the fixed intercept ± 1.96 multiplied by the square root of the respective variance estimate, revealed that 95% of peer provider mean fidelity ratings are expected to fall between 22.70 and 45.05, whereas 95% of the rater mean enjoyment ratings are expected to fall between 16.73 and 51.02. Thus, there was relatively more variability across raters than across peer providers.

Hypothesis 2. Means and standard deviations for the key outcome variables at each time point are displayed in Table 6.1. Individual trajectories in symptoms, social functioning, and stigma beliefs for all consumers over time are presented in Figures 6.4-6.6.

Table 6.1

Means (Standard Deviations) of Outcome Variables by Time Point

Variable	T0	T1	T2	T3	T4
BSI SOM	9.06 (8.50)	8.18 (7.52)	7.76 (7.53)	8.47 (8.23)	5.53 (5.69)
BSI OC	9.06 (5.98)	9.82 (7.28)	8.55 (6.79)	9.35 (6.85)	7.06 (6.04)
BSI IS	6.24 (4.05)	5.24 (4.48)	4.70 (4.33)	5.41 (4.42)	3.88 (4.33)
BSI DEP	9.24 (6.27)	8.71 (7.38)	7.77 (6.39)	9.59 (7.28)	6.53 (4.93)
BSI ANX	8.71 (6.65)	7.59 (7.07)	7.17 (6.88)	8.00 (7.55)	6.06 (4.85)
BSI HOS	4.71 (4.34)	3.65 (3.92)	4.63 (3.95)	3.18 (3.00)	2.59 (3.06)
BSI PHOB	6.06 (5.46)	5.88 (6.34)	3.98 (5.10)	5.24 (5.73)	4.06 (3.80)
BSI PAR	7.24 (4.58)	6.06 (5.68)	6.77 (5.73)	7.53 (4.95)	5.35 (4.08)
BSI PSY	7.35 (5.22)	6.88 (5.56)	5.51 (5.14)	5.94 (5.24)	4.18 (3.32)
BSI GSI	2.49 (1.65)	2.28 (1.81)	2.09 (1.61)	2.32 (1.67)	1.69 (1.09)
BSI PST	31.29 (15.21)	30.82 (17.26)	27.62 (17.36)	30.59 (15.61)	26.76 (12.70)
BSI PSDI	3.91 (1.36)	3.67 (1.40)	3.90 (1.30)	3.79 (1.49)	3.12 (1.16)
SFS Engage/Withdraw	10.71 (2.44)	11.29 (2.05)	10.76 (2.31)	10.65 (2.69)	11.18 (2.51)
SFS Inter. Comm.	7.47 (1.18)	7.24 (1.44)	7.94 (1.30)	8.18 (0.88)	7.76 (1.39)
SFS Independence (P)	31.65 (4.66)	30.94 (4.64)	31.06 (5.18)	31.71 (5.22)	33.82 (4.08)
SFS Recreation	20.53 (5.23)	19.71 (5.35)	19.88 (5.81)	19.06 (6.63)	19.00 (5.27)
SFS Prosocial	21.24 (8.90)	19.41 (8.46)	19.18 (10.54)	20.06 (10.09)	20.41 (10.21)
SFS Independence (C)	36.00 (2.21)	35.47 (2.58)	35.35 (4.08)	36.35 (2.71)	36.76 (2.14)
SFS Occ/Edu	5.71 (3.37)	5.76 (3.44)	5.65 (3.55)	5.88 (3.62)	6.00 (3.87)
SFS Overall SF	133.29 (17.59)	129.82 (19.46)	129.82 (24.22)	131.88 (23.24)	134.94 (18.18)

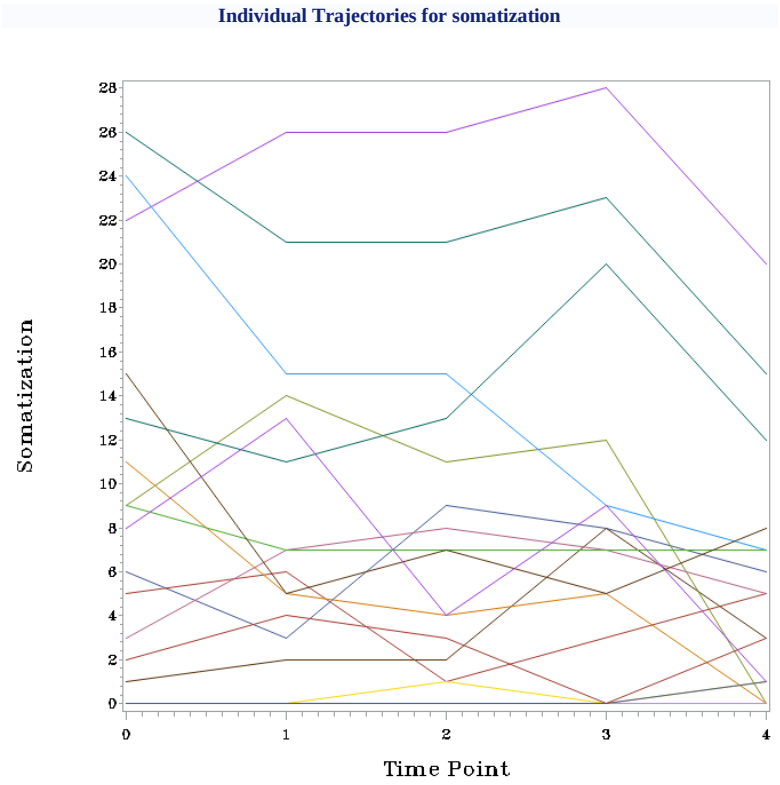
Table 6.1

Means (Standard Deviations) of Outcome Variables by Time Point (continued)

Variable	T0	T1	T2	T3	T4
SSMIS Aware	57.06 (19.77)	53.29 (25.03)	50.47 (24.14)	51.00 (24.56)	49.71 (23.75)
SSMIS Agree	30.59 (14.64)	27.06 (11.61)	32.06 (19.45)	35.35 (20.22)	32.53 (19.01)
SSMIS Apply	21.53 (9.96)	20.59 (9.56)	22.12 (10.61)	27.29 (15.12)	20.59 (10.73)
SSMIS Hurts Self	20.94 (8.25)	22.00 (12.93)	20.94 (14.63)	25.88 (19.92)	19.59 (10.89)

Note. T0 = 1 month prior to treatment; T1 = first treatment session; T2 = sixth treatment session; T3 = last treatment session; T4 = 1 month after treatment; BSI SOM = Brief Symptom Inventory Somatization; BSI OC = Brief Symptom Inventory Obsession-Compulsion; BSI IS = Brief Symptom Inventory Interpersonal Sensitivity; BSI DEP = Brief Symptom Inventory Depression; BSI ANX = Brief Symptom Inventory Anxiety ; BSI HOS = Brief Symptom Inventory Hostility; BSI PHOB = Brief Symptom Inventory Phobic Anxiety; BSI PAR = Brief Symptom Inventory Paranoid Ideation; BSI PSY = Brief Symptom Inventory Psychoticism; BSI GSI = Brief Symptom Inventory Overall Level of Symptomatology/Global Severity Index ; BSI PST = Brief Symptom Inventory Number of Symptoms/Positive Symptom Total; BSI PSDI = Brief Symptom Inventory Intensity of Symptoms/Positive Symptom Distress Index; SFS Engage/Withdraw = Social Functioning Scale Social Engagement and Withdrawal; SFS Inter Comm. = Social Functioning Scale Interpersonal Communication; SFS Independence (P) = Social Functioning Scale Independence (Performance); SFS Prosocial = Social Functioning Scale Prosocial Behavior; SFS Independence (C) = Social Functioning Scale Independence (Competence) ; SFS Occ/Edu = Social Functioning Scale Occupational/Educational Functioning; SFS Overall SF = Social Functioning Scale Overall Social Functioning; SSMIS Aware = Self Stigma of Mental Illness Scale Stereotype Awareness; SSMIS Agree = Self Stigma of Mental Illness Scale Stereotype Agreement; SSMIS Apply = Self Stigma of Mental Illness Scale Self Concurrence; SSMIS Hurts Self = Self Stigma of Mental Illness Scale Self Esteem Decrement.

Figure 6.4. *Individual Trajectories for Symptoms*



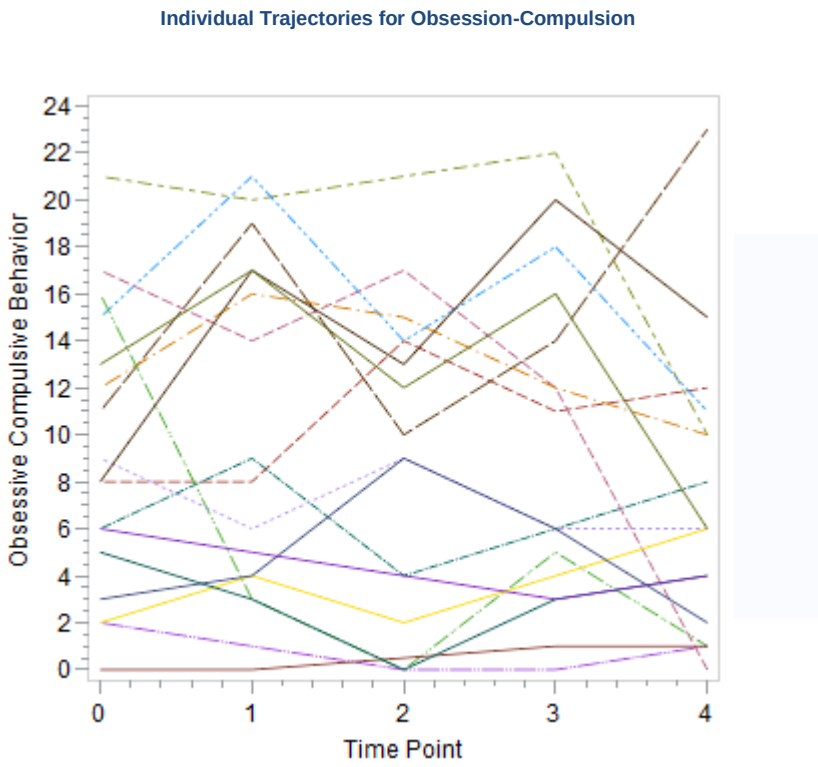
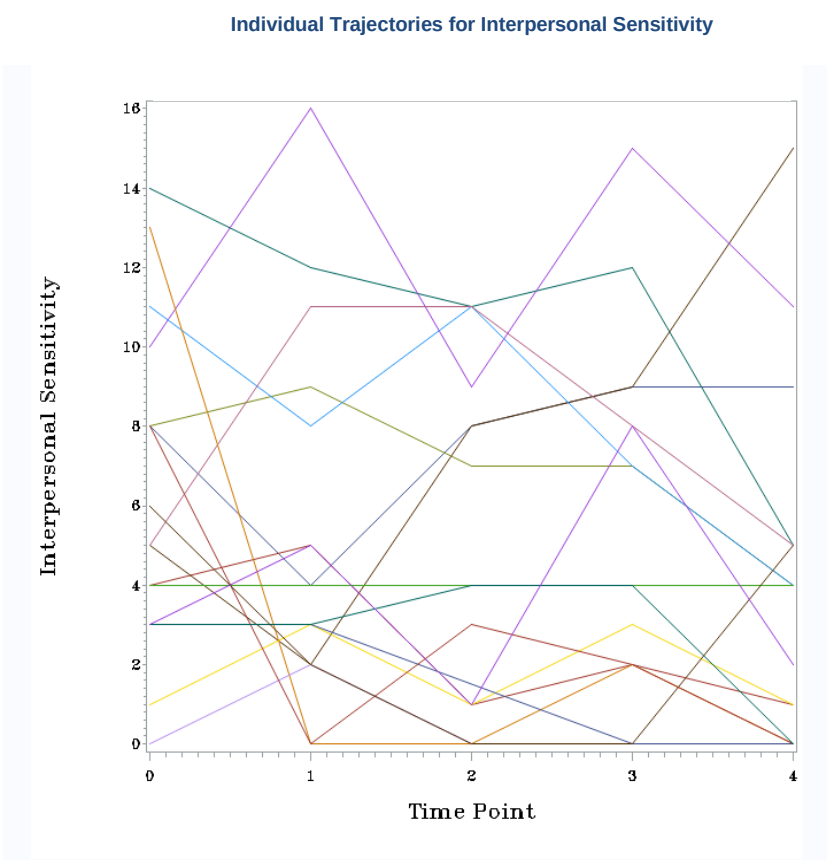


Figure 6.4. *Individual Trajectories for Symptoms (continued)*



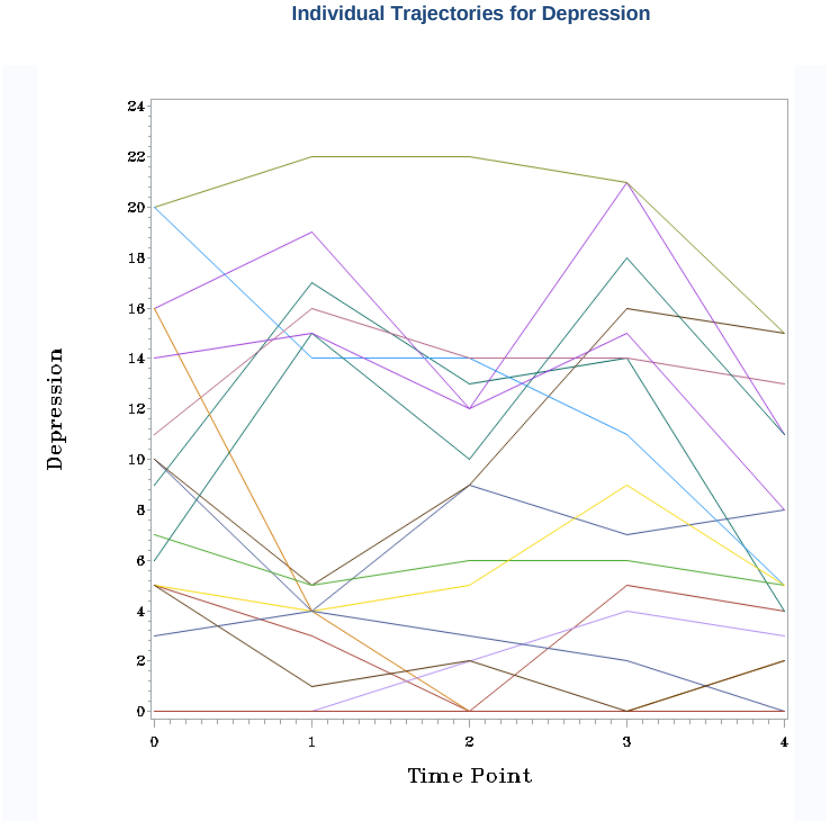


Figure 6.4. *Individual Trajectories for Symptoms (continued)*

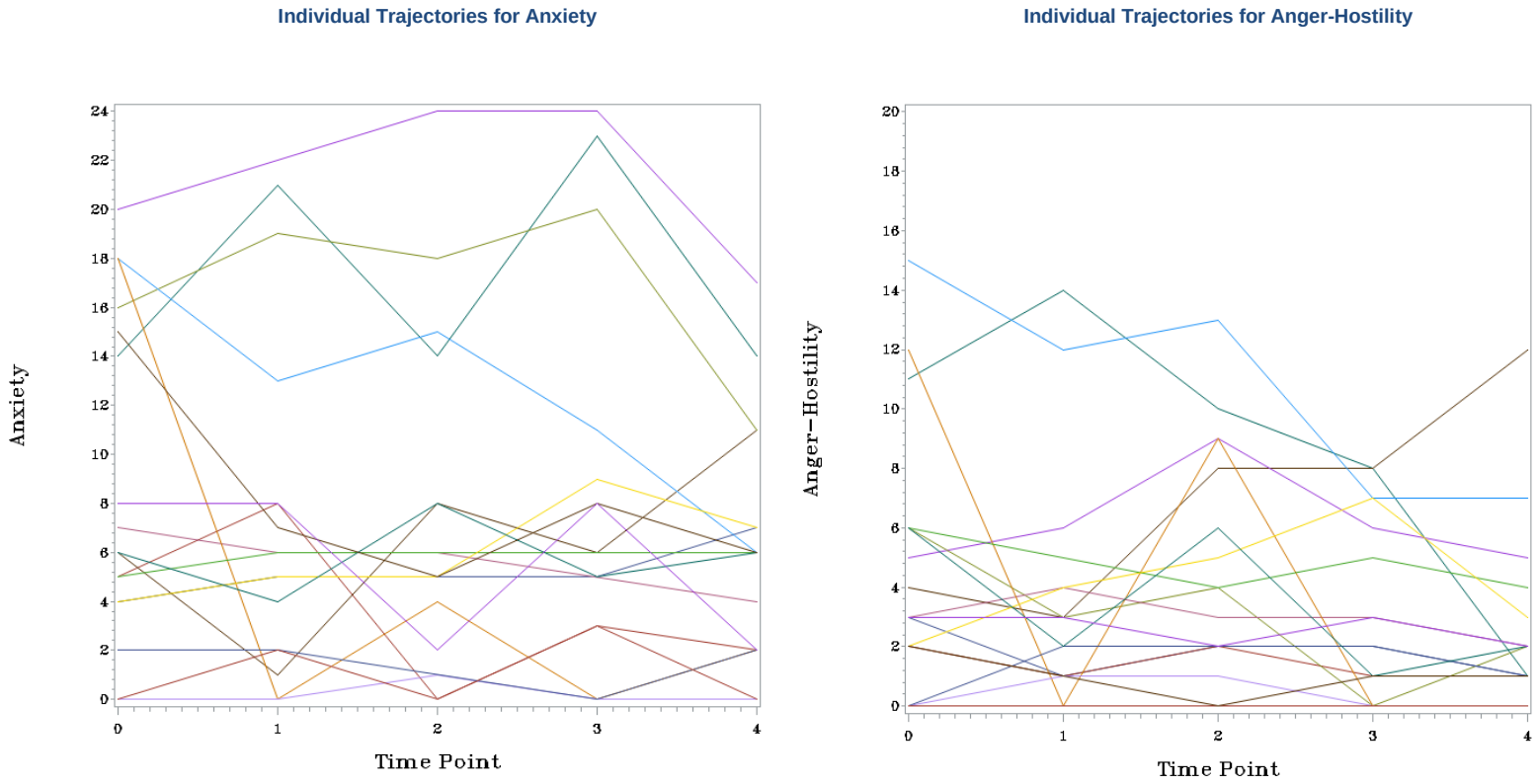


Figure 6.4. *Individual Trajectories for Symptoms (continued)*

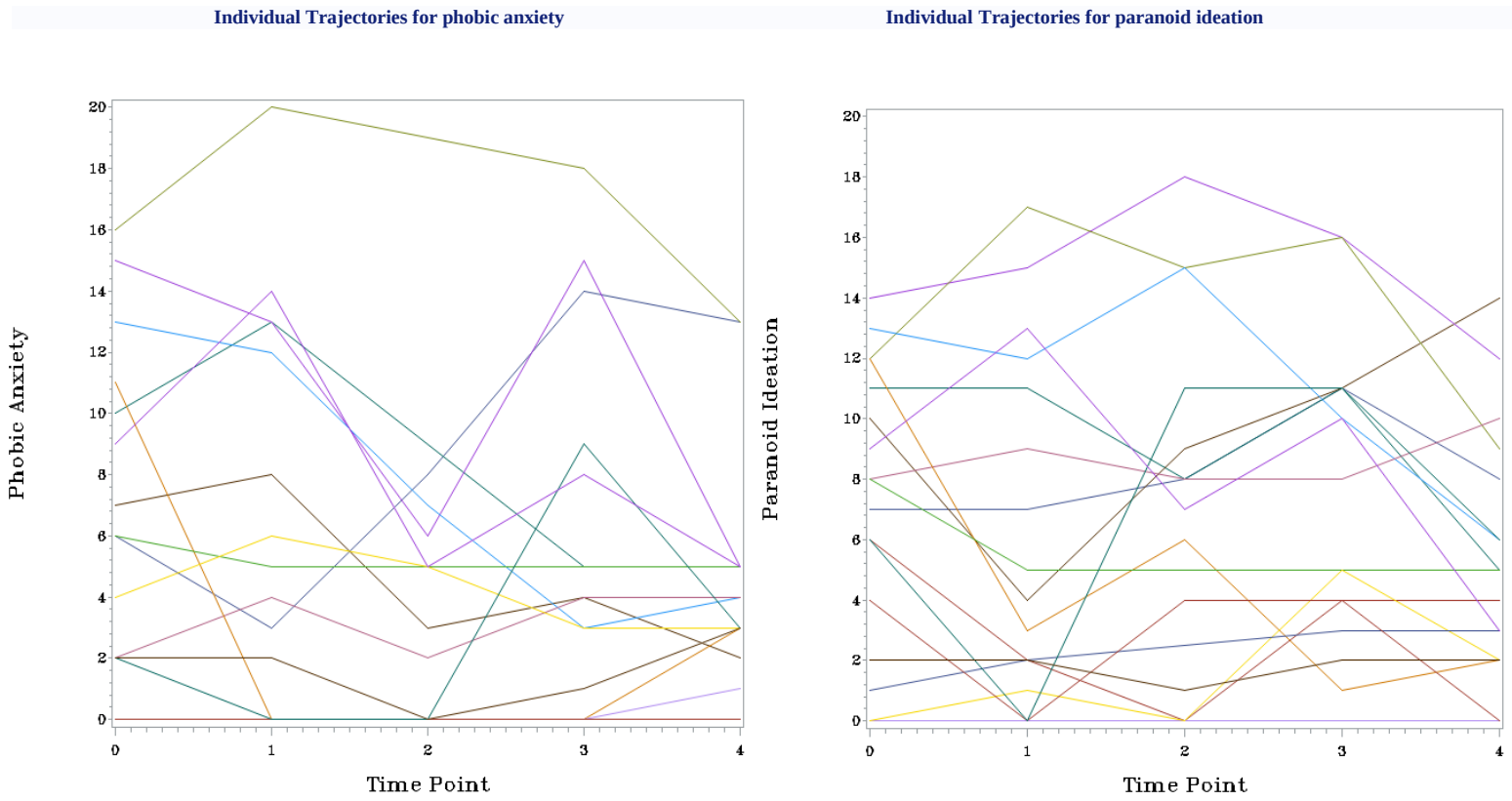


Figure 6.4. *Individual Trajectories for Symptoms (continued)*

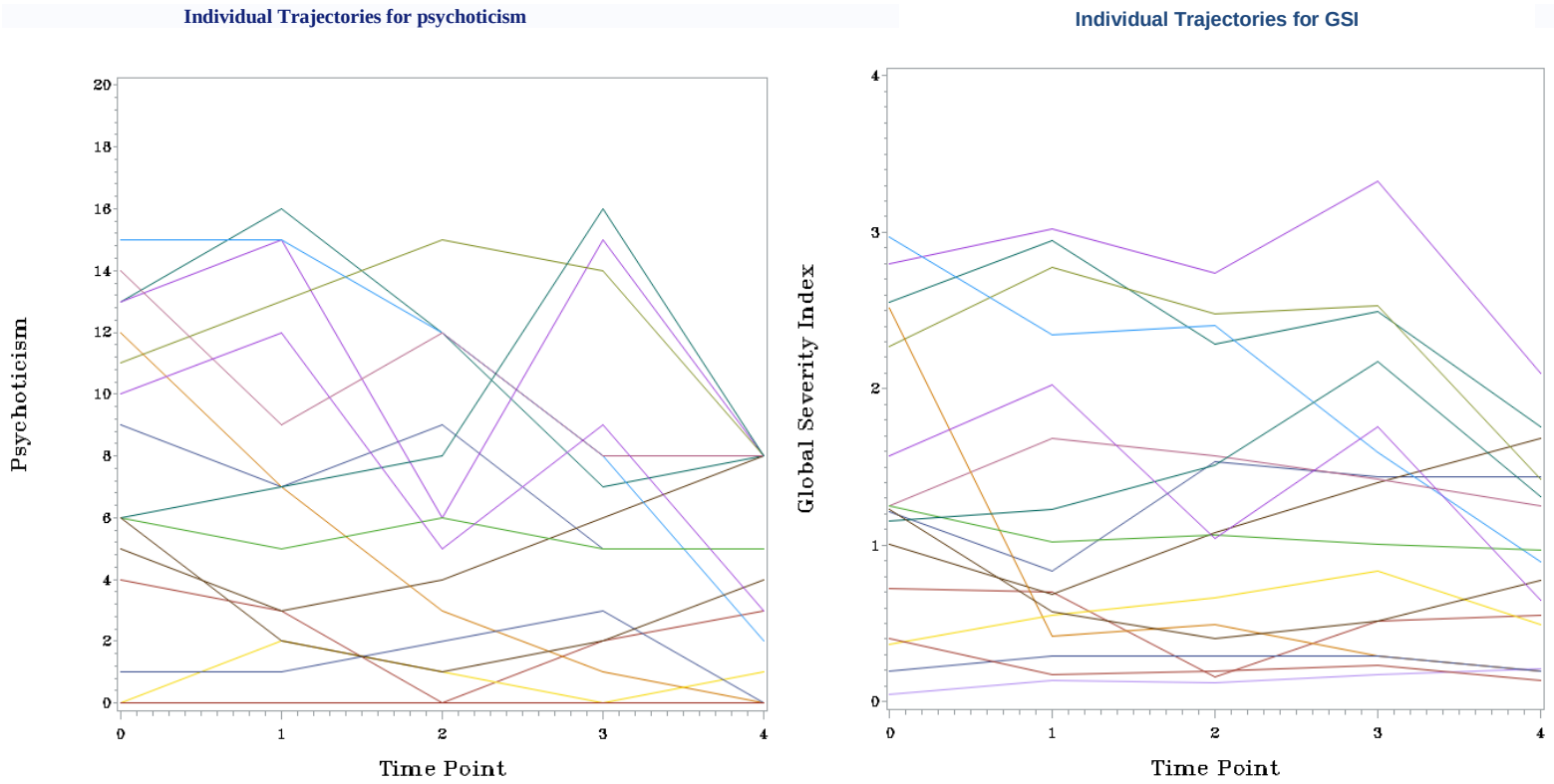


Figure 6.4. *Individual Trajectories for Symptoms (continued)*

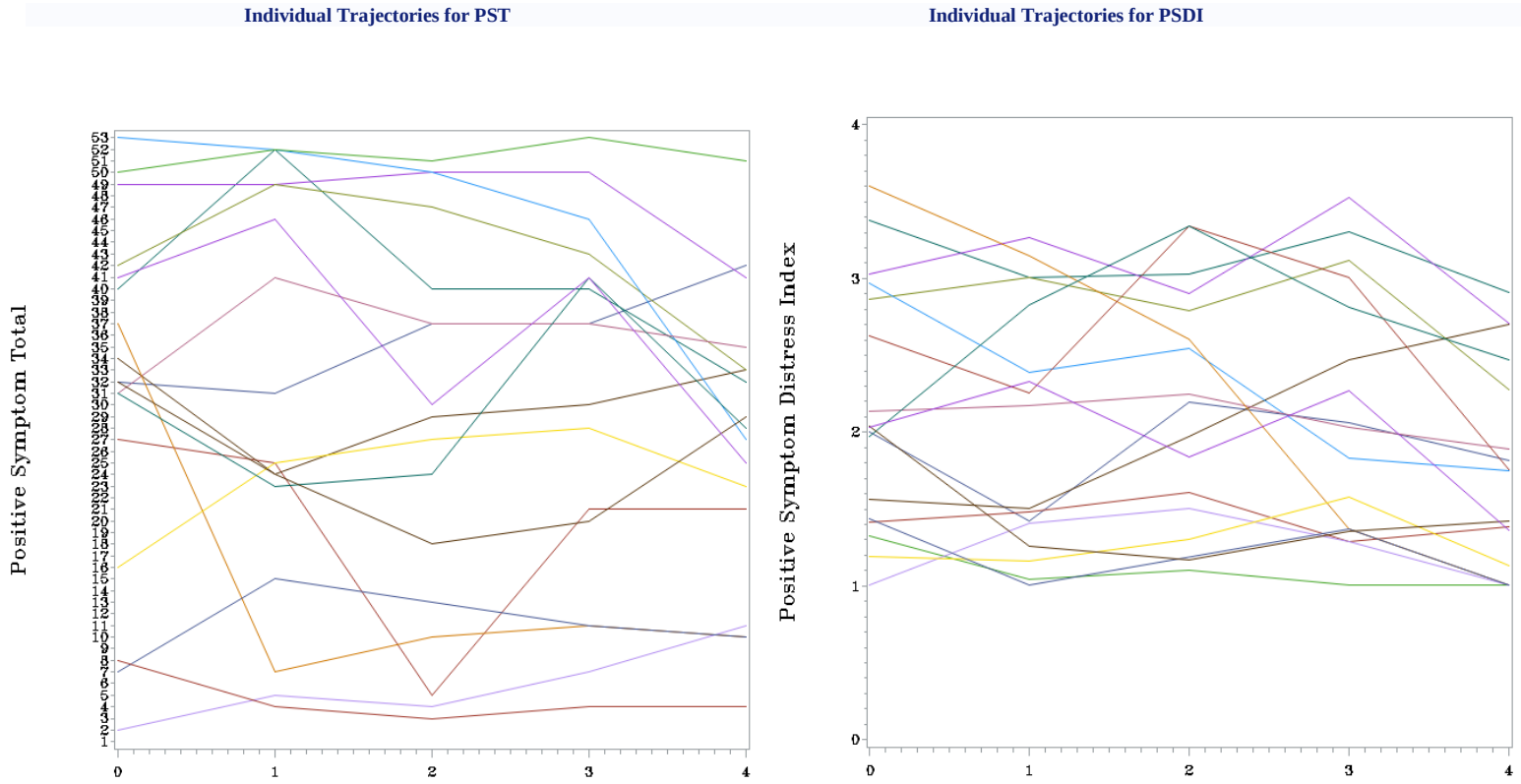


Figure 6.5. *Individual Trajectories for Social Functioning*

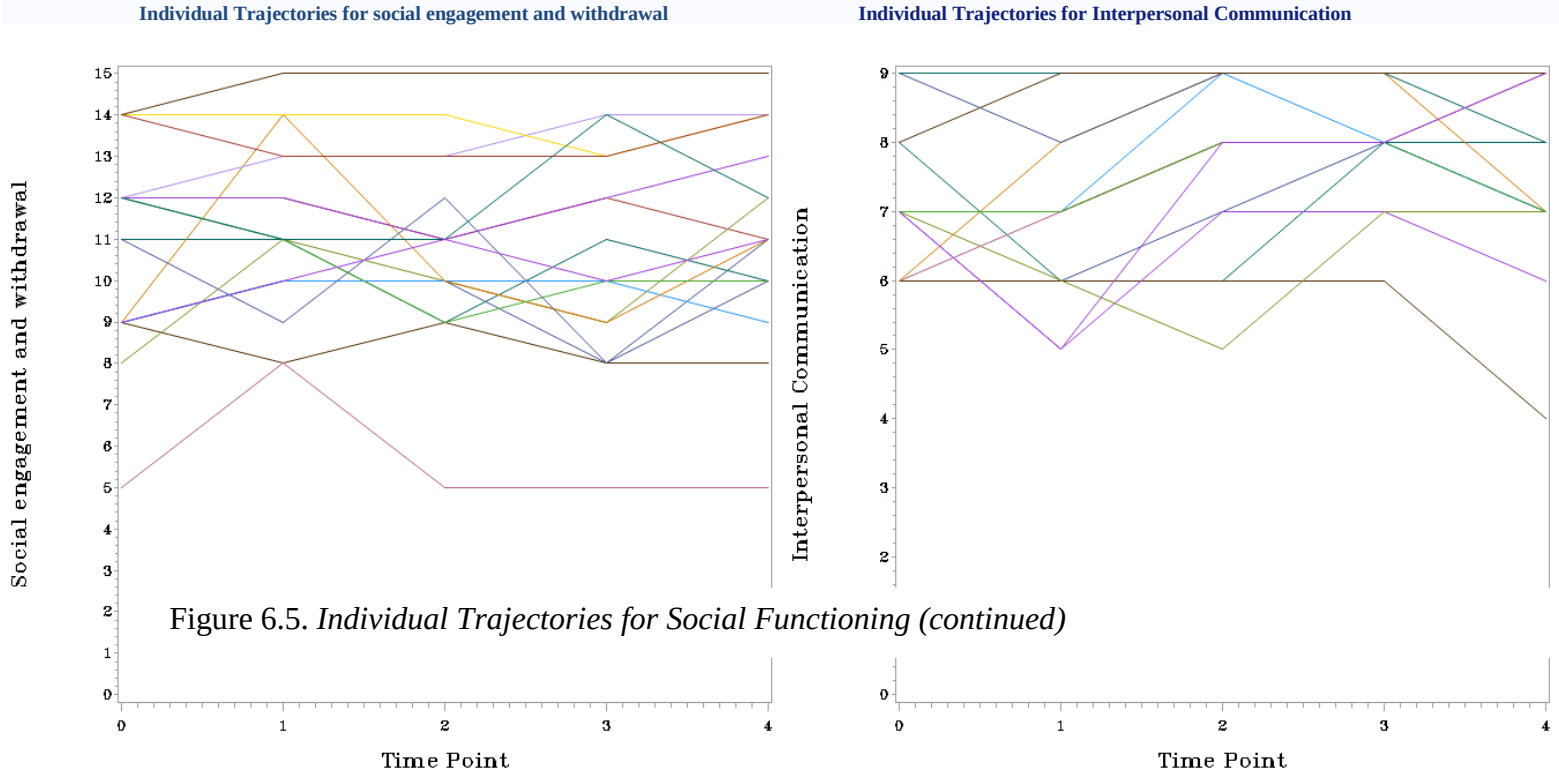


Figure 6.5. *Individual Trajectories for Social Functioning (continued)*

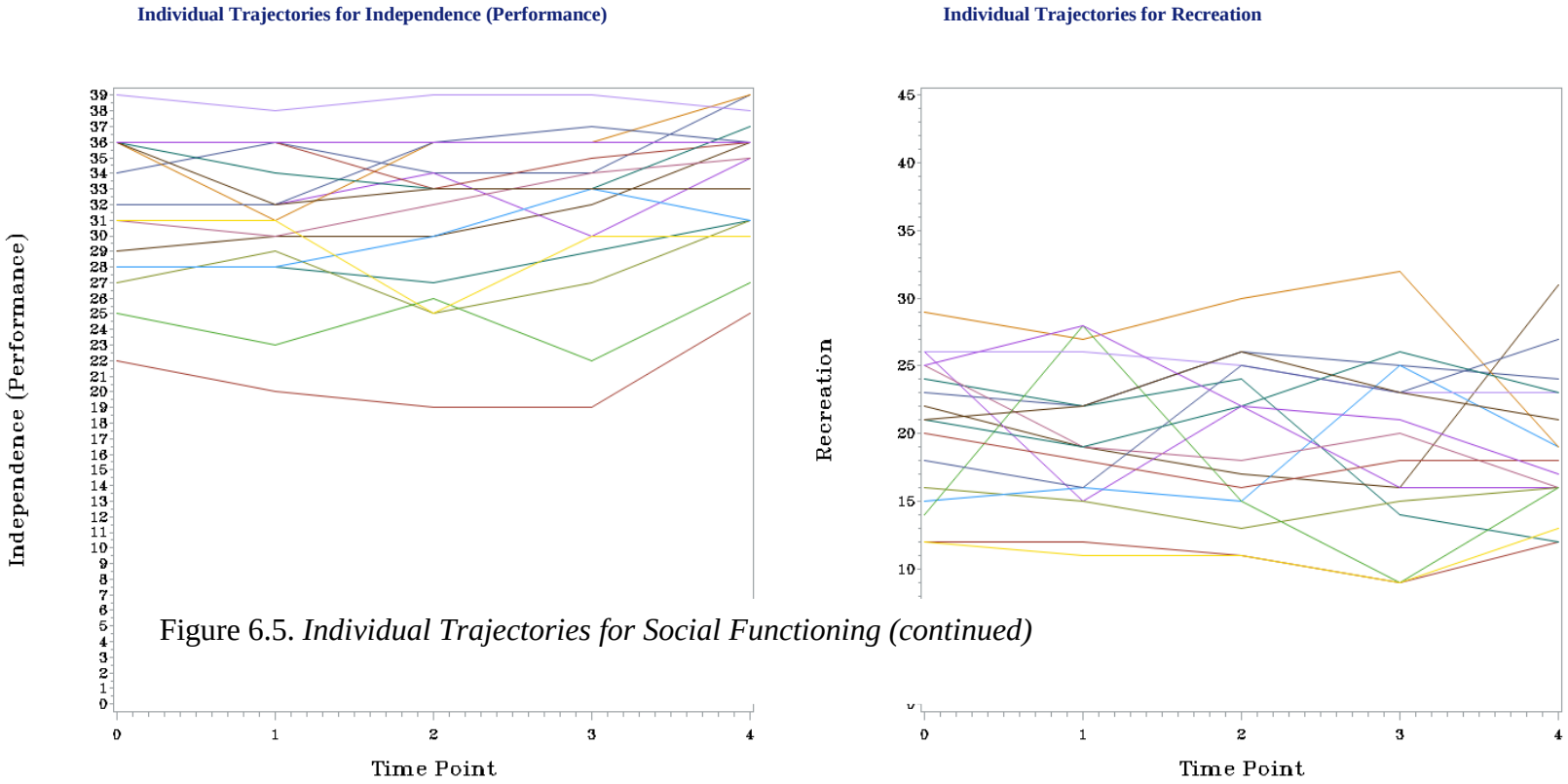


Figure 6.5. *Individual Trajectories for Social Functioning (continued)*

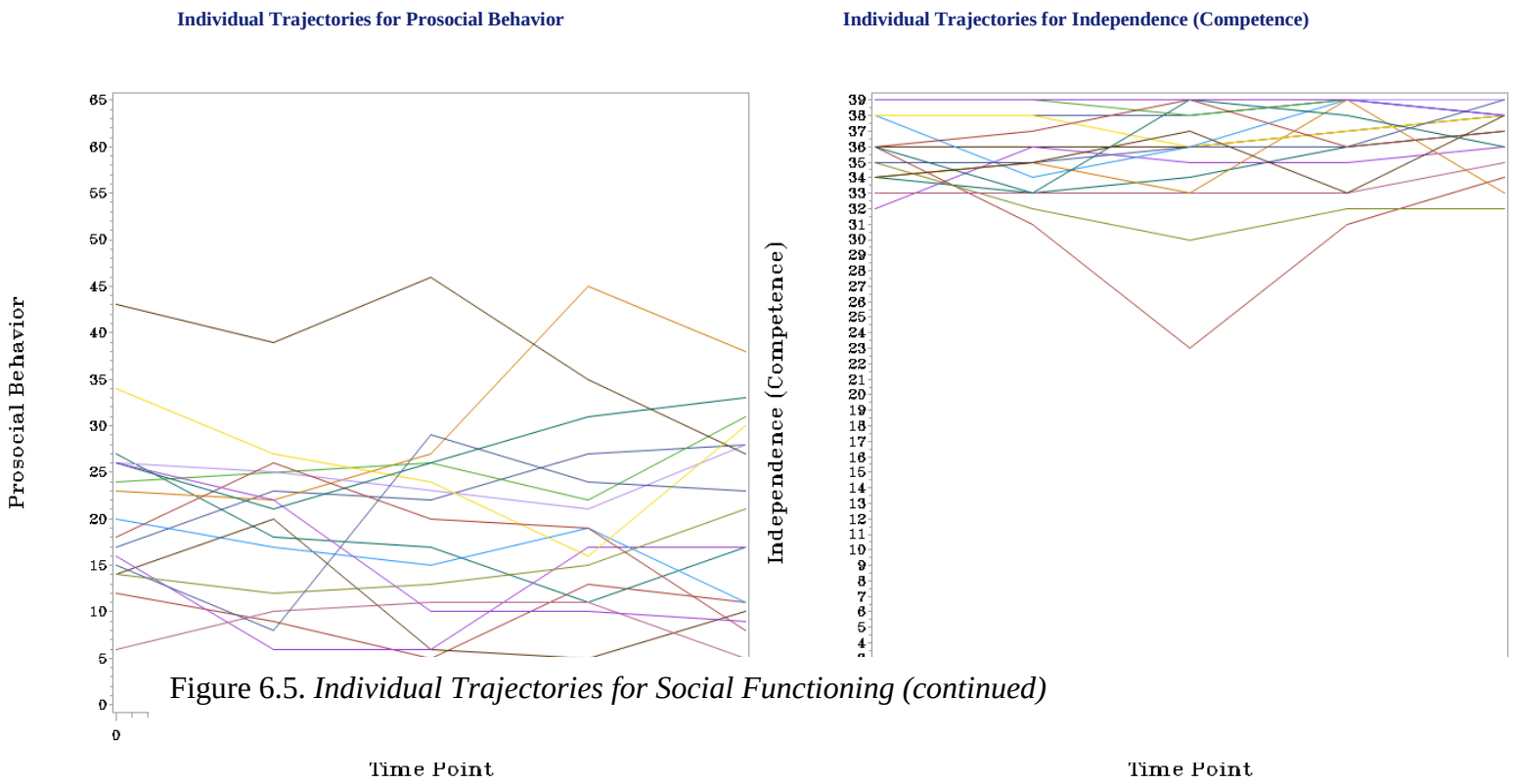
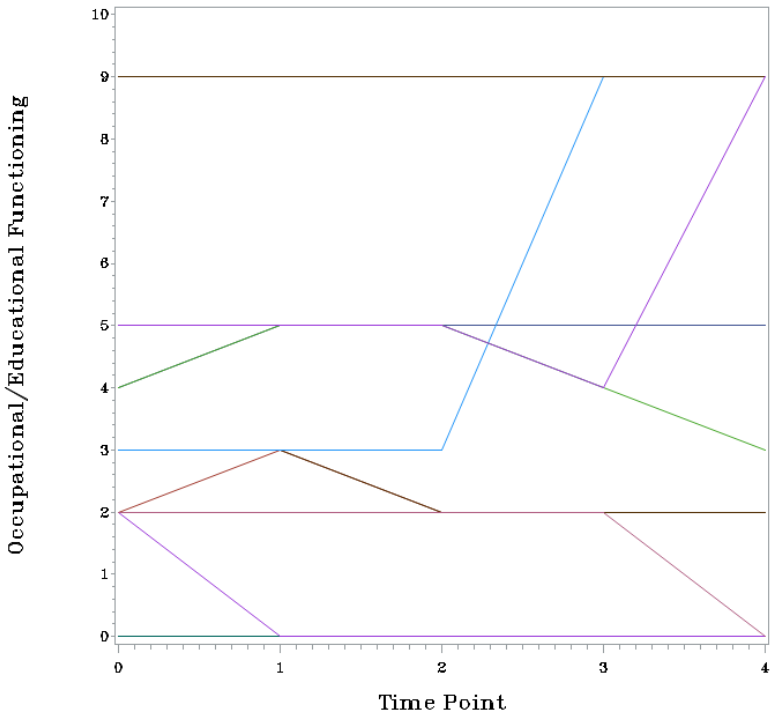


Figure 6.5. *Individual Trajectories for Social Functioning (continued)*

Individual Trajectories for Overall Social Functioning

Individual Trajectories for Occupational/Educational Functioning



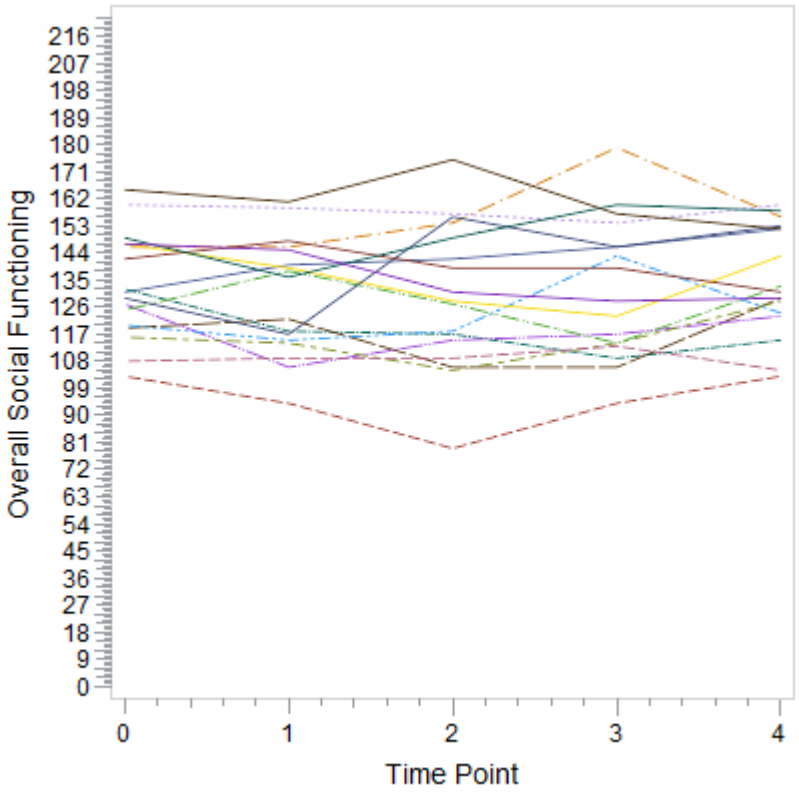


Figure 6.6. *Individual Trajectories for Stigma Beliefs*

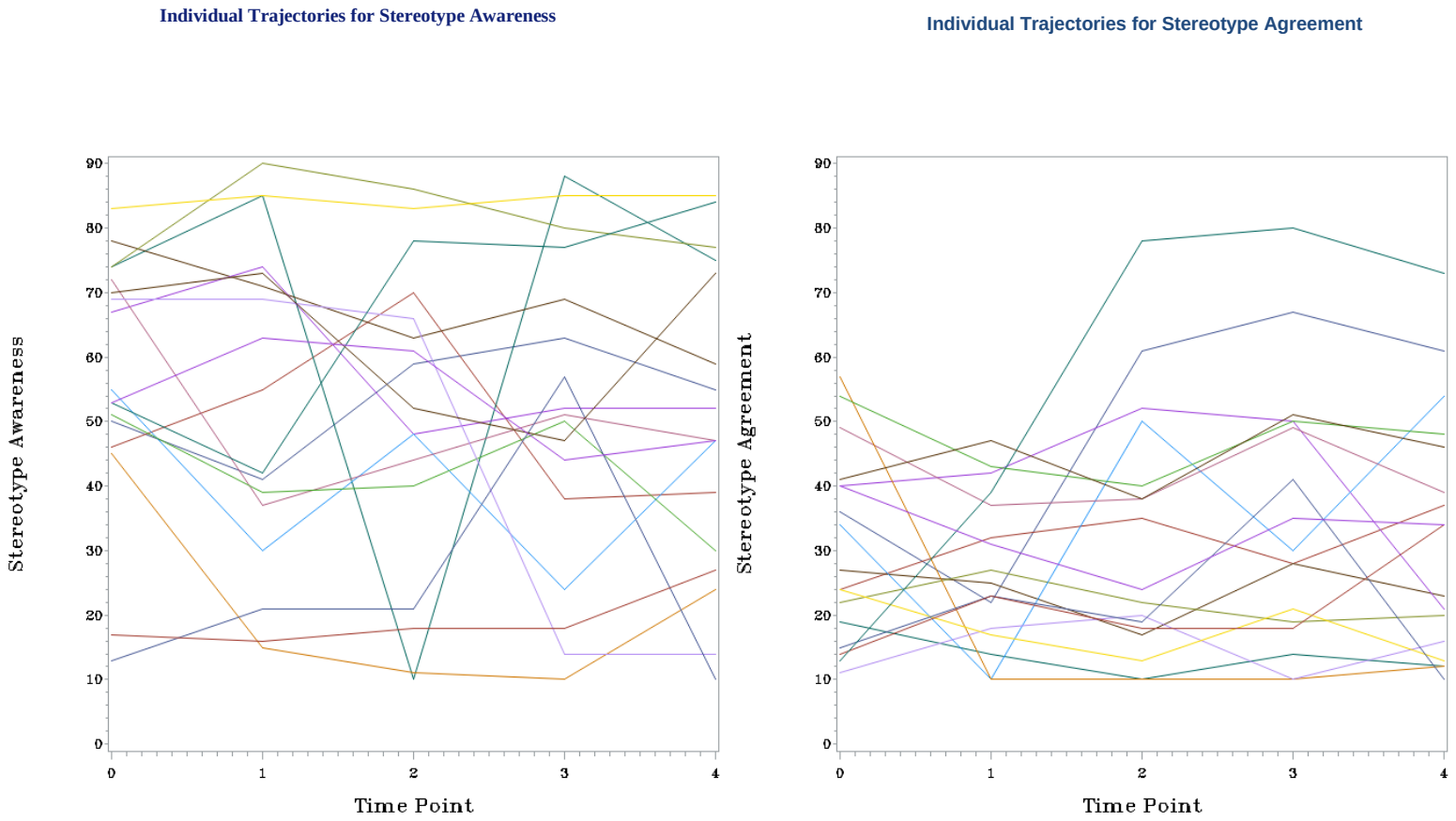
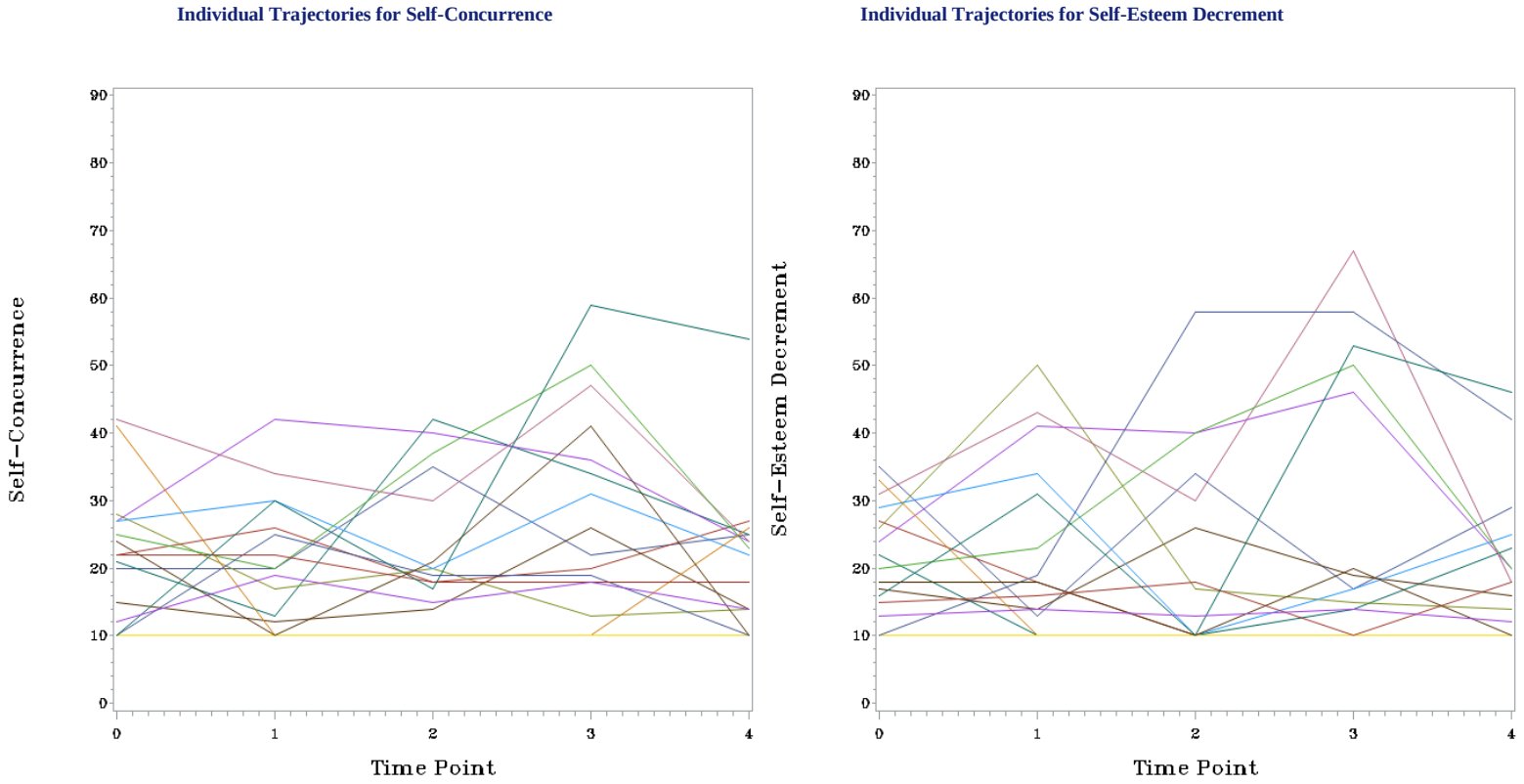


Figure 6.6. *Individual Trajectories for Stigma Beliefs (continued)*



Symptoms. One participant had missing data on one occasion for symptoms, given invalid responding on the BSI.

Somatization. According to the Type 3 Test of Fixed Effects in the saturated means model for Somatization, there were not significant mean differences over time in Somatization (F (4,15.8) = 2.56, p = .08). Subsequent to the saturated means model, an empty means model was specified, and yielded an intraclass correlation (ICC; also the effect size of the cross-sectional dependency) of .80, demonstrating that approximately 80% of the variance in Somatization was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, only the slope for the follow up period was significant (p = .01), such that Somatization became lower by .08 between the last group session and one month follow up. Pseudo-R^2 revealed that 11.2% of the residual variance was explained by the fixed linear slopes. Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was not significant (p = .74). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-significant improvement to the model $2\Delta LL(\sim 2) = 1.6$, p = .45, suggesting that there were not differences in the linear rate of change among individuals during the baseline period. To assess whether there were individual differences in the linear rate of change during the

treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) also resulted in a non-significant improvement to the model $2\Delta LL(\sim 2) = 3.9$, $p = .14$, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, and a random linear follow up slope was specified. However, this model resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Somatization included three fixed linear slopes and a random intercept. This model indicates that on average, there was no change in Somatization during the baseline or treatment periods, but Somatization decreased on average during the follow up period. There were no individual differences in change during any time period.

The predicted means from the final Somatization model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Somatization at day 0 was 8.88, with a 95% confidence interval (CI) of -4.52 and 22.28 (meaning that 95% of the sample was predicted to have individual intercepts for Somatization at day 0 between -4.52 and 22.28). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.03, -0.0005, and -0.08, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions

between the three fixed slopes and the effect of number of sessions attended were added to the model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Obsession-Compulsion. According to the Type 3 Test of Fixed Effects in the saturated means model for Obsession-Compulsion, there were not significant mean differences over time in Obsession-Compulsion (F (4,15.9) = 1.44, p = .27). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .68, demonstrating that approximately 70% of the variance in Obsession-Compulsion was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .28, .46, and .13, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .36). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. This model also resulted in a non-positive definite G matrix because the random linear treatment slope

variance was estimated to be equal to 0. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, and a random linear follow up slope was specified. The addition of a random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 10.4$, $p < .01$, suggesting that there were indeed differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Obsession-Compulsion included three fixed linear slopes and a random linear follow up slope. This model indicates that there was no change on average in Obsession-Compulsion during any of the time periods, but there were individual differences in the rate of change during the follow up period.

The predicted means from the final Obsession-Compulsion model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Obsession-Compulsion at day 0 was 8.63, with a 95% CI of -3.22 and 20.48 (meaning that 95% of the sample was predicted to have individual intercepts for Obsession-Compulsion at day 0 between -3.22 and 20.48). The mean predicted linear rate of change during the baseline and treatment periods were 0.05, and -0.01, respectively. The mean predicted linear rate of change during the follow up period was -0.06, with a 95% CI of -0.34 to 0.22 (meaning that 95% of the sample was predicted to have an individual linear rate of change during the follow up period falling between -0.34 and 0.22). This indicates that no all participants were predicted to improve during the follow up period. To determine whether these effects depended upon the number of sessions

attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to the model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Interpersonal sensitivity. According to the Type 3 Test of Fixed Effects in the saturated means model for Interpersonal Sensitivity, there were not significant mean differences over time in Interpersonal Sensitivity (F (4,15.8) = 1.54, p = .24). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .56, demonstrating that almost 60% of the variance in Interpersonal Sensitivity was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .24, .93, and .15, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .54). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the

random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a non-significant improvement to the model $2\Delta LL(\sim 2) = 1.7$, $p = .43$, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) resulted in a non-significant improvement to the model $2\Delta LL(\sim 2) = 1.7$, $p = .43$, suggesting that there were also not differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Interpersonal Sensitivity included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Interpersonal Sensitivity on average and no individual differences in change during any of the time periods.

The predicted means from the final Interpersonal Sensitivity model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Interpersonal Sensitivity at day 0 was 6.13, with a 95% CI of -0.22 and 12.48 (meaning that 95% of the sample was predicted to have individual intercepts for Interpersonal Sensitivity at day 0 between -0.22 and 12.48). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.04, 0.001, and -0.04, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions

between the three fixed slopes and the effect of number of sessions attended were added to the model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Depression. According to the Type 3 Test of Fixed Effects in the saturated means model for Depression, there were significant mean differences over time in Depression ($F(4,15.8) = 5.85$, $p < .01$). The means at each time point revealed that Depression decreased between baseline and mid-treatment, spiked at post-treatment, and decreased again at follow up. Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .72, demonstrating that 72% of the variance in Depression was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, only the linear slope for the follow up period was significant ($p < .05$), demonstrating that Depression became lower by .08 between the last group session and one month follow up. Pseudo-R^2 revealed that approximately 5% of the residual variance was explained by the fixed linear slopes. Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was not significant ($p = .23$). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 1.0$, $p = .61$, suggesting that there were not

differences in the linear rate of change among individuals during the baseline period. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) also resulted in a non-significant improvement to the model $2\Delta LL(\sim 2) = 3.4$, $p = .18$, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Depression included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Depression on average during the baseline or treatment periods, but Depression decreased on average during the follow up period. There were no individual differences in change in Depression during any of the time periods.

The predicted means from the final Depression model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Depression at day 0 was 8.90, with a 95% CI of -1.98 and 19.78 (meaning that 95% of the sample was predicted to have individual intercepts for Depression at day 0 between -

1.98 and 19.78). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.01, 0.007, and -0.08, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to the model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Anxiety. According to the Type 3 Test of Fixed Effects in the saturated means model for Anxiety, there were not significant mean differences over time in Anxiety ($F(4,15.8) = 2.14$, $p = .12$). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .76, demonstrating that 76% of the variance in Anxiety was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant ($p = .52$, .99, and .14, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant ($p = .51$). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 1.8$, $p = .41$, suggesting that there were not differences in the linear rate of change among individuals

during the baseline period. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) also resulted in a non-significant improvement to the model $2\Delta LL(\sim 2) = 0.1$, $p = .95$, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Anxiety included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Anxiety on average and no individual differences in change during any of the time periods.

The predicted means from the final Anxiety model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Anxiety at day 0 was 8.33, with a 95% CI of -3.02 and 19.68 (meaning that 95% of the sample was predicted to have individual intercepts for Anxiety at day 0 between -3.02 and 19.68). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.03, 0.0002, and -0.05, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number

of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to the model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Hostility. According to the Type 3 Test of Fixed Effects in the saturated means model for Hostility, there were not significant mean differences over time in Hostility ($F(4,16.1) = 1.79$, $p = .18$). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .55, demonstrating that 55% of the variance in Hostility was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant ($p = .60$, .38, and .27, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant ($p = .12$). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and

random linear treatment effect) resulted in a significant improvement to the model $2\Delta LL(\sim 2) = 10.4$, $p < .05$, suggesting that there were indeed differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Hostility included three fixed linear slopes and a random linear treatment slope. This model indicates that there were no changes in Hostility on average during any of the time periods, but there were individual differences in change during the treatment period.

The predicted means from the final Hostility model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Hostility at day 0 was 4.61, with a 95% CI of -2.59 and 11.81 (meaning that 95% of the sample was predicted to have individual intercepts for Hostility at day 0 between -2.59 and 11.81). The mean predicted linear rate of change during the baseline and follow up periods were -0.02, and -0.03, respectively. The mean predicted linear rate of change during the treatment period was -0.02, with a 95% CI of -0.08 to 0.04 (meaning that 95% of the sample was predicted to have an individual linear rate of change during the treatment period falling between -0.08 and 0.04). This indicates that not all participants

were predicted to improve during the treatment period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Phobic anxiety. According to the Type 3 Test of Fixed Effects in the saturated means model for Phobic Anxiety, there were not significant mean differences over time in Phobic Anxiety (F (4,15.9) = 2.13, p = .13). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .69, demonstrating that almost 70% of the variance in Phobic Anxiety was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .84, .34, and .58, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .19). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the

treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a significant improvement to the model $2\Delta LL(\sim 2) = 9.5$, $p < .05$, suggesting that there were indeed differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Phobic Anxiety included three fixed linear slopes and a random linear treatment slope. This model indicates that there were no changes in Phobic Anxiety on average during any of the time periods, but there were individual differences in change during the treatment period.

The predicted means from the final Phobic Anxiety model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Phobic Anxiety at day 0 was 5.85, with a 95% CI of -4.60 and 16.30 (meaning that 95% of the sample was predicted to have individual intercepts for Phobic Anxiety at day 0 between -4.60 and 16.30). The mean predicted linear rate of change during the baseline and follow up periods were -0.01, and -0.02, respectively. The mean predicted

linear rate of change during the treatment period was -0.01, with a 95% CI of -0.10 to 0.08 (meaning that 95% of the sample was predicted to have an individual linear rate of change during the treatment period falling between -0.10 and 0.08). This indicates that not all participants were predicted to improve during the treatment period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Paranoid ideation. According to the Type 3 Test of Fixed Effects in the saturated means model for Paranoid Ideation, there were significant mean differences over time in Paranoid Ideation (F (4,16) = 5.62, $p < .05$). As indicated by the means at each occasion of measurement, Paranoid Ideation appeared to decrease slightly over the baseline period, increase throughout treatment, and then decrease dramatically during the follow up period. Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .71, demonstrating that 71% of the variance in Paranoid Ideation was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, only the linear slope during the follow up period was significant ($p < .05$), suggesting that Paranoid Ideation became lower by .06 between the last group session and one month follow up. Pseudo-R^2 revealed that approximately 4.4% of the residual variance was explained by the fixed linear slopes. Next, a model in which a fixed linear baseline slope, fixed quadratic

treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .67). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 2.9$, p = .23, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) also resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 4.6$, p = .10, suggesting that there were not differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Paranoid Ideation included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Paranoid Ideation on average during the baseline or treatment periods, but Paranoid Ideation decreased on

average during the follow up period. There were no individual differences in change during any of the time periods.

The predicted means from the final Paranoid Ideation model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Paranoid Ideation at day 0 was 7.00, with a 95% CI of -1.32 and 15.32 (meaning that 95% of the sample was predicted to have individual intercepts for Paranoid Ideation at day 0 between -1.32 and 15.32). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.02, 0.01, and -0.06, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Psychoticism. According to the Type 3 Test of Fixed Effects in the saturated means model for Psychoticism, there were not significant mean differences over time in Psychoticism (F (4,15.8) = 3.01, p = .05). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .65, demonstrating that 65% of the variance in Psychoticism was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .66, .24, and .10, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as

well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .32). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 11.1$, $p < .01$, suggesting that there were indeed differences in the linear rate of change among individuals during the treatment period. Of note, the fixed linear slope for the follow up period became significant when the random linear slope for the treatment period was added to the model. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Psychoticism included three fixed linear slopes and a random linear slope for the treatment period. This model

indicates that there were no changes in Psychoticism on average during the baseline or treatment periods, but Psychoticism decreased on average during the follow up period. There were individual differences in change during the treatment period.

The predicted means from the final Paranoid Ideation model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Psychoticism at day 0 was 7.19, with a 95% CI of -2.63 and 17.01 (meaning that 95% of the sample was predicted to have individual intercepts for Psychoticism at day 0 between -2.63 and 17.01). The mean predicted linear rate of change during the baseline and follow up periods were -0.02, and -0.05, respectively. The mean predicted linear rate of change during the treatment period was -0.01, with a 95% CI of -0.10 to 0.08 (meaning that 95% of the sample was predicted to have an individual linear rate of change during the treatment period falling between -0.10 and 0.08). This indicates that not all participants were predicted to improve during the treatment period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Overall level of symptomatology. According to the Type 3 Test of Fixed Effects in the saturated means model for Overall Level of Symptomatology (i.e., Global Severity Index or GSI), there were significant mean differences over time in Overall Level of Symptomatology (F (4,15.9) = 4.00, $p < .05$). According to the means at each occasion of

measurement, Overall Level of Symptomatology appeared to gradually decrease over time, with the exception of a small increase at the end of treatment. Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .76, demonstrating that 76% of the variance in Overall Level of Symptomatology was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, only the fixed linear slope for the follow up period was significant ($p < .05$), indicating that Overall Level of Symptomatology became lower by .009 between the last treatment session and follow up. Pseudo-R^2 revealed that approximately 8% of the residual variance was explained by the fixed linear slopes. Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was not significant ($p = .49$). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 6.4$, $p <$

.05, suggesting that there were indeed differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Overall Level of Symptomatology included three fixed linear slopes and a random linear slope for the treatment period. This model indicates that there were no changes in Overall Level of Symptomatology during the baseline or treatment periods, but Overall Level of Symptomatology decreased on average during the follow up period. There were individual differences in change during the treatment period.

The predicted means from the final Overall Level of Symptomatology model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Overall Level of Symptomatology at day 0 was 1.34, with a 95% CI of -0.40 and 3.08 (meaning that 95% of the sample was predicted to have individual intercepts for Overall Level of Symptomatology at day 0 between -0.40 and 3.08). The mean predicted linear rate of change during the baseline and follow up periods were -0.003, and -0.01, respectively. The mean predicted linear rate of change during the treatment period was -0.0001, with a 95% CI of -1.74 to 1.74 (meaning that 95% of the

sample was predicted to have an individual linear rate of change during the treatment period falling between -1.74 and 1.74). This indicates that not all participants were predicted to improve during the treatment period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Number of symptoms. According to the Type 3 Test of Fixed Effects in the saturated means model for Number of Symptoms (i.e., Positive Symptom Total or PST), there were not significant mean differences over time in Number of Symptoms ($F(4,15.8) = 2.08$, $p = .13$). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .83, demonstrating that 83% of the variance in Number of Symptoms was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant ($p = .58$, .91, and .15, respectively. Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant ($p = .21$). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear

baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 1.5$, $p = .47$, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) also resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 5.5$, $p = .06$, suggesting that there were not differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Number of Symptoms included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Number of Symptoms on average and no individual differences in change during any of the time periods.

The predicted means from the final Number of Symptoms model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Number of Symptoms at day 0 was 31.07, with a 95% CI of 3.22 and 58.92 (meaning that 95% of the sample was predicted to have individual intercepts for Number

of Symptoms at day 0 between 3.22 and 58.92). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.04, -0.003, and -0.09, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Intensity of symptoms. According to the Type 3 Test of Fixed Effects in the saturated means model for Intensity of Symptoms (i.e., Positive Symptom Distress Index or PSDI), there were significant mean differences over time in Intensity of Symptoms ($F(4,16) = 4.75$, $p = .01$). According to the means at each occasion, Intensity of Symptoms appeared to remain about the same until follow up, when it decreased. Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .68, demonstrating that 68% of the variance in Intensity of Symptoms was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, only the linear slope for the follow up period was significant ($p = .01$), indicating that Intensity of Symptoms became lower by .01 between the last treatment session and follow up. Pseudo-R^2 revealed that approximately 10.5% of the residual variance was explained by the fixed linear slopes. Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was not significant ($p = .50$). To determine whether there were individual

differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 0.4$, $p = .82$, suggesting that there were not differences in the linear rate of change among individuals during the baseline period. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 15.8$, $p < .01$, suggesting that there were differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and the random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Intensity of Symptoms included three fixed linear slopes and a random linear slope for the treatment period. This model indicates that there were no changes in Intensity of Symptoms on average during the baseline or treatment periods, but Intensity of

Symptoms decreased on average during the follow up period. There were individual differences in change during the treatment period.

The predicted means from the final Intensity of Symptoms model compared to the observed means from the saturated means model are shown in Figure 6.7, and parameter estimates and fit statistics for this model are found in Table 6.2. As shown, the mean predicted Intensity of Symptoms at day 0 was 2.12, with a 95% CI of 0.65 and 3.59 (meaning that 95% of the sample was predicted to have individual intercepts for Intensity of Symptoms at day 0 between 0.65 and 3.59). The mean predicted linear rate of change during the baseline and follow up periods were -0.001, and -0.01, respectively. The mean predicted linear rate of change during the treatment period was 0.0001, with a 95% CI of -0.01 to 0.01 (meaning that 95% of the sample was predicted to have an individual linear rate of change during the treatment period falling between -0.01 and 0.01). This indicates that not all participants were predicted to improve during the treatment period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. The interaction between number of sessions attended and the fixed linear slope for the follow up period was significant ($p < .05$), suggesting that the linear rate of change during the follow up period depended on the number of sessions attended. More specifically, the linear rate of change during the follow up period became more positive by .002 for every additional session attended.

Figure 6.7. *Observed and Model Predicted Means for Symptoms*

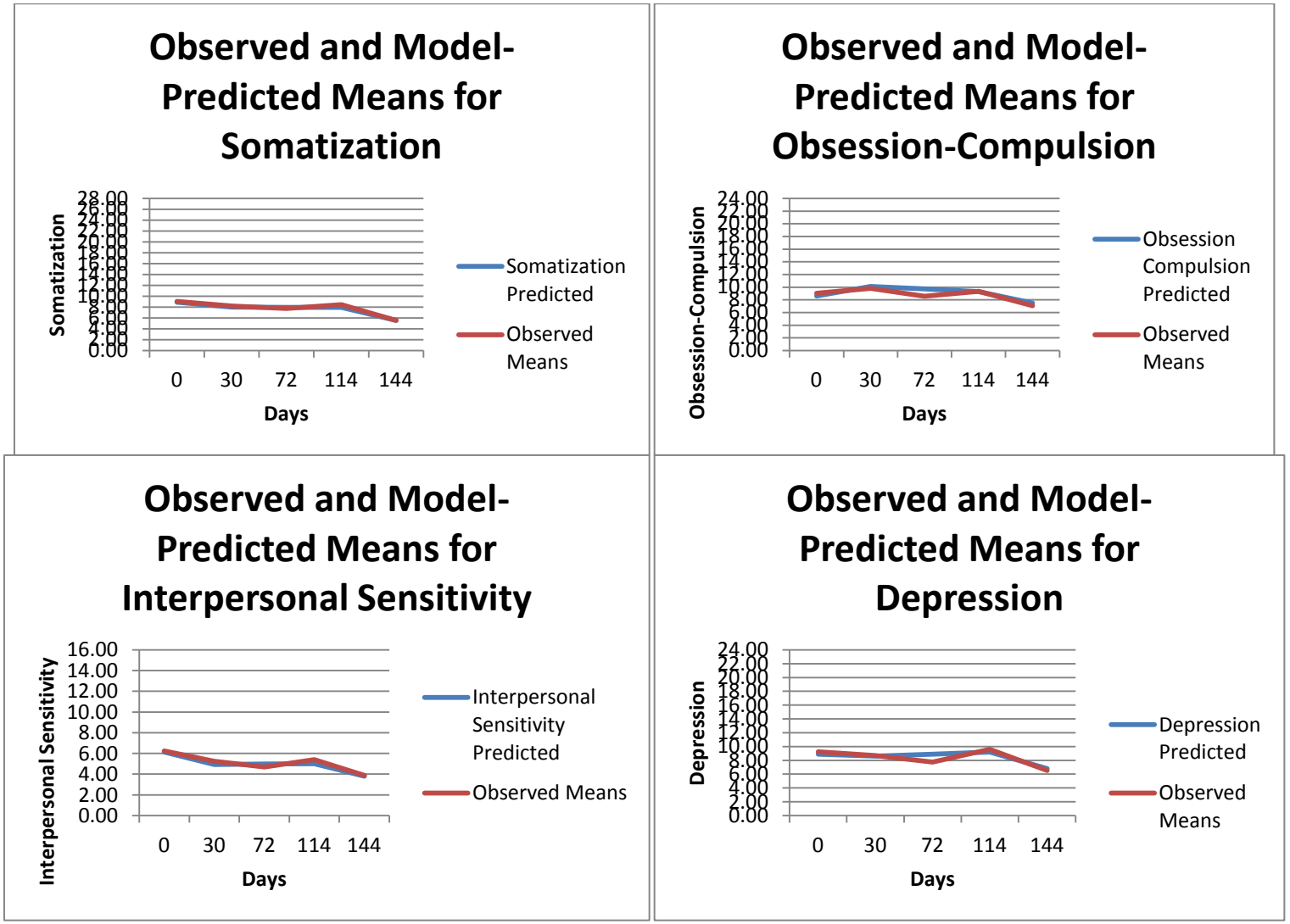
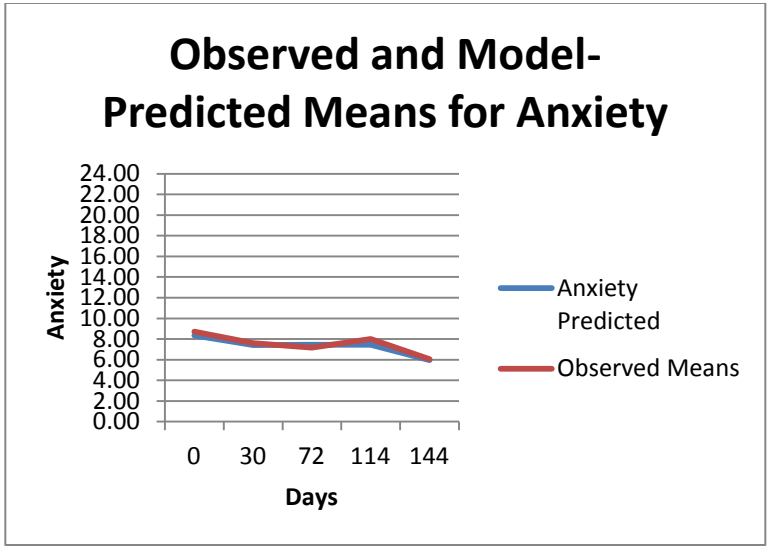
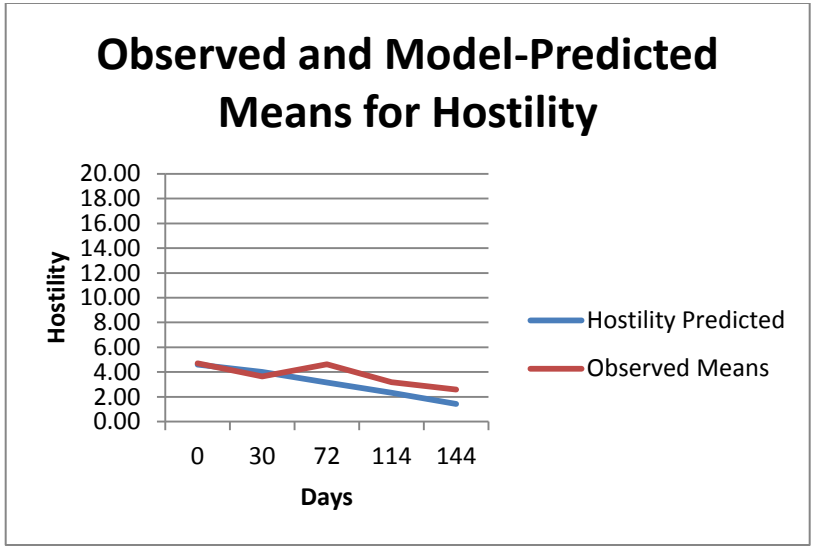
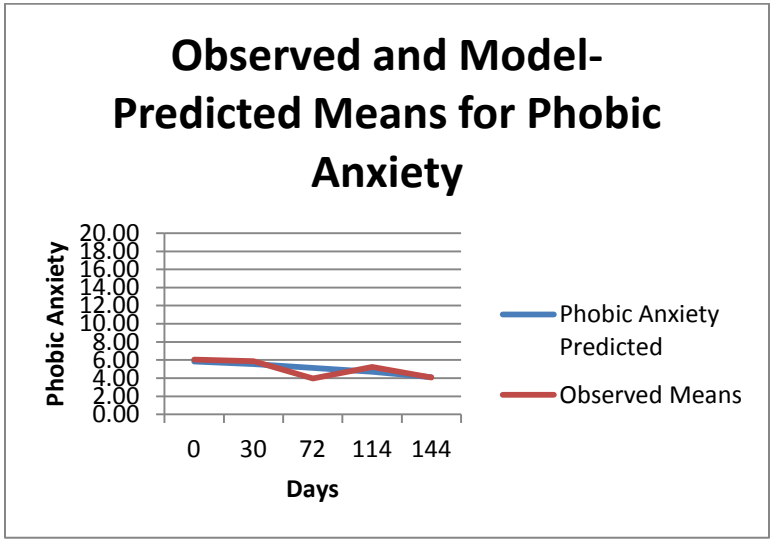


Figure 6.7. *Observed and Model Predicted Means for Symptoms (continued)*







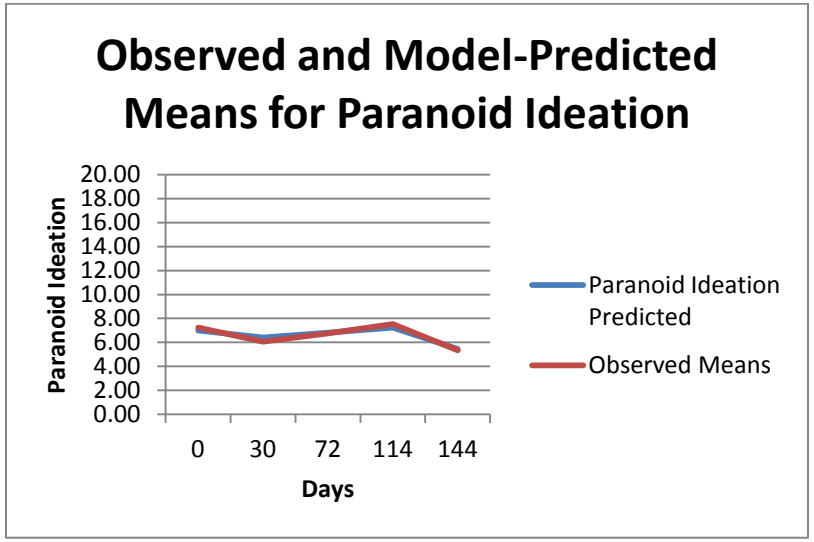
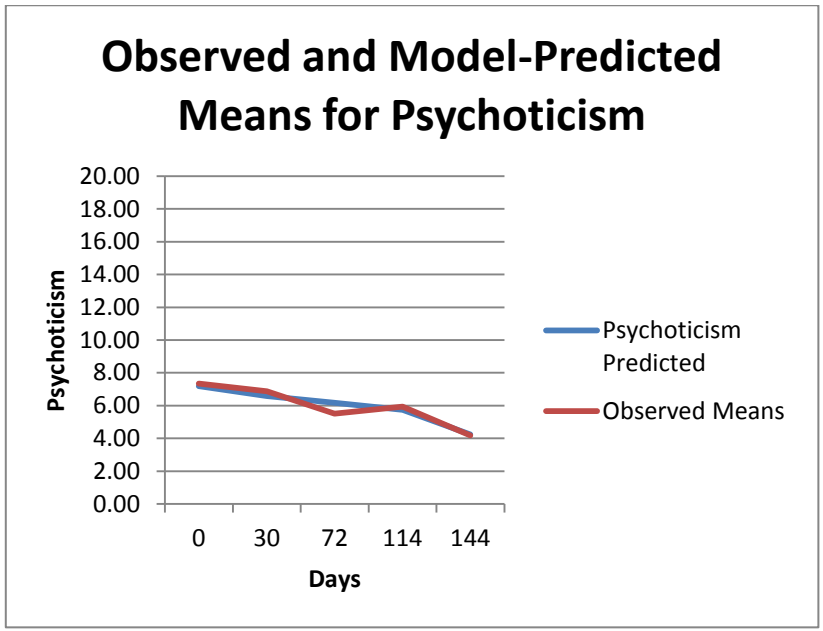
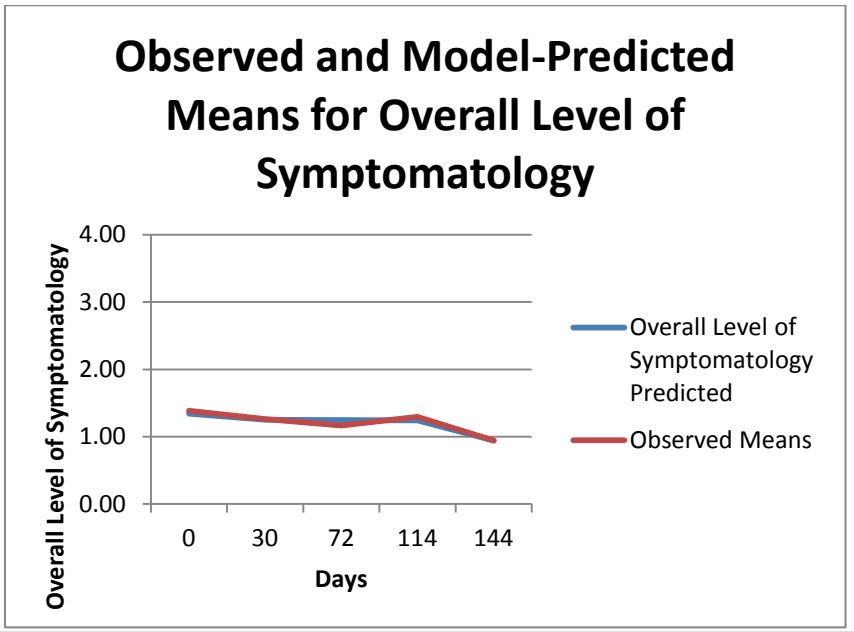
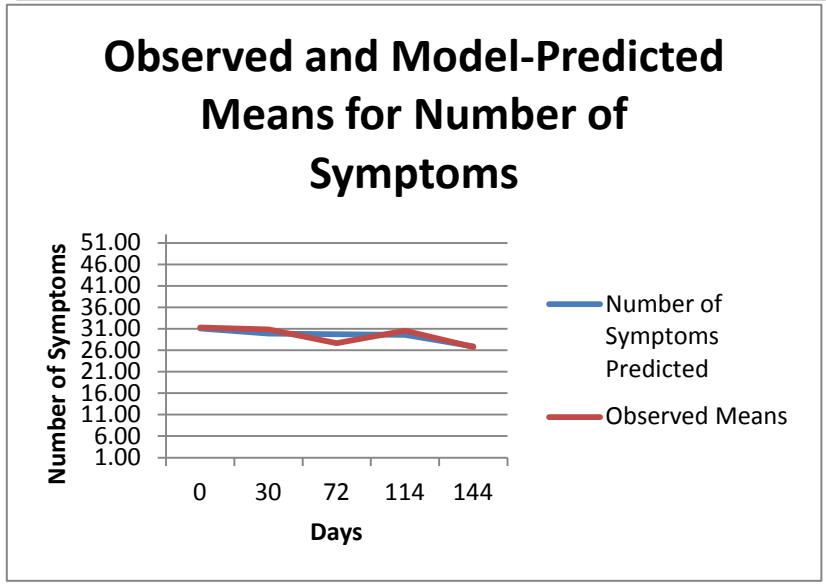


Figure 6.7. *Observed and Model Predicted Means for Symptoms (continued)*







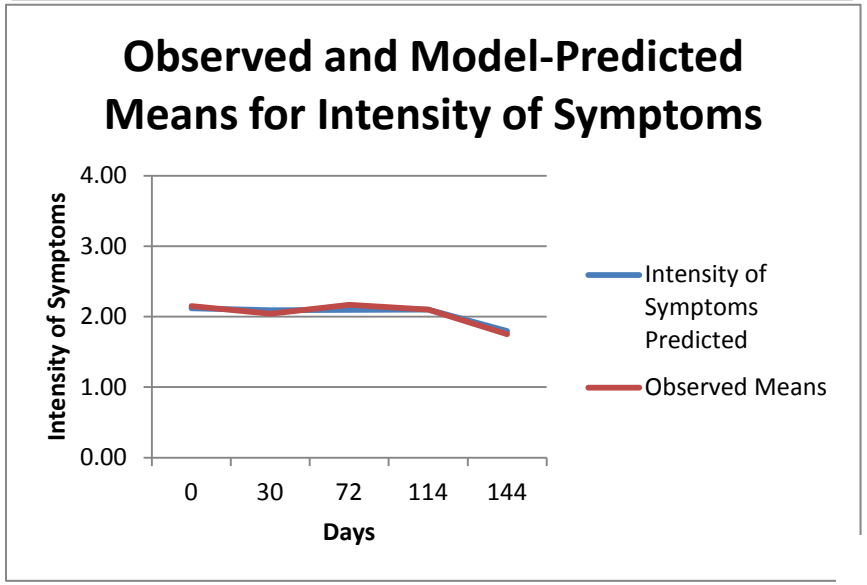


Table 6.2

Parameter Estimates and Model Fit Statistics for Symptoms Over Time (Unconditional Models)

Parameter	SOM	OC	IS	DEP	ANX
Fixed Effects:					
Intercept	8.88** (1.82)	8.63** (1.63)	6.13** (1.02)	8.90** (1.56)	8.33** (1.60)
Linear Baseline	-0.03 (0.04)	0.05 (0.04)	-0.04 (0.03)	-0.01 (0.04)	-0.03 (0.04)
Linear Treatment	-0.0005 (0.01)	-0.01 (0.01)	0.001 (0.01)	0.007 (0.01)	0.0002 (0.01)
Linear Follow Up	-0.08* (0.03)	-0.06 (0.05)	-0.04 (0.03)	-0.08* (0.03)	-0.05 (0.03)
Variance Components:					
Residual Variance	10.17** (1.80)	9.02** (1.83)	8.00** (1.41)	11.60** (2.05)	10.50** (1.86)
Intercept Variance	46.74** (17.26)	36.56** (13.77)	10.48** (4.29)	30.84** (11.75)	33.56** (12.63)
Linear Variance (BL)					
Intercept-Linear CV (BL)					
Linear Variance (TX)					
Intercept-Linear CV (TX)					
Linear Variance (FU)		0.02* (0.01)			
Intercept-Linear CV (FU)		-0.51 (0.32)			
Model Fit:					
REML Deviance	497.4	498.5	459.7	499.6	494.4

Parameter Estimates and Model Fit Statistics for Symptoms Over Time (Unconditional Models)(continued)

Parameter	SOM	OC	IS	DEP	ANX
AIC	501.4	506.5	463.7	503.6	498.4
BIC	503.1	509.8	465.4	505.3	500.1

Parameter Estimates and Model Fit Statistics for Symptoms Over Time (Unconditional Models) (continued)

Parameter	HOS	PHOB	PAR	PSY	GSI
Fixed Effects:					
Intercept	4.61** (1.01)	5.85** (1.41)	7.00** (1.20)	7.19** (1.32)	1.34** (0.23)
Linear Baseline	-0.02 (0.02)	-0.01 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.003 (0.004)
Linear Treatment	-0.02 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.0001 (0.002)
Linear Follow Up	-0.03 (0.02)	-0.02 (0.02)	-0.06* (0.03)	-0.05* (0.02)	-0.01* (0.004)
Variance Components:					
Residual Variance	4.04** (0.82)	5.71** (1.18)	7.00** (1.24)	4.97** (1.02)	0.13** (0.03)
Intercept Variance	13.50** (5.41)	28.45** (10.95)	18.02** (6.88)	25.12** (9.66)	0.79** (0.30)
Linear Variance (BL)					
Intercept-Linear CV (BL)					
Linear Variance (TX)	0.001* (0.001)	0.002* (0.001)		0.002* (0.001)	0.00003 (0.00002)
Intercept-Linear CV (TX)	-0.09 (0.05)	-0.13 (0.08)		-0.13 (0.07)	-0.003 (0.002)
Linear Variance (FU)					
Intercept-Linear CV (FU)					
Model Fit:					
REML Deviance	425.7	465.1	458.7	452.4	162.6
AIC	433.7	473.1	462.7	460.4	170.6

Parameter Estimates and Model Fit Statistics for Symptoms Over Time (Unconditional Models) (continued)

Parameter	HOS	PHOB	PAR	PSY	GSI
BIC	437.1	476.4	464.4	463.8	173.9

Parameter Estimates and Model Fit Statistics for Symptoms Over Time (Unconditional Models)(continued)

Parameter	PST	PSDI
Fixed Effects:		
Intercept	31.07** (3.76)	2.12** (0.20)
Linear Baseline	-0.04 (0.08)	-0.001 (0.0034)
Linear Treatment	-0.003 (0.03)	0.0001 (0.002)
Linear Follow Up	-0.09 (0.06)	-0.01** (0.003)
Variance Components:		
Residual Variance	41.43** (7.33)	0.09** (0.02)
Intercept Variance	201.86** (74.53)	0.56** (0.21)
Linear Variance (BL)		
Intercept-Linear CV (BL)		
Linear Variance (TX)		0.00005* (0.00002)
Intercept-Linear CV (TX)		-0.002 (0.002)
Linear Variance (FU)		
Intercept-Linear CV (FU)		
Model Fit:		
REML Deviance	610.6	145.8
AIC	614.6	153.8

Parameter Estimates and Model Fit Statistics for Symptoms Over Time (Unconditional Models)(continued)

Parameter	PST	PSDI
BIC	616.3	157.1

Note. Standard errors are in parentheses. SOM = Somatization; OC = Obsession-Compulsion; IS = Interpersonal Sensitivity; DEP = Depression; ANX = Anxiety ; HOS = Hostility; PHOB = Phobic Anxiety; PAR = Paranoid Ideation; PSY = Psychoticism; GSI = Overall Level of Symptomatology/Global Severity Index ; PST = Number of Symptoms/Positive Symptom Total; PSDI = Intensity of Symptoms/Positive Symptom Distress Index.

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

Social functioning. There were no missing data for social functioning.

Social engagement and withdrawal. According to the Type 3 Test of Fixed Effects in the saturated means model for Social Engagement and Withdrawal, there were not significant mean differences over time in Social Engagement and Withdrawal ($F(4,16) = 1.22$, $p = .34$). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .80, demonstrating that 80% of the variance in Social Engagement and Withdrawal was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none of the slopes were significant ($p = .09$, .09, and .13, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant ($p = .43$). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) also resulted in a non-positive definite G matrix because the random linear treatment slope

variance was estimated to be equal to 0. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) also resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Social Engagement and Withdrawal included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Social Engagement and Withdraw on average nor were there individual differences in change during any of the time periods.

The predicted means from the final Social Engagement and Withdraw model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Social Engagement and Withdrawal at day 0 was 10.67, with a 95% CI of 6.52 and 14.82 (meaning that 95% of the sample was predicted to have individual intercepts for Social Engagement and Withdrawal at day 0 between 6.52 and 14.82). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were 0.02, -0.007, and 0.02, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Interpersonal communication. According to the Type 3 Test of Fixed Effects in the saturated means model for Interpersonal Communication, there were significant mean differences over time in Interpersonal Communication (F (4,16) = 7.37, $p < .01$). The observed means at each occasion indicated that Interpersonal Communication remained about the same during the baseline period, increased over the course of treatment, and decreased slightly at follow up. Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .59, demonstrating that almost 60% of the variance in Interpersonal Communication was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, the linear slope for the treatment period was significant ($p < .01$), indicating that Interpersonal Communication became more positive by .01 across days in treatment. The linear slope for the follow up period was also significant ($p < .05$), indicating that Interpersonal Communication became less positive by .02 across days during the follow up period. Pseudo-R^2 revealed that approximately 15% of the residual variance was explained by the fixed linear slopes. Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was not significant ($p = .14$). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline

slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 0.9$, $p = .64$, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) also resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 2.3$, $p = .32$, suggesting that there were not differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Interpersonal Communication included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Interpersonal Communication on average during the baseline period, but Interpersonal Communication increased on average during the treatment period and decreased on average during the follow up period. There were no individual differences in change during any of the time periods.

The predicted means from the final Interpersonal Communication model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Interpersonal Communication at day 0 was 7.51, with a 95%

CI of 5.54 and 9.48 (meaning that 95% of the sample was predicted to have individual intercepts for Interpersonal Communication at day 0 between 5.54 and 9.48). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.01, 0.01, and -0.02, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Independence (performance). According to the Type 3 Test of Fixed Effects in the saturated means model for Independence (Performance), there were significant mean differences over time in Independence (Performance) (F (4,16) = 10.20, $p < .01$). The observed means at each occasion indicated that Independence (Performance) remained about the same during the baseline period, increased slightly over the course of treatment, and continued to increase during the follow up period. Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .82, demonstrating that 82% of the variance in Independence (Performance) was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, only the linear slope for the follow up period was significant ($p < .01$), indicating that Independence (Performance) became more positive by .07 across days during the follow up period. Pseudo-R^2 revealed that approximately 31% of the residual variance was explained by the fixed linear slopes. Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as

well as a random intercept, was specified. However, the fixed quadratic treatment slope was not significant (p = .70). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 0.3$, p = .86, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Independence (Performance) included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Independence (Performance) on average during the baseline or treatment periods, but Independence (Performance) increased on average

during the follow up period. There were no individual differences in change during any of the time periods.

The predicted means from the final Independence (Performance) model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Independence (Performance) at day 0 was 31.60, with a 95% CI of 22.72 and 40.48 (meaning that 95% of the sample was predicted to have individual intercepts for Independence (Performance) at day 0 between 22.72 and 40.48). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.03, 0.01, and 0.07, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Recreation. According to the Type 3 Test of Fixed Effects in the saturated means model for Recreation, there were not significant mean differences over time in Recreation (F (4,16) = 0.42, p = .79). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .52, demonstrating that 52% of the variance in Recreation was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .83, .43, and .98, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well

as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .62). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 3.7$, p = .16, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) also resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 5.0$, p = .08, suggesting that there were not differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Recreation included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Recreation on average nor were there individual differences in change during any of the time periods.

The predicted means from the final Recreation model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Recreation at day 0 was 20.34, with a 95% CI of 12.33 and 28.35 (meaning that 95% of the sample was predicted to have individual intercepts for Recreation at day 0 between 12.33 and 28.35). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.01, -0.01, and -0.001, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Prosocial behavior. According to the Type 3 Test of Fixed Effects in the saturated means model for Prosocial Behavior, there were not significant mean differences over time in Prosocial Behavior (F (4,16) = 0.71, p = .60). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .63, demonstrating that 63% of the variance in Prosocial Behavior was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .26, .82, and .69, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .94). To determine whether there

were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 13.8$, $p < .01$, suggesting that there were differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and the random linear follow up effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 3) = 0.4$, $p = .94$, suggesting that there were not differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Prosocial Behavior included three fixed linear slopes and a random linear slope for the treatment period. This model indicates that there were no changes in Prosocial Behavior on average during any of the time periods, but there were individual differences in change during the treatment period.

The predicted means from the final Prosocial Behavior model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Prosocial Behavior at day 0 was 21.16, with a 95% CI of 5.21 and 37.11 (meaning that 95% of the sample was predicted to have individual intercepts for Prosocial Behavior at day 0 between 5.21 and 37.11). The mean predicted linear rate of change during the baseline and follow up periods were -0.07, and 0.02, respectively. The mean predicted linear rate of change during the treatment period was 0.01, with a 95% CI of 0 to 0.02 (meaning that 95% of the sample was predicted to have an individual linear rate of change during the treatment period falling between 0 and 0.02). This indicates that not all participants were predicted to improve during the treatment period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Independence (competence). According to the Type 3 Test of Fixed Effects in the saturated means model for Independence (Competence), there were significant mean differences over time in Independence (Competence) (F (4,16) = 3.17, $p < .05$). The observed means at each occasion indicated that Independence (Competence) decreased between baseline and treatment, and increased during the follow up period. Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .57, demonstrating that 57% of the variance in Independence (Competence) was cross-

sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .39, .19, and .39, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .29). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) also resulted in a non-positive definite G matrix because the random linear treatment slope variance was estimated to be equal to 0. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) also resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Independence

(Competence) included three fixed linear slopes and a random intercept for the treatment period. This model indicates that there were no changes in Independence (Competence) on average during any of the time periods, but there were individual differences in change during the treatment period.

The predicted means from the final Independence (Competence) model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Independence (Competence) at day 0 was 38.87, with a 95% CI of 34.60 and 43.14 (meaning that 95% of the sample was predicted to have individual intercepts for Independence (Competence) at day 0 between 34.60 and 43.14). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.02, 0.01, and 0.02, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Occupational/educational functioning. According to the Type 3 Test of Fixed Effects in the saturated means model for Occupational/Educational Functioning, there were not significant mean differences over time in Occupational/Educational Functioning, (F (4,16) = 0.73, p = .58). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .92, demonstrating that 92% of the variance in Occupational/Educational Functioning was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment

slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .96, .85, and .42, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .62). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 21.5$, $p < .01$, suggesting that there were differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and random linear follow up effect) also resulted in a significant improvement to the model, $2\Delta LL(\sim 3) = 14.4$, $p < .01$, suggesting that there were individual differences in the linear

rate of change during the follow up period. Thus, the final model for Occupational/Educational Functioning included three fixed linear slopes, and two linear random slopes for the treatment period and the follow up period. This model indicates that there were no changes in Occupational/Educational Functioning on average during any of the time periods, but there were individual difference in change during the treatment and follow up periods.

The predicted means from the final Occupational/Educational Functioning model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Occupational/Educational Functioning at day 0 was 5.71, with a 95% CI of -0.98 and 12.40 (meaning that 95% of the sample was predicted to have individual intercepts for Occupational/Educational Functioning at day 0 between -0.98 and 12.40). The mean predicted linear rate of change during the baseline period was -0.0003. The mean predicted linear rate of change during the treatment period was 0.002, with a 95% CI of -0.03 to 0.04 (meaning that 95% of the sample was predicted to have an individual linear rate of change during the treatment period falling between -0.03 and 0.04). This indicates that not all participants were predicted to improve during the treatment period. The mean predicted linear rate of change during the follow up period was 0.004, with a 95% CI of -0.06 to 0.07 (meaning that 95% of the sample was predicted to have an individual rate of change during the follow up period falling between -0.06 to 0.07). This indicates that not all participants were predicted to improve during the follow up period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions

between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Overall social functioning. According to the Type 3 Test of Fixed Effects in the saturated means model for Overall Social Functioning, there were not significant mean differences over time in Overall Social Functioning, (F (4,16) = 1.39, p = .28). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .79, demonstrating that almost 80% of the variance in Overall Social Functioning was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .24, .63, and .22, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .97). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and

random linear treatment effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 5.9$, $p = .05$, suggesting that there were not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Overall Social Functioning included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Overall Social Functioning on average nor were there individual differences in change during any of the time periods.

The predicted means from the final Overall Social Functioning model compared to the observed means from the saturated means model are shown in Figure 6.8, and parameter estimates and fit statistics for this model are found in Table 6.3. As shown, the mean predicted Overall Social Functioning at day 0 was 133.15, with a 95% CI of 96.50 and 169.80 (meaning that 95% of the sample was predicted to have individual intercepts for Overall Social Functioning at day 0 between 96.50 and 169.80). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.14, 0.02, and 0.12, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended

were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Figure 6.8. *Observed and Model Predicted Means for Social Functioning*

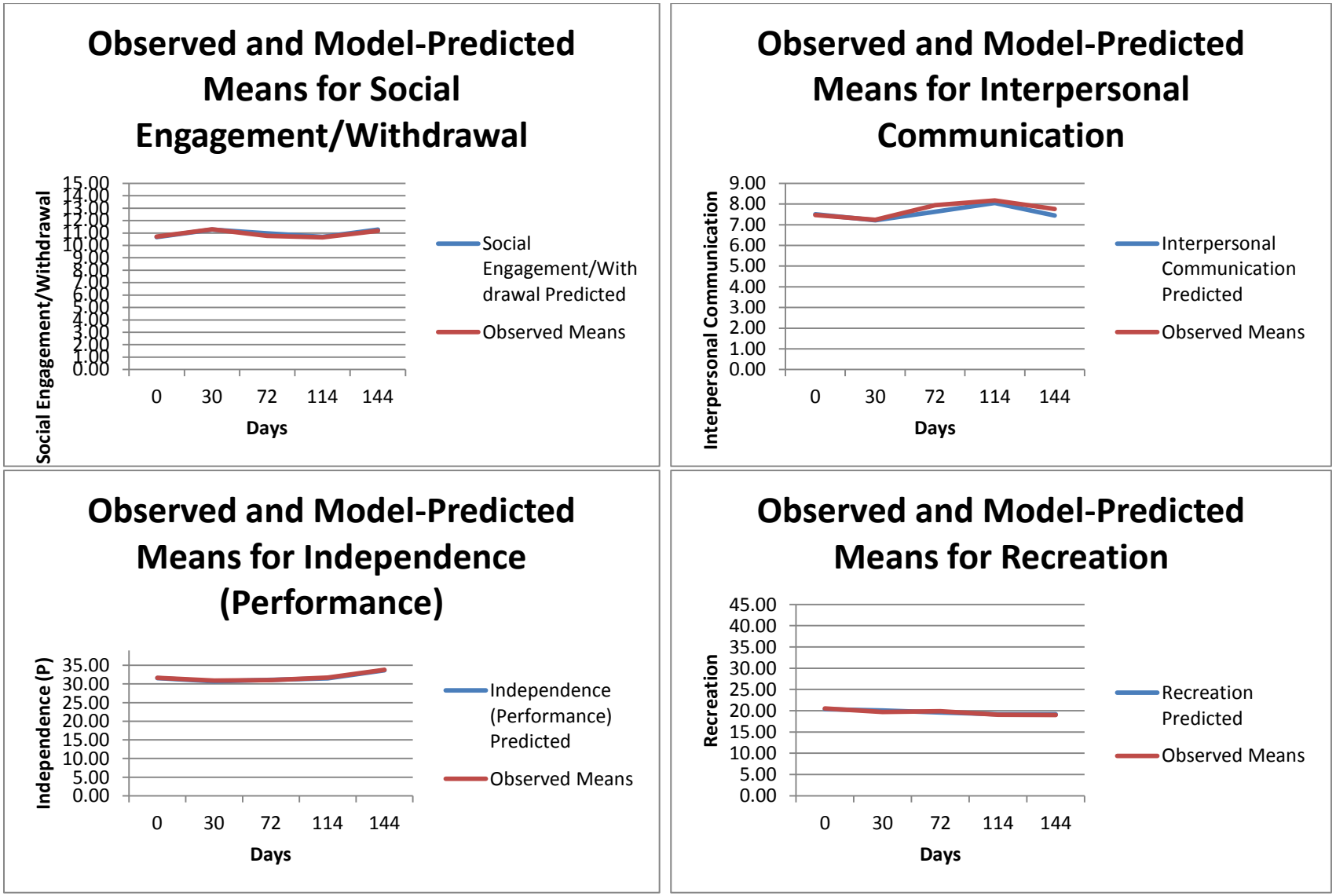


Figure 6.7. *Observed and Model Predicted Means for Social Functioning (continued)*

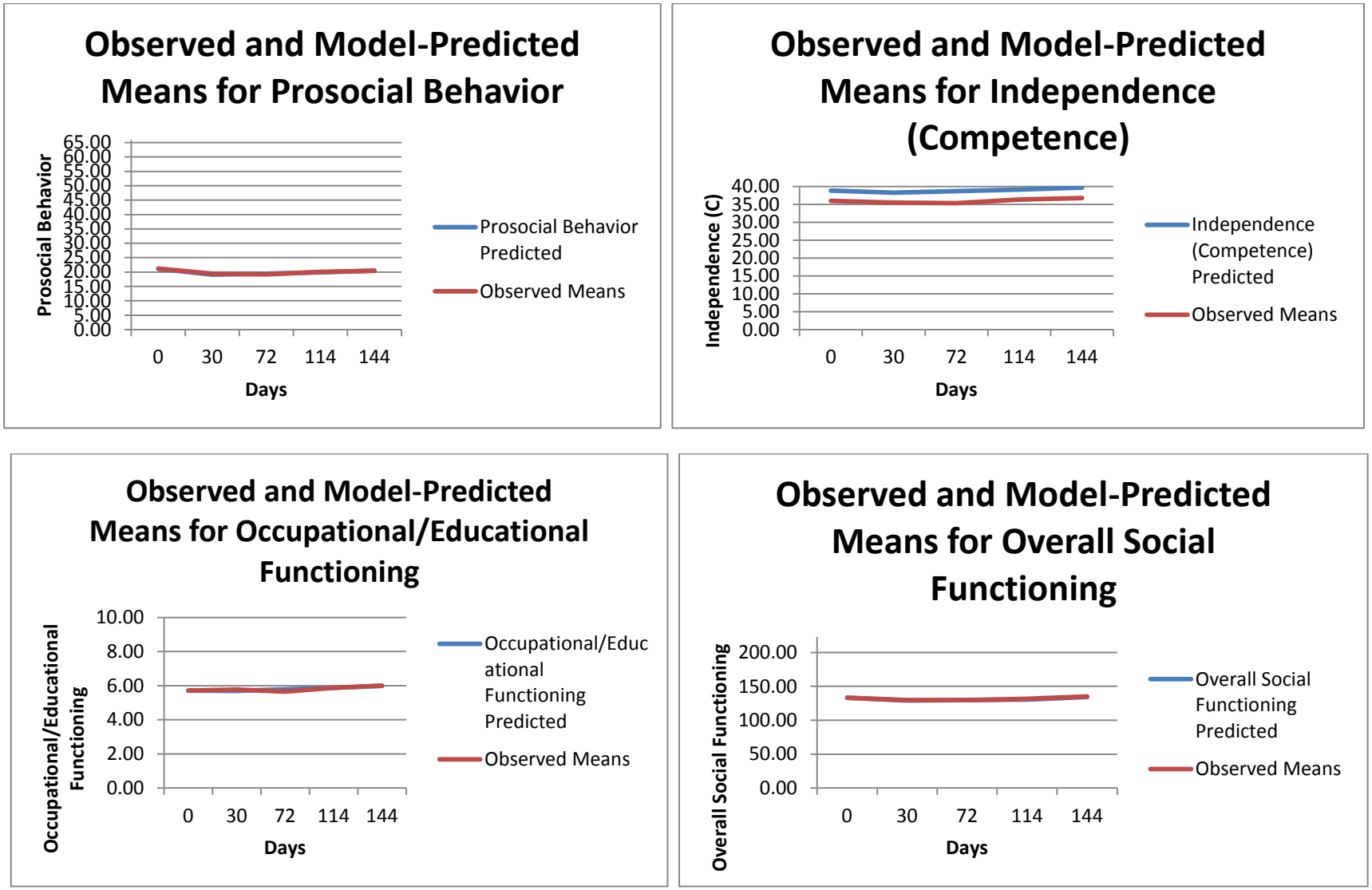


Table 6.3.

Parameter Estimates and Model Fit Statistics for Social Functioning Over Time (Unconditional Models)

Parameter	Engage/Withdraw	Interpersonal Comm.	Independence (P)	Recreation	Prosocial
Fixed Effects:					
Intercept	10.67** (0.57)	7.51** (0.30)	31.60** (1.17)	20.34** (1.35)	21.16** (2.24)
Linear Baseline	0.02 (0.01)	-0.01 (0.01)	-0.03 (0.02)	-0.01 (0.05)	-0.07 (0.06)
Linear Treatment	-0.007 (0.004)	0.01** (0.003)	0.01 (0.01)	-0.01 (0.02)	0.01 (0.03)
Linear Follow Up	0.02 (0.01)	-0.02* (0.01)	0.07** (0.02)	-0.001 (0.04)	0.02 (0.05)
Variance Components:					
Residual Variance	1.13** (0.20)	0.58** (0.10)	2.89** (0.51)	15.53** (2.72)	20.31** (4.10)
Intercept Variance	4.49** (1.67)	1.01** (0.40)	20.54** (7.48)	16.72** (7.06)	66.20** (26.59)
Linear Variance (BL)					
Intercept-Linear CV (BL)					
Linear Variance (TX)					0.01* (0.004)
Intercept-Linear CV (TX)					-0.22 (0.25)
Linear Variance (FU)					
Intercept-Linear CV (FU)					
Model Fit:					
REML Deviance	322.3	255.9	407.5	515.9	574.3

Parameter Estimates and Model Fit Statistics for Social Functioning Over Time (Unconditional Models)(continued)

Parameter	Engage/Withdraw	Interpersonal Comm.	Independence (P)	Recreation	Prosocial
AIC	326.3	259.9	411.5	519.9	582.3
BIC	327.9	261.6	413.2	521.5	585.6

Parameter Estimates and Model Fit Statistics for Social Functioning Over Time (Unconditional Models) (continued)

Parameter	Independence (C)	Occ./Edu.	Overall SF
Fixed Effects:			
Intercept	38.87** (0.68)	5.71** (0.84)	133.15** (5.04)
Linear Baseline	-0.02 (0.02)	-0.0003 (0.01)	-0.14 (0.12)
Linear Treatment	0.01 (0.01)	0.002 (0.005)	0.02 (0.04)
Linear Follow Up	0.02 (0.02)	0.004 (0.01)	0.12 (0.09)
Variance Components:			
Residual Variance	3.40** (0.60)	0.27** (0.06)	88.74** (15.57)
Intercept Variance	4.75** (1.93)	11.66** (4.16)	349.57** (130.57)
Linear Variance (BL)			
Intercept-Linear CV (BL)			
Linear Variance (TX)		0.0003* (0.0001)	
Intercept-Linear CV (TX)		-0.005 (0.02)	
Linear Variance (FU)		0.001* (0.0005)	
Intercept-Linear CV (FU)		0.004 (0.03)	
Linear-Linear CV (TX/FU)		0.0001 (0.0002)	
Model Fit:			
REML Deviance	396.5	297.3	675.8

Parameter Estimates and Model Fit Statistics for Social Functioning Over Time (Unconditional Models) (continued)

Parameter	Independence (C)	Occ./Edu.	Overall SF
AIC	400.5	311.3	679.8
BIC	402.1	317.1	681.5

Note. Standard errors are in parentheses. Engage/Withdraw = Social Engagement and Withdrawal; Interpersonal Comm. = Interpersonal Communication; Independence (P) = Independence (Performance); Prosocial = Prosocial Behavior; Independence (C) = Independence (Competence) ; Occ./Edu. = Occupational/Educational Functioning; Overall SF = Overall Social Functioning.

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

Stigma beliefs. There were no missing data for stigma beliefs.

Stereotype awareness. According to the Type 3 Test of Fixed Effects in the saturated means model for Stereotype Awareness, there were not significant mean differences over time in Stereotype Awareness, (F (4,16) = 0.92, p = .48). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .58, demonstrating that almost 58% of the variance in Stereotype Awareness was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .93, .35, and .99, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .69). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 1.5$, p = .47, suggesting that there were not differences in the linear rate of

change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Stereotype Awareness included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Stereotype Awareness on average nor were there individual differences in change during any of the time periods.

The predicted means from the final Stereotype Awareness model compared to the observed means from the saturated means model are shown in Figure 6.9, and parameter estimates and fit statistics for this model are found in Table 6.4. As shown, the mean predicted Stereotype Awareness at day 0 was 54.96, with a 95% CI of 20.01 and 89.91 (meaning that 95% of the sample was predicted to have individual intercepts for Stereotype Awareness at day 0 between 20.01 and 89.91). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.02, -0.06, and 0.001, respectively. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Stereotype agreement. According to the Type 3 Test of Fixed Effects in the saturated means model for Stereotype Agreement, there were not significant mean differences over time in Stereotype Agreement, (F (4,16) = 1.86, p = .17). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .49, demonstrating that almost 50% of the variance in Stereotype Agreement was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .67, .29, and .74, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .55). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 12.4$, $p < .01$, suggesting that there were differences in the linear rate of change among individuals during the baseline period. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes, a random linear baseline slope, and a random linear treatment slope was specified. The addition of the random linear treatment effect (as well as covariances between the random intercept and random linear treatment effect and the random linear baseline effect and the random linear treatment effect) resulted in a non-positive definite G matrix because the random

linear treatment slope variance was estimated to be equal to 0. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear baseline slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear baseline effect and the random linear follow up effect) also resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Stereotype Agreement included three fixed linear slopes and a random linear baseline slope. This model indicates that there were no changes in Stereotype Agreement on average nor were there individual differences in change during any of the time periods.

The predicted means from the final Stereotype Agreement model compared to the observed means from the saturated means model are shown in Figure 6.9, and parameter estimates and fit statistics for this model are found in Table 6.4. As shown, the mean predicted Stereotype Agreement at day 0 was 30.11, with a 95% CI of 11.45 and 48.77 (meaning that 95% of the sample was predicted to have individual intercepts for Stereotype Agreement at day 0 between 11.45 and 48.77). The mean predicted linear rate of change during the baseline period was -0.15, with a 95% CI of -1.48 to 1.18 (meaning that 95% of the sample was predicted to have an individual rate of change during the baseline period falling between -1.48 and 1.18). This indicates that not all participants were predicted to improve during the baseline period. The mean predicted linear rate of change during the treatment and follow up periods were 0.08 and -0.06, respectively. To determine whether these effects depended upon the number of sessions attended, the

main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Self concurrence. According to the Type 3 Test of Fixed Effects in the saturated means model for Self Concurrence, there were not significant mean differences over time in Self Concurrence, (F (4,16) = 1.53, p = .24). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .35, demonstrating that about 35% of the variance in Self Concurrence was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .87, .08, and .11, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .97). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 2.6$, p = .27, suggesting that there were not differences in the linear rate of change among individuals during the baseline period. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes and a random linear treatment

slope was specified. The addition of the random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) also resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 4.6$, $p = .10$, suggesting that there were also not differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as a covariance between the random intercept and random linear follow up effect) also resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 0$, $p = 1$, suggesting that there were also not differences in the linear rate of change among individuals during the follow up period. Thus, the final model for Self Concurrence included three fixed linear slopes and a random intercept. This model indicates that there were no changes in Self Concurrence on average nor were there individual differences in change during any of the time periods.

The predicted means from the final Self Concurrence model compared to the observed means from the saturated means model are shown in Figure 6.9, and parameter estimates and fit statistics for this model are found in Table 6.4. As shown, the mean predicted Self Concurrence at day 0 was 21.15, with a 95% CI of 7.78 and 34.52 (meaning that 95% of the sample was predicted to have individual intercepts for Self Concurrrence at day 0 between 7.78 and 34.52). The mean predicted linear rate of change during the baseline, treatment, and follow up periods were -0.02, 0.06, and -0.15, respectively. To determine whether these effects depended upon the number of sessions

attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

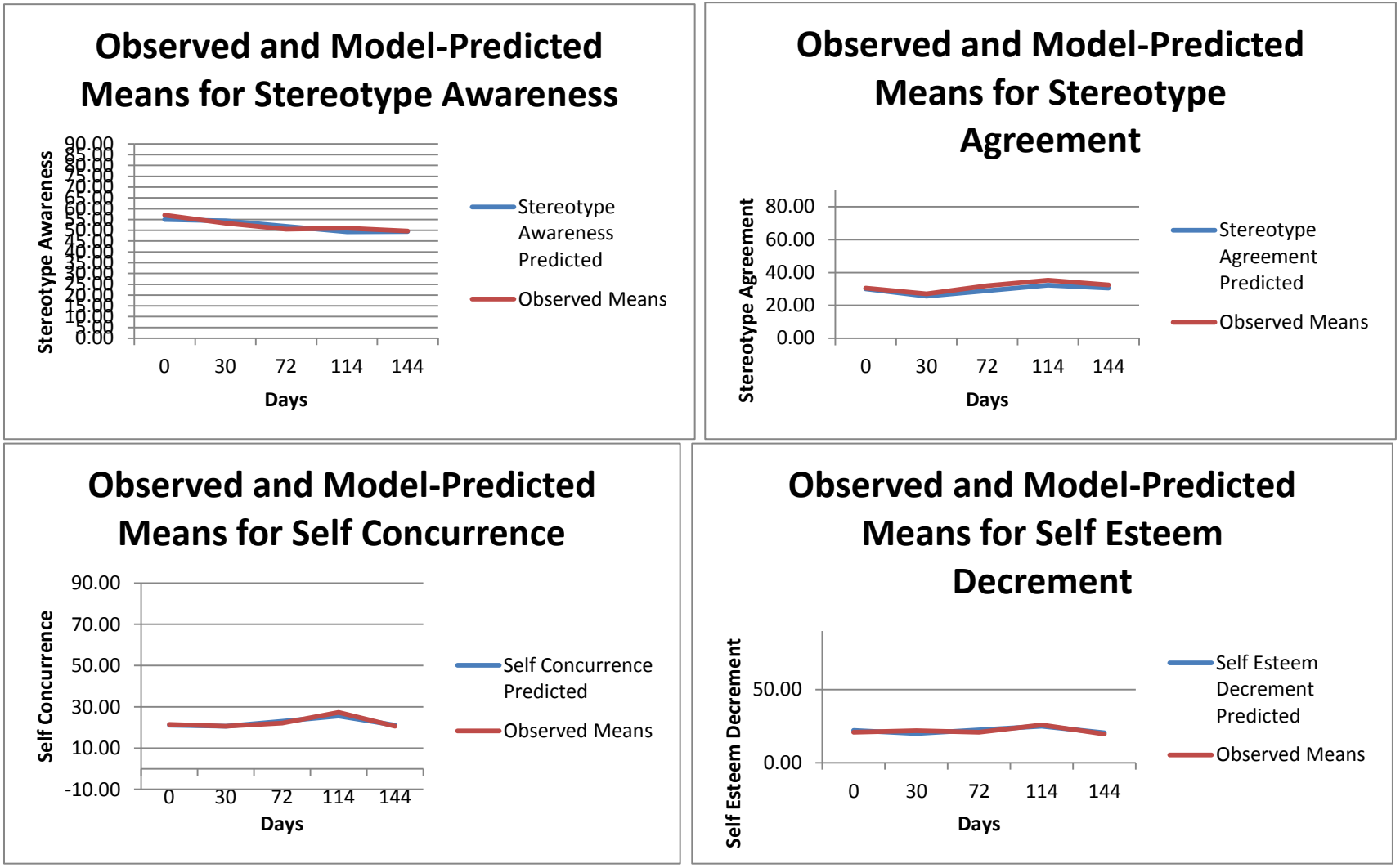
Self esteem decrement. According to the Type 3 Test of Fixed Effects in the saturated means model for Self Esteem Decrement, there were not significant mean differences over time in Self Esteem Decrement, (F (4,16) = 0.88, p = .50). Subsequent to the saturated means model, an empty means model was specified, and yielded an ICC of .33, demonstrating that about 33% of the variance in Self Esteem Decrement was cross-sectional (between persons). Next, a model with three fixed linear slopes (i.e., baseline slope, treatment slope, follow up slope) and a random intercept was specified. According to the p-values of the three fixed slopes, none were significant (p = .65, .26, and .22, respectively). Next, a model in which a fixed linear baseline slope, fixed quadratic treatment slope, and fixed linear follow up slope, as well as a random intercept, was specified. However, the fixed quadratic treatment slope was also not significant (p = .82). To determine whether there were individual differences in the linear rate of change during the baseline time period, a model with three fixed linear slopes, and a random linear baseline slope was specified. The addition of a random linear baseline effect (as well as a covariance between the random intercept and random linear baseline effect) resulted in a non-positive definite G matrix because the random linear baseline slope variance was estimated to be equal to 0. To assess whether there were individual differences in the linear rate of change during the treatment period, a model with three fixed linear slopes and a random linear treatment slope was specified. The addition of the

random linear treatment effect (as well as a covariance between the random intercept and random linear treatment effect) resulted in a significant improvement to the model, $2\Delta LL(\sim 2) = 7.3$, $p < .05$, suggesting that there were differences in the linear rate of change among individuals during the treatment period. Finally, to determine whether there were individual differences in the linear rate of change during the follow up period, a model with three fixed linear slopes, a random linear treatment slope, and a random linear follow up slope was specified. The addition of the random linear follow up effect (as well as covariances between the random intercept and random linear follow up effect and the random linear treatment effect and the random linear follow up effect) resulted in a non-positive definite G matrix because the random linear follow up slope variance was estimated to be equal to 0. Thus, the final model for Self Esteem Decrement included three fixed linear slopes and a random linear treatment slope. This model indicates that there were no changes in Self Esteem Decrement on average during any of the time periods, but there were individual differences in change during the treatment period.

The predicted means from the final Self Esteem Decrement model compared to the observed means from the saturated means model are shown in Figure 6.9, and parameter estimates and fit statistics for this model are found in Table 6.4. As shown, the mean predicted Self Esteem Decrement at day 0 was 20.02, with a 95% CI of 14.05 to 30.09 (meaning that 95% of the sample was predicted to have individual intercepts for Self Esteem Decrement at day 0 between 14.05 and 30.09). The mean predicted linear rate of change during the baseline and follow up periods were -0.07 and -0.15, respectively. The mean predicted linear rate of change during the treatment period was 0.06, with a 95% CI of -0.14 to 0.26 (meaning that 95% of the sample was predicted to

have an individual linear rate of change during the treatment period falling between -0.14 and 0.26). This indicates that not all participants were expected to improve during the treatment period. To determine whether these effects depended upon the number of sessions attended, the main effect of number of sessions attended and interactions between the three fixed slopes and the effect of number of sessions attended were added to this model. However, the main effect of number of sessions attended and the interactions between this effect and the fixed linear time slopes were not significant.

Figure 6.9. *Observed and Model Predicted Means for Stigma Beliefs*



Note. The rounding of time in the saturated means models may be partially responsible for the discrepancies between the observed and predicted means.

Table 6.4.

Parameter Estimates and Model Fit Statistics for Stigma Beliefs Over Time (Unconditional Models)

Parameter	Aware	Agree	Apply	Hurts Self
Fixed Effects:				
Intercept	54.96** (5.60)	30.11** (3.35)	21.15** (2.68)	22.02** (2.63)
Linear Baseline	-0.02 (0.19)	-0.15 (0.22)	-0.02 (0.11)	-0.07 (0.13)
Linear Treatment	-0.06 (0.06)	0.08 (0.04)	0.06 (0.04)	0.06 (0.05)
Linear Follow Up	0.001 (0.15)	-0.06 (0.10)	-0.15 (0.09)	-0.15 (0.11)
Variance Components:				
Residual Variance	236.18** (41.42)	107.12** (22.19)	84.54** (14.84)	111.17** (22.61)
Intercept Variance	317.91** (129.73)	90.67 (68.36)	46.54* (22.87)	16.75 (25.25)
Linear Variance (BL)		0.46 (0.32)		
Intercept-Linear CV (BL)		-3.04 (4.15)		
Linear Variance (TX)				0.01 (0.01)
Intercept-Linear CV (TX)				0.37 (0.36)
Linear Variance (FU)				
Intercept-Linear CV (FU)				
Model Fit:				
REML Deviance	739.4	687.3	644.7	670.8

Parameter Estimates and Model Fit Statistics for Social Functioning Over Time (Unconditional Models)(continued)

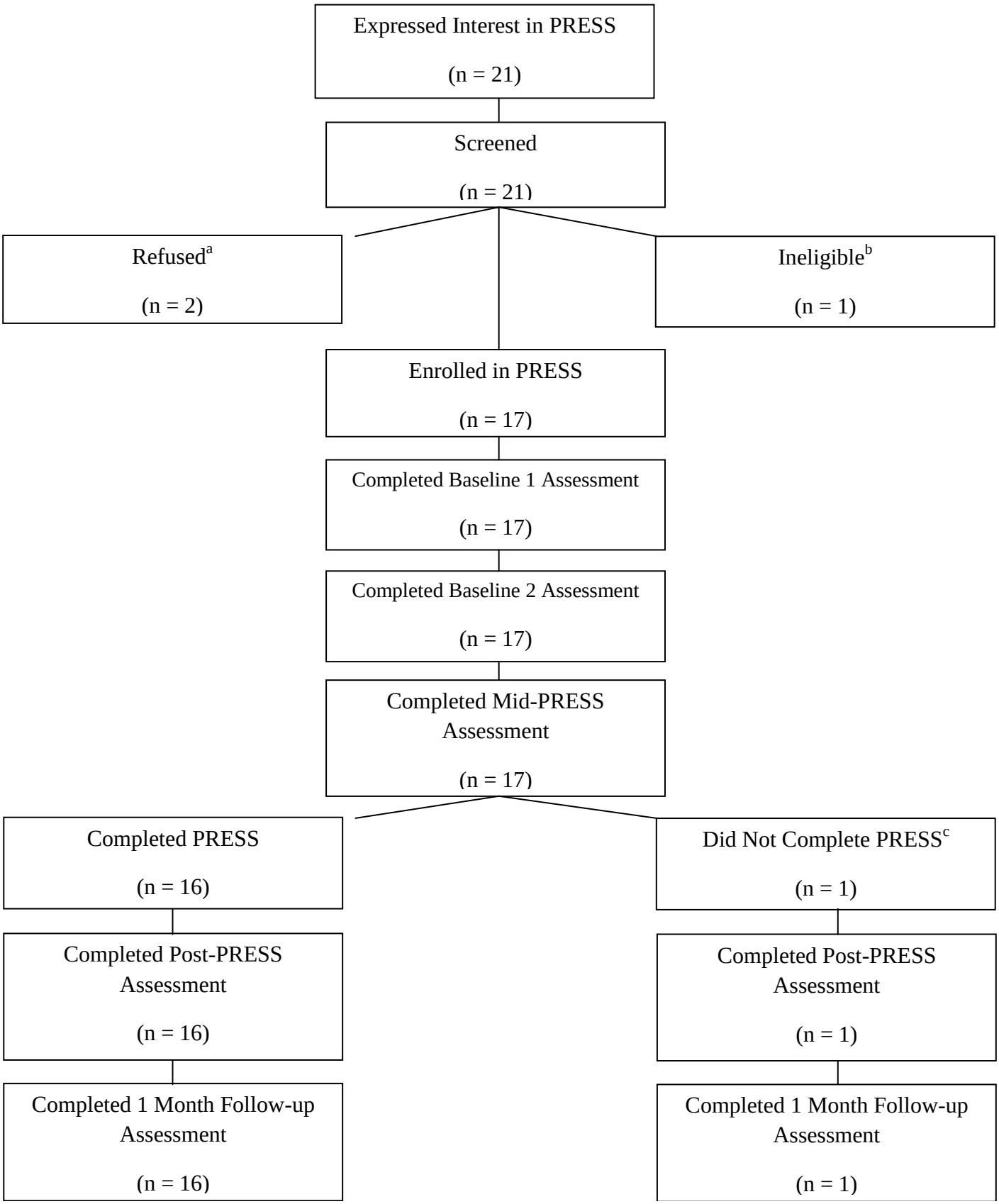
Parameter	Aware	Agree	Apply	Hurts Self
AIC	743.4	695.3	648.7	678.8
BIC	745.1	698.7	650.4	682.1

Note. Standard errors are in parentheses. Aware = Stereotype Awareness; Agree = Stereotype Agreement; Apply = Self Concurrence; Hurts Self = Self Esteem Decrement.

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

Hypothesis 3. As shown in Figure 6.10, only one individual officially withdrew from participation in the intervention during the course of the study, resulting in a retention rate of 94%. Two additional individuals did not withdraw from participation in the intervention, but only attended groups on the days in which assessments were being conducted. The mean number of sessions attended was approximately 9, with a standard deviation of 3.42.

Figure 6.10. *PRESS Consort Diagram*



[a]One individual refused because he did not want to be audio recorded. Another participant refused because he had concerns about the study procedures (e.g., confidentiality, time commitment).
[b]One individual was ineligible because her guardian did not provide permission for her to participate in the study.
[c]One individual dropped out of the group due to not having enough time to participate.

Participation. The unconditional means model (i.e., empty means, random intercept only) for participation yielded an ICC of .48, demonstrating that almost 50% of the variance in participation was cross-sectional (between persons). A fixed linear effect of week was then specified. This fixed linear effect was not significant ($p = .95$), such that participation became non-significantly higher by .02 at each additional week. A fixed quadratic, random intercept model was specified next. The fixed quadratic effect was significant ($p < .05$), such that the linear slope became less negative by .36 across weeks. Pseudo-R^2 revealed that 2.3% of the residual variance was explained by the fixed quadratic effect of week. A fixed cubic, random intercept model was then specified. The fixed cubic effect was not significant ($p = .93$), such that the deceleration of the linear slope became non-significantly more negative by .002 across weeks. Next a fixed quadratic, random linear model was specified in order to assess whether there were individual differences in the linear rate of change across weeks. The addition of a random linear effect (as well as a covariance between the random intercept and random linear effect) resulted in a significant improvement to the model $2\Delta LL(\sim 2) = 6.6$, $p < .05$ (AIC and BIC were also smaller for the later model), suggesting that there were indeed differences in the linear rate of change among individuals across weeks. A random quadratic model was then specified in order to assess whether there were individual differences in the magnitude of the change in the linear slope; however, this resulted in a non-positive definite estimated G matrix because the random quadratic slope variance was estimated to be equal to 0. Thus, the fixed quadratic, random linear model was retained.

The predicted means from the final Participation model compared to the observed means from the saturated means model are shown in Figure 6.11, and parameter estimates and fit statistics for this model are found in Table 6.5. As shown, the predicted mean Participation at week 0 was 38.40, with a 95% CI of 20.94 to 55.86 (meaning that 95% of the sample was predicted to have individual intercepts for Participation at week 0 between 20.94 and 55.86). The predicted mean instantaneous linear rate of change at week 0 was -1.95, with a 95% CI of -3.67 to -0.23 (meaning that 95% of the sample was predicted to have an individual instantaneous linear rate of change at week 0 falling between -3.67 and -0.23). The predicted mean linear rate of change was .36 per week.

In order to assess the impact of stigma beliefs on participation, fixed main effects for the following were added to the final unconditional model for participation: the effect of having higher baseline stereotype awareness on average, the effect of having higher baseline stereotype agreement on average, the effect of having higher baseline self-concurrence on average, the effect of having higher baseline self-esteem decrement on average, the effect of having higher stereotype awareness compared to baseline, the effect of having higher stereotype agreement compared to baseline, the effect of having higher self-concurrence compared to baseline, and the effect of having higher self-esteem decrement compared to baseline. The addition of these fixed effects did not improve model fit, $2\Delta LL(\sim 8) = 8.1$, $p > .05$, suggesting that these effects in combination should not be used to predict participation. Even when these effects were added to the model individually, none was significant.

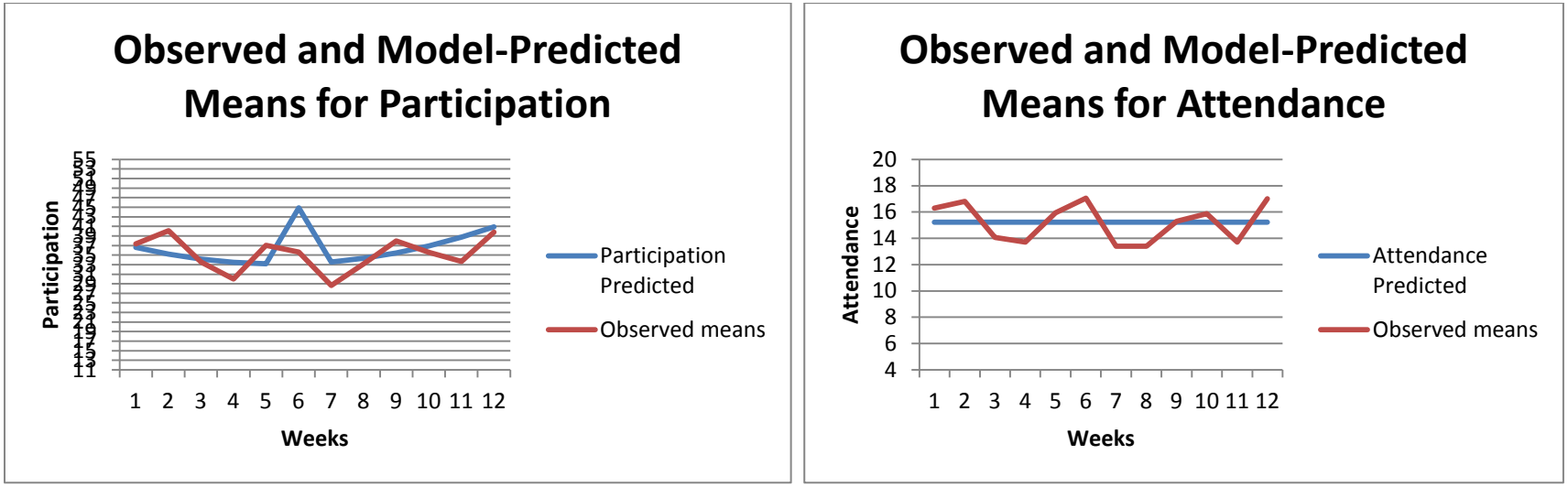
Attendance. The unconditional means model (i.e., empty means, random intercept only) for attendance yielded an intraclass correlation (ICC; also the effect size of the

cross-sectional dependency) of .46, demonstrating that almost 50% of the variance in attendance was cross-sectional (between persons). A fixed linear effect of week was then specified. This fixed linear effect was not significant (p = .70), such that attendance became non-significantly lower by .04 at each additional week. A fixed quadratic, random intercept model was specified next. The fixed quadratic effect was not significant (p = .10), such that the linear slope became non-significantly less negative by .11 across weeks. A fixed cubic, random intercept model was then specified. The fixed cubic effect was not significant (p = .74), such that the deceleration of the linear slope became non-significantly less negative by .004 across weeks. Next, a random linear model was specified to determine whether there were individual differences in the linear rate of change in attendance; this resulted in a non-significant improvement to the model, $2\Delta LL(\sim 2) = 4.4$, $p > .05$. To determine whether there were differences in the magnitude of the change in the linear slope, a random quadratic model was specified; however, this resulted in a non-positive definite estimated G matrix because the random quadratic slope variance was estimated to be equal to 0. Thus, the empty means, random intercept only model was retained.

The predicted means from the final Attendance model compared to the observed means from the saturated means model are shown in Figure 6.11, and parameter estimates and fit statistics for this model are found in Table 6.5. As shown, the predicted mean Attendance at week 0 was 15.22, with a 95% CI of 6.43 to 24.01 (meaning that 95% of the sample was predicted to have individual intercepts for Attendance at week 0 between 6.43 and 24.01).

In order to assess the impact of stigma beliefs on attendance, fixed main effects for the following were added to the final unconditional model for attendance: the effect of having higher baseline stereotype awareness on average, the effect of having higher baseline stereotype agreement on average, the effect of having higher baseline self-concurrence on average, the effect of having higher baseline self-esteem decrement on average, the effect of having higher stereotype awareness compared to baseline, the effect of having higher stereotype agreement compared to baseline, the effect of having higher self-concurrence compared to baseline, and the effect of having higher self-esteem decrement compared to baseline. The addition of these fixed effects did not improve model fit, $2\Delta LL(\sim 8) = 23.8$, $p < .01$, suggesting that these effects in combination should not be used to predict attendance. Even when these effects were added to the model individually, none was significant.

Figure 6.11. *Observed and Model Predicted Means for Participation and Attendance*



Note. The rounding of time in the saturated means models may be partially responsible for the discrepancies between the observed and predicted means.

Table 6.5.

Parameter Estimates and Model Fit Statistics for Participation and Attendance (Unconditional Models)

Parameter	Participation	Attendance
Fixed Effects:		
Intercept	38.40** (2.94)	15.22** (1.14)
Linear Week	-1.95* (0.87)	
Quadratic Week	0.18* (0.07)	
Variance Components:		
Residual Variance	123.46** (13.43)	23.48** (2.43)
Intercept Variance	79.34* (41.11)	20.11** (7.80)
Linear Week Variance	0.77 (0.59)	
Intercept-Linear Covariance	1.91 (3.55)	
Model Fit:		
REML Deviance	1609.8	1260.9
AIC	1617.8	1264.9
BIC	1621.1	1266.5

Note. Standard errors are in parentheses.

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

Hypothesis 4.

Personal reactions to treatment. Consumers and peer providers gave high ratings of satisfaction associated with the group (see Tables 6.6 and 6.7 for ratings broken down by group session).

Consumers gave an overall usefulness of the group rating of 4.3 (*SD* = 1.0), an overall perceived quality of service rating of 4.5 (*SD* = 0.7), and an overall appropriateness of topic to own situation rating of 4.5 (*SD* = 0.9). The extent to which the handouts and material were understandable was given an overall rating of 4.7 (*SD* = 0.7). Overall ratings of perceived support by the group facilitators and other group members were 4.5 (*SD* = 0.8) and 4.3 (*SD* = 1.0), respectively. While overall ratings were uniformly high, sessions that were rated as particularly useful included wellness tools (tools other than thought challenging) and living a healthy lifestyle. Problem solving and decision making received the lowest "usefulness" rating. There was very little variability in perceived quality of the group, but those sessions that received the lowest ratings included problem solving and decision making and getting your recovery goals and needs met. Sessions that appeared to be particularly appropriate to consumers' lives included wellness tools (thought challenging) and developing hobbies, while sessions that appeared less appropriate were self disclosure, substance use, and getting your recovery goals and needs met. Consumers rated the stigma and discrimination, self disclosure, wellness tools (other than thought challenging), substance use, and developing hobbies topics as the most understandable. Goal setting was rated as least understandable. Perceived support by the group facilitators decreased slightly by session 8, but peaked again at the last session. Perceived support by other group members was more variable,

with the highest ratings given during the stigma and discrimination, and wellness tools (other than thought challenging) sessions. The lowest ratings of perceived support by other group members occurred during the substance use and getting your recovery goals and needs met sessions.

Peer providers gave overall ratings of the usefulness and understandability of the group manual of 4.4 (*SD* = 0.9) and 4.5 (*SD* = 0.9), respectively. On average, the extent to which the group topic was perceived to be helpful to the group was 3.9 (*SD* = 1.1), and the extent to which peer providers felt comfortable in their facilitator roles was 4.4 (*SD* = 1.1). The data suggest that the manual was particularly useful to peer providers during the goal setting, wellness tools (other than thought challenging), living a healthy lifestyle, developing hobbies, getting your recovery goals and needs met, and putting it all together sessions. The self disclosure session received a relatively low "usefulness of manual" rating. The manual was rated as particularly understandable during the recovery and resiliency, wellness tools (other than thought challenging), living a healthy lifestyle, developing hobbies, getting your recovery goals and needs met, and putting it all together sessions. The problem solving and decision making and self disclosure sessions were associated with the lowest "understandability of manual" ratings. According to peer providers, the wellness tools (other than thought challenging), living a healthy lifestyle, getting your recovery goals and needs met, and putting it all together sessions appeared to be the most helpful to consumers, while the problem solving and decision making, self disclosure, and substance use topics appeared to be the least helpful. Finally, peer providers indicated that they felt most comfortable facilitating groups on recovery and resiliency, stigma and discrimination, wellness tools (both thought challenging and other

wellness tools), living a healthy lifestyle, developing hobbies, and getting your recovery goals and needs met. They indicated that they felt least comfortable facilitating groups on goal setting, problem solving and decision making, and self disclosure.

Table 6.6.

Summary of Quantitative Participant Feedback

	Item											
	Usefulness		Quality		Appropriateness		Understandable		Support (facilitators)		Support (members)	
Session	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)
1	15	4.0 (1.3)	15	4.7 (0.5)	15	4.5 (0.5)	14	4.5 (0.9)	15	4.6 (0.6)	14	4.0 (1.1)
2	13	4.1 (1.3)	13	4.4 (0.7)	13	4.5 (0.5)	13	4.3 (0.9)	13	4.5 (0.5)	13	4.4 (0.5)
3	11	3.8 (1.3)	11	4.2 (0.6)	11	4.5 (0.5)	11	4.4 (1.0)	11	4.5 (0.5)	11	4.3 (0.6)
4	10	4.5 (0.7)	10	4.7 (0.5)	10	4.5 (0.7)	10	4.8 (0.4)	10	4.6 (0.7)	10	4.7 (0.7)
5	12	4.4 (1.2)	12	4.6 (0.9)	12	4.2 (1.4)	12	5.0 (0.0)	12	4.6 (0.9)	12	4.3 (1.1)
6	15	4.4 (0.9)	15	4.8 (0.4)	15	4.7 (0.5)	15	4.7 (0.6)	15	4.7 (0.5)	15	4.3 (0.8)
7	10	4.8 (0.4)	10	4.7 (0.5)	10	4.4 (1.3)	10	4.9 (0.3)	10	4.7 (0.5)	10	4.5 (0.7)
8	9	4.7 (0.5)	9	4.7 (0.5)	9	4.4 (1.3)	9	4.7 (0.7)	9	4.4 (0.7)	9	4.4 (0.7)

Table 6.6.

Summary of Quantitative Participant Feedback (continued)

	Item											
	Usefulness		Quality		Appropriateness		Understandable		Support (facilitators)		Support (members)	
Session	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)
9	12	4.5 (0.9)	13	4.6 (0.8)	12	4.2 (1.4)	14	5.0 (0.0)	15	4.2 (1.5)	14	3.9 (1.3)
10	14	4.5 (0.9)	14	4.4 (1.2)	14	4.6 (0.6)	14	4.8 (0.6)	14	4.4 (1.2)	14	4.4 (1.2)
11	11	3.8 (1.4)	11	4.3 (1.0)	11	4.3 (1.0)	11	4.7 (0.6)	11	4.4 (1.3)	11	3.8 (1.3)
12	14	4.6 (0.8)	14	4.5 (0.9)	14	4.6 (0.8)	14	4.6 (0.5)	14	4.6 (0.6)	14	4.4 (0.9)

Note. The variation in sample size is due to the anonymous nature of the participant feedback survey (the researcher could not query missing data due to not being able to trace the data back to the original source). Support (facilitators) = the extent to which group members felt supported by the group facilitators. Support (members) = the extent to which group members felt supported by other group members. . Session 1 = recovery and resiliency; 2 = goal setting; 3 = problem solving and decision making; 4 = stigma and discrimination; 5 = self disclosure; 6 = wellness tools (thought challenging); 7 = wellness tools (other tools); 8 = living a healthy lifestyle; 9 = substance use; 10 = developing hobbies; 11 = getting your recovery goals and needs met; 12 = putting it all together.

Table 6.7.

Summary of Quantitative Provider Feedback

	Item							
	Usefulness		Understandable		Helpfulness to consumers		Comfort with facilitating	
Session	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)
1	2	4.0 (0.0)	2	5.0 (0.0)	2	4.0 (0.0)	2	5.0 (0.0)
2	3	5.0 (0.0)	3	4.7 (0.6)	3	4.0 (0.0)	3	3.7 (1.5)
3	4	3.8 (1.3)	4	3.5 (1.3)	4	3.0 (1.8)	4	3.5 (1.7)
4	1	4.0 (-)	1	4.0 (-)	1	4.0 (-)	1	5.0 (-)
5	3	3.3 (2.1)	3	3.3 (2.1)	3	3.3 (2.1)	3	3.3 (2.1)
6	4	4.3 (0.5)	4	4.5 (0.6)	4	4.0 (0.8)	4	5.0 (0.0)
7	2	5.0 (0.0)	2	5.0 (0.0)	2	4.5 (0.7)	2	5.0 (0.0)
8	3	5.0 (0.0)	3	5.0 (0.0)	3	4.7 (0.6)	3	5.0 (0.0)

Table 6.7.

Summary of Quantitative Provider Feedback (continued)

	Item							
	Usefulness		Understandable		Helpfulness to consumers		Comfort with facilitating	
Session	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)	*n*	*M* (*SD*)
9	4	4.0 (0.0)	4	4.3 (0.5)	4	3.5 (1.7)	4	4.3 (0.5)
10	2	5.0 (0.0)	2	5.0 (0.0)	2	4.0 (0.0)	2	5.0 (0.0)
11	2	5.0 (0.0)	2	5.0 (0.0)	2	4.5 (0.7)	2	5.0 (0.0)
12	4	5.0 (0.0)	4	5.0 (0.0)	4	4.5 (0.6)	4	4.5 (0.6)

Note. The variation in sample size is due to the fact that peer providers were given the option of rating both groups that they facilitated each week, and they did not rate both groups each week. Usefulness = the extent to which peer providers felt that the manual was useful. Understandable = the extent to which peer providers felt that the manual was understandable. Session 1 = recovery and resiliency; 2 = goal setting; 3 = problem solving and decision making; 4 = stigma and discrimination; 5 = self disclosure; 6 = wellness tools (thought challenging); 7 = wellness tools (other tools); 8 = living a healthy lifestyle; 9 = substance use; 10 = developing hobbies; 11 = getting your recovery goals and needs met; 12 = putting it all together. Dash marks (-) indicate data that were not obtained.

Regarding consumer qualitative feedback, there were several commonalities noted among responses. Several consumers commented that they enjoyed the atmosphere in which the group was conducted, the material presented, and the open discussions. Unfavorable opinions were generally given about the behavior of other group members rather than problems with the content or structure of the group. However, several consumers requested that meeting times be lengthened. Several consumers also suggested a less structured approach to the group, such as allowing individuals to bring up their own topics and doing less reading. See Table 6.8 for a summary of qualitative feedback broken down by group session.

With respect to peer provider qualitative feedback, several positive comments were made about the structure of the group, including favoring the sharing of reading of the group material and the use of a whiteboard to summarize group discussions. Comments indicating areas for improvement included simplifying the content of some of the material (both in terms of language and length). Peer providers also suggested several ideas for expanding the material, including adding more wellness tools and discussing substance use in a broader context (e.g., food addiction). See Table 6.9 for a summary of peer provider qualitative feedback.

Table 6.8. *Participant qualitative feedback regarding group sessions*

Session	keep	stop	start
Recovery and Resiliency	the open discussion, taking turns reading	nothing was wrong too much. There was a lot of dist (?)	no response
	everything cause it went very well	nothing at all. It all went fine.	Talking more and taking turns at doing so during group.
	introductions	everything was great	more advanced topics
	information	allowance of chronic schizophrenic	more information
	no response	everything good	things are off to a good start
	number or close to it	nothing!	more movement
	no response	nothing	keep on topic
	it's good the way it is	no response	no response
	no response	no response	more discussion from the members
	the topics discussed in group are helpful	no response	no response
	be comfortable-friendly	have more groups, more questions on life situations	share your life issues and how they affect you mentally
Goal Setting	the time and place	all's good	better snacks
	sharing our ideas	no response	no response
	keep the pop and the refreshments and snacks. Thanks.	no response	no response
	discussion	some participation	more discussion
	helping short term goals and long term goals healthy	more time in group	what lessons in our lives can we learn from
	we're doing good with the topics	nothing	no response
	It is nice and	nothing at all	taking turns and having

Problem Solving/Decision Making	It is nice and comfortable in the group room	nothing at all	taking turns and having everybody read
	Having individual stories	nothing	longer duration
	seeking input from group members	no response	no response
	keep going over the sections and having discussion	nothing	keep it the same
	keep be supported	less reading	more talking about recovery - talk about symptoms - support strategy
Stigma/Discrimination	question and answer	food	more answers
	the people who are involved in it	nothing the groups are going on fine	do more reading and taking turns
	no response	video wasn't that informative	maybe get video directly from Nami
	open discussion	no response	no response
	keep doing what we are doing	nothing	no response
Self Disclosure	everything	nothing at all	nothing
	stigma busters	talk about resources about your diagnosis	information on how to take a chance to talk to bosses - family members about your mental illness
	snacks and drinks	n/a	n/a
	the discussions	nothing	maybe bring up our own topics instead of ones from a book
	no response	none	talk about coping skills
Wellness Tools (Thought Challenging)	we like Liz when she comes	no response	no response
	supportive	allowing others to disrupt	more examples
	Everybody was here besides 1 person - we	NA	going around the table to speak out and take turns while going around the

Wellness Tools (Thought Challenging)	we like Liz when she comes	no response	no response
	supportive	allowing others to disrupt	more examples
	Everybody was here besides 1 person - we should have everybody for the group	NA	going around the table to speak out and take turns while going around the table
	strong group leaderships	no response	more questions about adverse situations
	keep inviting feedback from group	no response	no response
	everything	no response	no response
	bringing up issues and working on the tools out of the book	nothing	nothing
Other Wellness Tools	everything	nothing at all	everything went just fine
	popcorn basis	allowing distractions	speeches
	spiritual stuff	no response	videos - life lesson skills
	keep discussion going	nothing	no response
Living a Healthy Lifestyle	everything went just fine	na	na
	no response	no response	no response
	I think it's a fun environment	no response	Have videos - more assessments for $Goal Setting0
Substance Use	good topic	topic is good but content is too simple	more complex content (e.g., statistics)
	more problems with mental health issues	have more interactions with people - having substance issues	videos - more personal stories
	no response	cursing	roll calling
Developing Hobbies	doing what we are doing	nothing	more sharing by the quiet group members
	no response	not stairing people down	not talk too much
	no response	more questions - more detail ideas - more fun - more discussion about are mental illness	more videos - sharing stories more

Getting Your Recovery Goals/Needs Met	no response	no response	more statistics. I liked the section that contained statistics.
	group discussion	got taking do feedback [best guess - handwriting illegible]	more instructable [best guess -handwriting illegibile]
	no response	giving people money or if they come on money days	na
	keep doing like we're doing	nothing	no response
	no response	more groups talking about there mental illnesses. Videos on how to take risk about employment	more assessments. More people in the groups. Example videos to get out of our comfort zones.
	no response	giving enthusiasm	family history
Putting It All Together	more sessions. More groups.	not having fun	more fun - more videos - more participations - more mental illnesses.
	teaching same	no response	no response
	no response	stop expressing yourself	*illegible*

Table 6.9. *Provider qualitative feedback regarding group sessions*

Session	keep	stop	start
Recovery and Resiliency	sharing the reading, use of the white board	need more discussion	hands on activity
	keep encouraging participants to read and generate their own ideas (i.e., to put on the board)	letting people get up to get snacks all throughout group	a fun question when we check in each time
Goal Setting	everything	NA	having a clock in front of the facilitators for the group to see
	I think it's alright the way it is	Crinkling snack wrappers	no response
	using the white board	personal story stopped the flow of the group	no response
Problem Solving/Decision Making	no response	too much info for one session	sharing of personal story
	these personal stories seem to be going well	this week's curriculum is very hard to address and explain	na
	everything	nothing	split it into 2 - so can run through both
Stigma/Discrimination	discussion - may need to encourage more by providers	not so many websites - may be overwhelming	discuss local ways to fight stigmatism
	popcorn style reading. A beginning	no response	Better - sign up for beginning question. 1st let the group know we

Stigma/Discrimination	discussion - may need to encourage more by providers	not so many websites - may be overwhelming	discuss local ways to fight stigmatism
	popcorn style reading. A beginning question for the whole group to answer	no response	Better - sign up for beginning question. 1st let the group know we want a little participation from everyone, so we will have a sign up sheet for the beginning question
Self Disclosure	the length of the module	allowing group members to enter the classroom more than 5 minutes early	na
	all that's in the curriculum	n/a	add discussion about "pay offs" for disclosure
	worksheet practice	no response	no response
	this group matched very well with this group	nothing	n/a
Other Wellness Tools	everything	no response	add more wellness tools
	everything	na	add more wellness tools, extend the number of groups
Living a Healthy Lifestyle	no response	don't use the term "off setting weight gain" (being more active #1) - hard to explain meaning	no response
Substance Use	no response	I don't think the group was very helpful to most	Make it more inclusive about everyday

Getting Your Recovery Goals/Needs Met	listing resources	na	add an area to identify 1 local agency for each category
Putting It All Together	it was great!	no response	no response

Adverse events. Consistent with hypothesis 4, there were few adverse events reported during the study period, with most participants reporting no hospitalizations or use of emergency services. Two participants reported experiencing hospitalizations, only one of whom had a psychiatric hospitalization. One participant reported calling a crisis line due to having passive suicidal thoughts. No adverse events were related to the research study.

CHAPTER 7

DISCUSSION

Results Summary

This project sought to adapt and evaluate a CBTp intervention for provision by peers, in collaboration with peer providers and other consumers. Findings provided mixed support for our expectations and hypotheses.

Results from Study 1 demonstrated considerable overlap between topics covered in traditional CBTp interventions and what consumers and peer providers preferred to discuss in a peer-led support and education group. Participants voted for similar educational strategies as those used in traditional psychosocial interventions (e.g., home practice assignments, individual workbooks). However, preferred support strategies such as setting aside support time during group meetings provided differentiation from traditional CBTp group modalities. As anticipated, consumers and peer providers also preferred to use different language pertaining to some topics (e.g., coping skills vs. wellness tools). Feedback from participants on the topics of treatment engagement, challenging issues pertaining to peer provided services (e.g., confidentiality issues), and how peer providers should be selected to work with consumers further informed decisions concerning the intervention used in this study.

With respect to Study 2, the first hypothesis (that peer providers would deliver the intervention with an acceptable degree of fidelity to CBTp) was not supported. All peer providers received lower fidelity ratings on average than the "acceptable" standard, as suggested by Vallis and colleagues (1986). These results may suggest the need for improvement in provider training prior to the delivery of the intervention. The training

process was abbreviated given the time limited nature of the study, and the considerable amount of supervision that providers received throughout the delivery of the intervention. However, this finding is more likely a reflection of methodological problems associated with the use of the CTRS as a fidelity measure for this intervention rather than peer provider ability or training. We observed two primary challenges associated with using the CTRS in this study. First, the CTRS has traditionally been used to evaluate therapists' performance when delivering individual psychosocial interventions, which was not the case in this study. Given that there were two providers per group who were sharing responsibilities such as setting the agenda and assigning home practice, this resulted in only one peer provider receiving credit for items associated with these tasks on the CTRS. It is quite possible that some provider ratings were artificially deflated as a result. Further, there was not always agreement among raters regarding which provider took primary responsibility for certain tasks. Items of the CTRS associated with the greatest discrepancy in ratings included those pertaining to the use of change strategies and homework assignment/review. This ambiguity in provider roles provides insight into the poor interrater reliability of fidelity ratings. In addition, it is possible that peer providers were not able to achieve higher CTRS scores due to limitations presented by a group vs. individual context. For example, providers had to prioritize meeting the needs of the group in place of focusing on individualized target problems, however, the CTRS evaluated how well providers identified and addressed individuals' problems. Second, some of the CTRS items (e.g., Guided Discovery, Focusing on Key Cognitions and Behaviors), were not relevant to every session; thus, peer providers were not consistently given the opportunity to demonstrate skills which would allow them to attain higher

scores on these items. The problems associated with the use of the CTRS as a fidelity measure for this intervention necessitate a different approach to fidelity assessment in future studies of PRESS. Perhaps the best solution would be to develop a fidelity measure specifically for this intervention.

Results provided some support for Hypothesis 2, that participation in the intervention would be associated with improvement in symptoms, social functioning, and stigma beliefs.

With respect to psychiatric symptoms, on average, participants experienced a reduction in Overall Level of Symptomatology, Intensity of Symptoms, Somatization, Depression, Paranoid Ideation, and Psychoticism. These findings are consistent with Cook and colleagues (2009, 2011) and Pickett and colleagues (2010). Although we hypothesized that these improvements would be experienced during the treatment period and maintained during the follow up period, it was observed that positive change only occurred during the follow up period. This finding may be due to rapid pace of the intervention. Participants may have been able to put strategies learned in group into practice only after the group was over. Mostly inconsistent with Cook and colleagues (2009), no changes on average were observed during any of the time periods with respect to Obsession-Compulsion, Interpersonal Sensitivity, Anxiety, Hostility, Phobic Anxiety, and Number of Symptoms. The intervention's emphasis on wellness tools for the prevention of specific psychotic symptoms such as voice hearing, and the relatively low endorsement of certain symptoms (e.g., anxiety, hostility) in this sample, could explain this finding. Differences between the study sample and the sample used by Cook and colleagues (2009) may provide insight into discrepancies found between studies. For

example, the sample used in this study consisted exclusively of consumers with schizophrenia spectrum disorders, while Cook and colleagues (2009) included consumers with diagnoses of depressive disorder, bipolar disorder, and personality disorders.

With regard to social functioning, participants experienced improvement on average in Interpersonal Communication during the treatment period, and Independence (Performance) during the follow up period. Of note, participants experienced a reduction in Interpersonal Communication on average during the follow up period, suggesting that any gains made as a consequence of the intervention were not maintained. This finding could be a result of the short term infrastructure that the group provided for camaraderie among members and practice with conversations. Interestingly, although the group provided no skills training in the area of activities of daily living, participants reported engaging in more of these only after the intervention ended. This finding may point to non-specific effects of the intervention. No changes on average were observed during any of the time periods for Social Engagement and Withdraw, Recreation, Prosocial Behavior, Independence (Competence), Occupational/Educational Functioning, and Overall Social Functioning. There are several possible reasons for these results. First, it was noted that participants gave consistently high ratings over time of their Interpersonal Communication and Independence (Competence). Thus, ceiling effects may have limited variance of scores, impeding the ability to detect changes over time. Second, the majority of the group members lived in a residential treatment setting in which opportunities for outings were guided by a level system. Thus, group members on lower levels may not have been able to engage in as many recreational activities and prosocial behaviors (at least those behaviors assessed by the SFS). While individuals living in this treatment

setting were expected to move through this level system, the time period allotted for this study may not have been sufficient to capture level changes and associated changes in social activities.

Contrary to theory about the relationship between peer provided services and stigma beliefs (e.g., Davidson et al., 2006; Dixon et al., 2010), no changes in stigma beliefs were observed on average during any of the time periods. It was noted that there were consistently low ratings of Stereotype Agreement, Self-Concurrence, and Self-Esteem Decrement across time in this sample, suggesting that most participants did not endorse stereotypical beliefs held by society about people with mental illness nor did they tend to hold self-stigmatizing beliefs. The overall low level of endorsement of stigma beliefs in this sample may have impeded the ability to detect changes over time. In order to more clearly ascertain the relationship between involvement in peer provided interventions and stigma beliefs, future studies may benefit from including participants with greater endorsement of stigma beliefs at baseline. Alternatively, the possibility remains that working with peer providers does not in fact reduce stigma beliefs. Some support for this hypothesis comes from Davidson et al. (2004), who found that individuals matched with social partners without a history of mental health issues improved in terms of social functioning and self-esteem when they met with their partners, while those matched with partners with a history of mental illness improved within these domains only when they did not meet with their partners. The authors hypothesized that "participants who were matched with consumer partners fared better by not meeting with their partners as this kept them from becoming or remaining trapped within the confines of the mental health system" (p. 471). Thus, consumers may

experience a greater reduction in stigma beliefs through positive interaction with individuals not involved in the mental health system.

Contrary to Hypothesis 3, treatment engagement did not depend upon stigma beliefs. This finding is inconsistent with Tsang et al. (2006), who demonstrated a negative relationship between self-stigma and treatment engagement. Again, the lack of variance in stigma beliefs over time may account for this finding. Differences in study methodology may also explain contrasting results. This study included a peer-based intervention and a subset of PTCS items, while Tsang et al. (2006) was comprised of treatment modalities delivered by mental health professionals and the full PTCS.

Results generally supported Hypothesis 4, that participants and providers would give positive feedback about their experiences with the group, and that there would be few adverse events reported during the study period. Average quantitative ratings of satisfaction with the group were high among both consumers and peer providers. Not surprisingly, the topics that received the highest "usefulness ratings" by consumers and peer providers (e.g., wellness tools, living a healthy lifestyle) were also among those that received the highest number of votes for being included in the group according to Study 1. Feedback indicated that the session in need of the most improvement is that pertaining to the topic of problem solving and decision making. This topic was voted to be least the useful to consumers, and the section of the manual pertaining to this topic was voted to be among the least understandable to peer providers. Thus, simplification of material related to this topic is indicated and could perhaps be accomplished by breaking up the topic into multiple group sessions and through revision of language. A number of other suggestions were made in terms of how the intervention might be improved, and these

will be taken into consideration for future studies. With respect to adverse events, only one psychiatric hospitalization occurred during the study period. Although this finding is in line with studies which have shown that peer provided services reduce the need for hospitalization (e.g., Solomon, 2004), it should be noted that the sample was comprised of a clinically stable group of outpatients and a large number of psychiatric hospitalizations was not anticipated.

Limitations

There were several limitations associated with this study that have not previously been mentioned. First, the study design limits the ability to detect causal relationships between participation in the intervention and functional outcomes. As this study was not a randomized controlled trial, we cannot rule out confounding factors that may have contributed to positive changes. For example, other services in which participants were involved during the course of the study could have contributed to improvements in functioning. Nevertheless, the use of a baseline control period provides more compelling evidence of an effect of treatment than a simple pre/post design, and represents an improvement in methodology from previous studies of peer provided interventions (e.g., Cook et al., 2009; Pickett et al., 2010). Further, the study design is sufficient for the purpose of piloting the intervention and providing preliminary evidence of its feasibility and effectiveness. Future, more tightly controlled studies of this intervention are merited and will benefit from insights gained during this pilot study.

A second limitation was that the small sample size likely impacted power needed to detect significant effects related to Study 2. Research suggests that in multilevel modeling studies with small sample sizes, the ability to attain unbiased fixed parameter

estimates pertaining to person-level and time-varying predictors is relatively good; however, the ability to attain unbiased variance components and standard errors for both fixed and random effects may be limited (Maas & Hox, 2005). The small sample size was strategic given that this was a pilot study and that groups had to be kept small in order for members to maximally benefit. Thus, several other strategies were used in order to increase power. First, according to Scherbaum and Ferreter (2009), including a level-1 or level-2 covariate in a multilevel model can improve power, as it can reduce between-group variance and "shift the optimal allocation of sample size at each level" (p. 352). Thus, adding number of treatment sessions attended as a covariate may have increased power. Second, different estimation procedures also impact statistical power (Scherbaum & Ferreter, 2009). There are few guidelines for selecting an estimation procedure, but using restricted maximum likelihood (REML) appears to be advantageous when sample size is small. Thus, REML was used as the estimation procedure in all of our analyses. Third, as suggested by Raudenbush and Liu (2001) increasing the frequency of measurement increases power. Thus, analyses pertaining to Hypotheses 3 likely had more power than analyses pertaining to Hypothesis 2, as there were 12 occasions of measurement for treatment engagement as opposed to only 5 for symptoms, social functioning, and stigma beliefs. Increasing the occasions of measurement for Hypothesis 2 would have been impractical given substantive interests associated with the timing of measurement. Even though several power enhancing strategies were used, the possibility remains that this resulted in minimal improvement in power. Increasing sample size may be the most efficient way to increase power (Raudenbush & Liu, 2001) and thus future studies of this intervention should prioritize obtaining a larger sample.

Third, there were limitations in terms of outcome measurement. For example, outcomes were based solely upon the self-report of participants. Short self-report measures were prioritized given that they allowed for rapid assessment, were minimally burdensome to participants in terms of the time commitment, and because we were interested in capturing the perspectives of the participants about their own functioning. However, participants' responses may have been biased due to factors such as social desirability. It may be advantageous for future studies of the intervention to include more objective indicators of participant functioning. Another problem with outcome measurement was variability in the administration of the assessments. The last administration of the symptom, social functioning, and stigma beliefs measures was conducted by reading questions to participants over the phone, while participants completed all other assessments on their own. The last set of assessment had to be conducted over the phone due to logistical reasons, but it is possible that results from the last time point are biased as a result. Future studies should ensure that all assessments are conducted in the same manner.

Conclusions

This project was significant for a number of reasons. It addressed the need to tailor traditional psychosocial treatment (i.e., CBTp) for consumers with SMI to a different kind of provider (i.e., peer providers) in order to foster wider dissemination of this evidence-based practice. It was based upon the assumption that peer providers could deliver a support and education group as effectively as non-peer professionals, but recognized that feasibility and effectiveness would be contingent upon modifying the modality to allow peer providers to use their unique skill sets and language. Uniformly

positive feedback from consumers and peer providers suggests that the intervention is likely to be accepted by others in the consumer community. The study also provided preliminary evidence of the effectiveness of this intervention, particularly with respect to improving psychiatric symptoms and social functioning. It paves the way for continued manual development and additional research. In accordance with recommendations made by Dixon et al. (2010), we paid particular attention to determining how peer providers were to be selected and trained to lead the intervention, and were explicit in reporting our decision making process. Also in line with Dixon et al. (2010), we used some of the same outcome measures as other studies of peer-based groups and improved upon study design, thereby adding to the literature on how peer provided services are beneficial to consumers. Most importantly, the collaborative approach to this study represented a key step toward the integration of the mental health professional and consumer communities for the betterment of those affected by SMI.

REFERENCES

Albiston, D. J., Francey, S. M., & Harrigan, S. M. (1998). Group programmes for recovery from early psychosis. *British Journal of Psychiatry Supplement, 33,* 117-121.

Alcrecht, G., Walker, V., & Levy, J. (1982). Social distance from the stigmatized: a test of two theories. *Social Science and Medicine, 16,* 1319-1327.

Anthony, W. A. (1993). Recovery from mental illness: the guiding vision of the mental health service system in the 1990's. *Psychosocial Rehabilitation Journal, 16,* 11-23.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: the exercise of control.* New York: W. H. Freeman and Company.

Bartlett, E. E. (1983). Educational self-help approaches in childhood asthma. *Journal of Allergy and Clinical Immunology, 72,* 545-554.

Bechdolf, A., Wagner, M., Klosterkotter, J. (2006). Cognitive behaviour therapy (CBT) in the early initial prodromal state of psychosis: concept and practical approach. *Schizophrenia Research, 86,* S96.

Bellack, A. S. (2006). Scientific and consumer models of recovery in schizophrenia: concordance, contrasts, and implications. *Schizophrenia Bulletin, 32,* 432-442.

Birchwood, M., Smith, J., Cochrane, R., Wetton, S., & Copestake, S. (1990). The social functioning scale: The development and validation of a new scale of social adjustment for use in family intervention programmes with schizophrenic patients. *British Journal of Psychiatry, 157,* 853-859.

Brewer, M. B. (1988). A dual-process model of impression formation. In: R. S. Wyer, Jr., & T. K. Srull (Eds.), *Advances in social cognition* (vol. 1, pp. 1-36). Hillsdale, NJ: Erlbaum.

Carroll, K. M., & Nuro, K. F. (2002). One size cannot fit all: a stage model for psychotherapy manual development. *Clinical Psychology, 9,* 396-406.

Clarke, G. N., Herinckx, H. A., Kinney, R. F., Paulson, R. I., Cutler, D. L., Lewis, K., & Oxman, E. (2000). Psychiatric hospitalizations, arrests, emergency room visits, and homelessness of clients with serious and persistent mental illness: findings from a randomized trial of two ACT programs vs. usual care. *Mental Health Services Research, 2,* 155-164.

Cook, J. A., Copeland, M. E., Corey, L., Buffington, E., Jonikas, J. A., Curtis, L. C., Grey, D. D., & Nichols, W. H. (2010). Developing the evidence base for peer-led services: Changes among participants following wellness recovery action planning (WRAP) education in two statewide initiatives. *Psychiatric Rehabilitation Journal, 34,* 113-120.

Cook, J. A., Copeland, M. E., Hamilton, M. M., Jonikas, J. A., Razzano, L. A., Floyd, C. B., . . . Grey, D. D. (2009). Initial outcomes of a mental illness self-management program based on wellness recovery action planning. *Psychiatric Services, 60,* 246-249.

Cook, J. A., Copeland, M. E., Jonikas, J. A., Hamilton, M. M., Razzano, L. A., Grey, D. D., . . . Boyd, S. (2011). Results of a randomized controlled trial of mental illness self-management using wellness recovery action planning. *Schizophrenia Bulletin.* Advance online publication. doi: 10.1093/schbul/sbr012

Corrigan, P. W., & Kleinlein, P. (2005). The impact of mental illness stigma. In: P. W. Corrigan (Ed.). *On the stigma of mental illness: implications for research and social change* (pp. 343). Washington, DC: American Psychological Association Press.

Corrigan, P. W., Rafacz, J. D., Hautamaki, J., Walton, J., Rusch, N., Rao, D., . . . Reeder, G. (2010). Changing stigmatizing perceptions and recollections about mental illness: the effects of NAMI's in our own voice. *Community Mental Health Journal, 46,* 517-522.

Corrigan, P. W., Watson, A. C., & Barr, L. (2006). The self-stigma of mental illness: Implications for self-esteem and self-efficacy. *Journal of Social and Clinical Psychology, 25,* 875-884.

Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review, 96,* 608-630.

Davidson, L., Chinman, M., Sells, D., & Rowe, M. (2006). Peer support among adults with serious mental illness: A report from the field. *Schizophrenia Bulletin, 32,* 443-450.

Davidson, L., Shahar, G., Stayner, D. A., Chinman, M. J., Rakfeldt, J., & Tebes, J. K. (2004). Supported socialization for people with psychiatric disabilities: lessons learned from a randomized controlled trial. *Journal of Community Psychology, 32,* 453-477.

Derogatis, L. R. (1975). *Brief symptom inventory.* Baltimore, MD: Clinical Psychometric Research.

Derogatis, L. R. (1993). *BSI brief symptom inventory. Administration, scoring, and*

procedures manual. (4th ed.). Minneapolis, MN: National Computer Systems.

Devine, P. G. (1989). Stereotypes and prejudice: their automatic and controlled components. *Journal of Personality and Social Psychology, 56,* 5-18.

Dixon, L. B., Dickerson, F., Bellack, A. S., Bennett, M., Dickinson, D., Goldberg, R. W., . . . Kreyenbuhl, J. (2010). The 2009 schizophrenia PORT psychosocial treatment recommendations and summary statements. *Schizophrenia Bulletin, 36,* 48-70.

Durham, R. C., Guthrie, M. Morton, R. V., Reid, D. A., Treliving, L. R., Fowler, D., & Macdonald, R. R. (2003). Tayside-Fife clinical trial of cognitive-behavioural therapy for medication-resistant psychotic symptoms. *British Journal of Psychiatry, 182,* 303-311.

Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: affirming the self through derogating others. *Journal of Personality and Social Psychology, 73,* 31-44.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7,* 117-140.

Fischer, E. P., McCarthy, J. F., Ignacio, R. V., Blow, F. C., Barry, K. L., Hudson, T. J., . . . Valenstein, M. (2008). Longitudinal patterns of health system retention among veterans with schizophrenia or bipolar disorder. *Community Mental Health Journal, 44,* 321-330.

Fiske, S. T., & Neuberg, S. L. (1990). A continuum model of impression formation from category-based to individuated processes: influences of information and motivation on attention and interpretation. In: M. P. Zanna (Ed.), *Advances in experimental social psychology* (vol. 3, pp. 1-74). New York: Academic Press.

Fung, K. M. T., Tsang, H. W. H., & Corrigan, P. W. (2008). Self-stigma of people with schizophrenia as predictor of their adherence to psychosocial treatment. *Psychiatric Rehabilitation Journal, 32,* 95-104.

Ganju, V. (2003). Implementation of evidence-based practices in state mental health systems: implications for research and effectiveness studies. *Schizophrenia Bulletin, 29,* 125-131.

Gartner, A., & Riessman, F. (1982). Self-help and mental health. *Hospital & Community Psychiatry, 33,* 631-635.

Gates, L. B., & Akabas, S. H. (2007). Developing strategies to integrate peer providers into the staff of mental health agencies. *Administrative Policy in Mental Health and Mental Health Services Research, 34,* 293-306.

Gingerich, S. (2005). Illness management and recovery. In R. E. Drake, M. R. Merrens, & D. W. Lynde (Eds.), *Evidence-based mental health practice: A textbook.* New York: W. W. Norton & Co.

Gleeson, J. F. M., Cotton, S. M., Alvarez-Jimenez, M., Wade, D., Gee, D., Crisp, K., . . . McGorry, P. D. (2009). A randomized controlled trial of relapse prevention therapy for first-episode psychosis patients. *Journal of Clinical Psychiatry, 70,* 477-486.

Goffman, E. (1963). *Stigma: notes on the management of spoiled identity.* New York: Prentice Hall.

Goldberg, R. W., & Resnick, S. G. (2010). US department of veterans affairs (VA) efforts to promote psychosocial rehabilitation and recovery. *Psychiatric Rehabilitation Journal, 33,* 255-258.

Harvey, P. D., Velligan, D. I., & Bellack, A. S. (2007). Performance-based measures of functional skills: usefulness in clinical treatment studies. *Schizophrenia Bulletin, 33,* 1138-1148.

Hinshaw, S. P. (2005). The stigmatization of mental illness in children and parents: developmental issues, family concerns, and research needs. *Journal of Child Psychology and Psychiatry, 46,* 714-734.

Hogan, M. F. (2003). New Freedom Commission Report: The President's New Freedom Commission-Recommendations to transform mental health care in America. *Psychiatric Services, 54,* 1467-1474.

Hooley, J. M. (2009). Schizophrenia: interpersonal functioning. In P. H. Blaney & T. Millon (Eds.), *Oxford textbook of psychopathology* (2nd ed.). New York: Oxford University Press.

Hope, K. R. (2003). Promoting behavior change in Botswana: an assessment of the peer education HIV/AIDS prevention program at the workplace. *Journal of Health Communication, 8,* 267-281.

Jolley, S., Garety, P., Craig, T., Dunn, G., White, J., & Aitken, M. (2003). Cognitive therapy in early psychosis: a pilot randomized controlled trial. *Behavioural and Cognitive Psychotherapy, 31,* 473-478.

Kalkstein, S., Hurford, I., & Gur, R. C. (2010). Neurocognition in schizophrenia. In N. R. Swerdlow (Ed.), *Behavioral neurobiology of schizophrenia and its treatment.* New York: Springer-Verlag Publishing.

Kingdon, D. (1998). Cognitive Behavioural Therapy of Psychosis: Complexities in

Engagement and Therapy. In: N. Tarrier, A. Wells, & G. Haddock (Eds.). *Treating Complex Cases: The Cognitive Behavioural Therapy Approach.* West Sussex: John Wiley & Sons Ltd.

Klin, A., & Lemish, D. (2008). Mental disorders stigma in the media: review of studies on production, content, and influences. *Journal of Health Communication, 13,* 434-449.

Knodel, J. (1993). The design and analysis of focus group studies: A practical approach. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art.* Newbury Park: Sage Publications, Inc.

Kreyenbuhl, J., Nossel, I. R., & Dixon, L. B. (2009). Disengagement from mental health treatment among individuals with schizophrenia and strategies for facilitating connections to care: a review of the literature. *Schizophrenia Bulletin, 35,* 696-703.

Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: the functions of social exclusion. *Psychological Bulletin, 127,* 187-208.

Lecomte, T., Leclerc, C., Corbiere, M., Wykes, T., Wallace, C. J., & Spidel, A. (2008). Group cognitive behavior therapy or social skills training for individuals with a recent onset of psychosis? Results of a randomized controlled trial. *Journal of Nervous & Mental Disease, 196,* 866-875.

Lecomte, T., Leclerc, C., Wykes, T., & Lecomte, J. (2003). Group CBT for clients with a first episode of schizophrenia. *Journal of Cognitive Psychotherapy: An International Quarterly, 17,* 375-383.

Lewis, S., Tarrier, N., Haddock, G., Bentall, R., Kinderman, P., Kingdon, D., . . . Dunn,

G. (2002). Randomised controlled trial of cognitive-behavioural therapy in early schizophrenia: acute-phase outcomes. *British Journal of Psychiatry, 181,* 91-97.

Link, B. G. (1982). Mental patient status, work, and income: An examination of the effects of a psychiatric label. *American Sociological Review, 47,* 202-215.

Link, B. G., Phelan, J. C., Bresnahan, M., Stueve, A., & Pescosolido, B. A. (1999). Public conceptions of mental illness: labels, causes, dangerousness, and social distance. *American Journal of Public Health, 89,* 1328-1333.

Link, B. G., Struening, E. L., Neese-Todd, S., Asmussen, S., & Phelan, J. C. (2001). The consequences of stigma for the self-esteem of people with mental illnesses. *Psychiatric Services, 52,* 1621-1626.

Link, B. G., Struening, E. L., Rahav, M., & Phelan, J. C. (1997). On stigma and its consequences: Evidence from a longitudinal study of men with dual diagnoses of mental illness and substance abuse. *Journal of Health and Social Behavior, 38,* 177-190.

Luchins, A. S. (1993). Social control doctrines of mental illness and the medical profession in nineteenth-century America. *Journal of the History of the Behavioral Sciences, 29,* 29-47.

Luke, D., Robert, L., & Rappaport, J. (1994). Individual, group context, and individual-group fit predictors of self-help group attendance. In T. J. Powell (Ed.), *Understanding the self-help organization: Frameworks and findings.* Thousand Oaks: Sage Publications, Inc.

Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *Methodology, 1,* 6-92.

Major, B., & O'Brien, L. T. (2005). The social psychology of stigma. *Annual Review of*

Psychology, 56, 393-421.

Marshall, M., Lewis, S., Lockwood, A., Drake, R., Jones, P., & Croudace, T. (2005). Association between duration of untreated psychosis and outcomes in cohorts of first-episode patients. *Archives of General Psychiatry, 62,* 975-983.

Martinez, A. G., Piff, P. K., Mendoza-Denton, R., & Hinshaw, S. P. (2011). The power of a label: mental illness diagnoses, ascribed humanity, and social rejection. *Journal of Social and Clinical Psychology, 30,* 1-23.

Marwaha, S., & Johnson, S. (2004). Schizophrenia and employment. *Social Psychiatry and Psychiatric Epidemiology, 39,* 337-349.

McCay, E., Beanlands, H., Zipursky, R., Roy, P., Molyn, L., Landeen, J., . . . Chan, E. (2007). A randomised controlled trial of a group intervention to reduce engulfment and self-stigmatisation in first episode schizophrenia. *Australian e-Journal for the Advancement of Mental Health, 6,* 1-9.

Miller, R., & Mason, S. E. (1999). Group work with first episode schizophrenia clients. *Social Work With Groups, 21,* 19-33.

Miller, R., & Mason, S. E. (2001). Using group therapy to enhance treatment compliance in first episode schizophrenia. *Social Work with Groups, 24,* 37-51.

Moll, S., Holmes, J., Geronimo, J., & Sherman, D. (2009). Work transitions for peer support providers in traditional mental health programs: unique challenges and opportunities. *Work, 33,* 449-458.

Morrison, A. P., French, P., Walford, L. Lewis, S., Kilcommons, A., Green, J., . . . Bentall, R. P. (2004). A randomised controlled trial of cognitive therapy for the prevention of psychosis in people at ultra-high risk. *British Journal of Psychiatry,*

185, 291-297.

Mueser, K. T., Meyer, P. S., Penn, D. L., Clancy, R., Clancy, D. M., & Salyers, M. P. (2006). The illness management and recovery program: rationale, development, and preliminary findings. *Schizophrenia Bulletin, 32 supp 1,* S32-S43.

National Consensus Conference on Mental Health Recovery and Systems Transformation. Rockville, MD, Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. (2005). Retrieved from http://store.samhsa.gov/shin/content//SMA05-4129/SMA05-4129.pdf.

National Institute of Mental Health (NIMH) (2011). *National Institute of Mental Health Strategic Plan.* Retrieved from http://www.nimh.nih.gov/about/strategic-planning-reports/index.shtml.

Newton, E., Larkin, M., Melhuish, R., & Wykes, T. (2007). More than just a place to talk: Young people's experiences of group psychological therapy as an early intervention for auditory hallucinations. *Psychology and Psychotherapy: Theory, Research, and Practice, 80,* 127-149.

Nosé, M., Barbui, C., & Tansella, M. (2003). How often do patients with psychosis fail to adhere to treatment programmes? A systematic review. *Psychological Medicine, 33,* 1149-1160.

Oakes, P. J., Haslam, S. A., & Turner, J. C. (1994). *Stereotyping and Social Reality.* Oxford: Blackwell.

O'Brien, A., Fahmy, R., & Singh, S. P. (2009). Disengagement from mental health services: a literature review. *Social Psychiatry and Psychiatric Epidemiology, 44,* 558-568.

Otten, S. (2003). Me and Us or Us and Them? – The self as a heuristic for defining minimal ingroups. *European Review of Social Psychology, 13,* 1-33.

Penn, D. L., Uzenoff, S. R., Perkins, D., Mueser, K. T., Hamer, R., Waldheter, E., . . . Cook, L. (2011). A pilot investigation of the Graduated Recovery Intervention Program (GRIP) for first episode psychosis. *Schizophrenia Research, 125,* 247-256.

Perlick, D., Rosenheck, R., Clarkin, J., Sirey, J., Salahi, J., Struening, E., & Link, B. (2001). Stigma as a barrier to recovery: Adverse events of perceived stigma on social adaption o persons diagnosed with bipolar affective disorder. *Psychiatric Services, 52,* 1627-1632.

Pickett, S. A., Diehl, S., Steigman, P. J., Prater, J. D., Fox, A., & Cook, J. A. (2010). Early outcomes and lessons learned from a study of the building recovery of individual dreams and goals through education and support (BRIDGES) program in Tennessee. *Psychiatric Rehabilitation Journal, 34,* 96-103.

Power, P. J. R., Bell, R. J., Mills, R., Herrman-Doig, T., Davern, M., Henry, L. Y., . . . McGorry, P. D. (2003). Suicide prevention in first episode psychosis: the development of a randomized controlled trial of cognitive therapy for acutely suicidal patients with early psychosis. *Australian and New Zealand Journal of Psychiatry, 37,* 414-420.

Raudenbush, S. W., & Liu, X. (2001). Effects of study duration, frequency of observation, and sample size on power in studies of group differences in polynomial change. *Psychological Methods, 6,* 387-401.

Rounsaville, B. J., Carroll, K. M., & Onken, L. S. (2001). A stage model of behavioral

therapies research: getting started and moving on from stage I. *Clinical Psychology, 8,* 133-142.

Rusch, N., Corrigan, P. W., Wassel, A., Michaels, P., Olschewski, M., Wilkniss, S., & Batia, K. (2009). Ingroup perception and responses to stigma among persons with mental illness. *Acta Psychiatrica Scandinavica, 120,* 320-328.

Salyers, M. P., McGuire, A. B., Rollins, A. L., Bond, G. R., Mueser, K. T., & Macy, V. R. (2010). Integrating assertive community treatment and illness management and recovery for consumers with severe mental illness. *Community Mental Health Journal, 46,* 319-329.

Salzer, M. (1997). Consumer empowerment in mental health organizations: concept, benefits, and impediments. *Administration and Policy in Mental Health, 24,* 425-434.

Salzer, M., Mental Health Association of Southeastern Pennsylvania Best Practices Team. (2002). *Best practice guidelines for consumer-delivered services.* Behavioral Health Recovery Management Project, Initiative of Fayette Companies, Peoria, IL and Chestnut Health Systems, Bloomington, IL.

Scherbaum, C. A. & Ferreter, J. M. (2009). Estimated statistical power and required sample sizes for organizational research usingmultilevel models. *Organizational Research Methods, 12,* 347-367.

Sells, D., Davidson, L., Jewell, C., Falzer, P., & Rowe, M. (2006). The treatment relationship in peer-based and regular case management for clients with severe mental illness. *Psychiatric Services, 57,* 1179-1184.

Sensky, T., Turkington, D., Kingdon, D., Scott, J. L., Scott, J., Siddle, R., . . . Barnes, T.

R. E. (2000). A randomized controlled trial of cognitive-behavioral therapy for persistent symptoms in schizophrenia resistant to medication. *Archives of General Psychiatry, 57,* 165-172.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence.* New York: Oxford University.

Sirey, J. A., Bruce, M. L., Alexopoulos, G. S., Perlick, D. A., Friedman, S. J., & Meyers, B. S. (2001a). Perceived stigma and patient-rated severity of illness as predictors of antidepressant drug adherence. *Psychiatric Services, 52,* 1615-1620.

Sirey, J. A., Bruce, M. L., Alexopoulos, G. S., Perlick, D. A., Raue, P., Friedman, S. J., & Meyers, B. S. (2001b). Perceived stigma as a predictor of treatment discontinuation in young and older outpatients with depression. *American Journal of Psychiatry, 158,* 479-481.

Solomon, P. (2004). Peer support/peer provided services: underlying processes, benefits, and critical ingredients. *Psychiatric Rehabilitation Journal, 27,* 392-401.

Solomon, P., & Draine, J. (1995). The efficacy of a consumer case management team: two-year outcomes of a randomized trial. *Journal of Mental Health Administration, 22,* 135-146.

Stewart, D. W., Shamdasani, P. N., & Rook, D. W. (2007). *Focus Groups: Theory and Practice* (2nd ed.). Thousand Oaks: Sage Publications, Inc.

Stier, A., & Hinshaw, S. P. (2007). Explicit and implicit stigma against individuals with mental illness. *Australian Psychologist, 42,* 106-117.

Tarrier, N. (2008). Schizophrenia and Other Psychotic Disorders. In: D. H. Barlow (Ed.). *Clinical Handbook of Psychological Disorders: A Step by Step Treatment*

Manual. New York: The Guilford Press.

Tarrier, N., Lewis, S., Haddock, G., Bentall, R., Drake, R., Kinderman, P., . . . Dunn, G. (2004). Cognitive-behavioural therapy in first-episode and early schizophrenia: 18-month follow-up of a randomised controlled trial. *British Journal of Psychiatry, 184,* 231-239.

Tarrier, N., & Wykes, T. (2004). Is there evidence that cognitive behaviour therapy is an effective treatment for schizophrenia: a cautious or cautionary tale? *Behaviour Research and Therapy, 42,* 1377-1401.

Tsang, H. W. H., Fung, K. M. T., & Corrigan, P. W. (2006). Psychosocial treatment compliance scale for people with psychotic disorders. *Australian and New Zealand Journal of Psychiatry, 40,* 561-569.

Turkington, D., Kingdon, D., & Turner, T. (2002). Effectiveness of a brief cognitive-behavioural therapy intervention in the treatment of schizophrenia. *British Journal of Psychiatry, 180,* 523-527.

Uzenoff, S. R., Perkins, D. O., Hamer, R., Wiesen, C. A., & Penn, D. L. (2008). A preliminary trial of adherence-coping-education (ACE) therapy for early psychosis. *Journal of Nervous & Mental Disease, 196,* 572-575.

Vallis, T. M., Shaw, B. F., & Dobson, K. S. (1986). The cognitive therapy scale: psychometric properties. *Journal of Consulting and Clinical Psychology, 54,* 381-385.

Wahl, O. F. (1992). Mass media images of mental illness: a review of the literature. *Journal of Community Psychology, 20,* 343-352.

Waldheter, E. J., Penn, D. L., Perkins, D. O., Mueser, K. T., Owens, L. W., & Cook, E.

A. (2008). The Graduated Recovery Intervention Program for first episode psychosis: Treatment development and preliminary data. *Community Mental Health Journal, 44,* 443-455. PMCID: PMC2605211.

Wang, C., Li, Y., Zhao, Z., Pan, M., Feng, Y., Sun, F., & Du, B. (2003). Controlled study on long-term effect of cognitive behavior intervention on first episode schizophrenia. *Chinese Mental Health Journal, 17,* 200-202.

Watson, A. C., Corrigan, P., Larson, J. E., & Sells, M. (2007). Self-stigma in people with mental illness. *Schizophrenia Bulletin, 33,* 1312-1318.

Wilson, W., & Pratt, C. (1987). The impact of diabetes education and peer support upon weight and glycemic control of elderly persons with noninsulin dependent diabetes mellitus (NIDDM). *American Journal of Public Health, 77,* 634-635.

Wright, E. R., Gronfein, W. P., & Owens, T. J. (2000). Deinstitutionalization, social rejection, and the self-esteem of former mental patients. *Journal of Health and Social Behavior, 41,* 68-90.

Wu, E. Q., Birnbaum, H. G., Shi, L., Ball, D. E., Kessler, R. C., Moulis, M., & Aggarwal, J. (2005). The economic burden of schizophrenia in the United States in 2002. *Journal of Clinical Psychiatry, 66,* 1122-1129.

Wykes, T., Steel, C., Everitt, B., & Tarrier, N. (2008). Cognitive behavior therapy for schizophrenia: effect sizes, clinical models, and methodological rigor. *Schizophrenia Bulletin, 34,* 523-537.

Young, J. E., & Beck, A. T. (1980). *Cognitive therapy rating scale manual.* Philadelphia, PA.

FOOTNOTES

[1] For the purposes of this project, "competence" was operationally defined as having the capacity to understand the nature and procedures of the study and to comprehend that participation is voluntary. Competence was evaluated through a short questionnaire at the end of the informed consent form. Potential participants who were unable to answer all items correctly were not eligible for the study.

[2] Diagnostic criteria for peer providers were not limited to psychotic disorders as was the case for consumer participants. Given that the peer-led support and education group was for consumers with psychosis, it was crucial to have sufficient representation from this group during the development process. However, at the time of Study 1 it was unclear whether consumers considered it important for peer providers to share the same diagnosis. Merely having experience with the mental health system and with having a psychiatric diagnosis may have provided enough of a common denominator for peer providers to benefit the consumers with whom they work. Thus, we liberally specified diagnostic criteria for peer providers at this point in the study. Information gained through the focus groups was used to make decisions about inclusion criteria for peer providers in Study 2.

APPENDIX A

List of Items

1. Demographics Questionnaire (Study 1; Consumer and Peer Provider Versions)
2. Focus Group Interview Guides (Sessions 1, 2, and 3; Consumer and Peer Provider Versions)
3. Demographics Questionnaire (Study 2; Consumer and Peer Provider Versions)
4. Psychosocial Treatment Compliance Scale (PTCS) (Modified for this study)
5. Participant and Provider Feedback Surveys
6. Adverse Event Tracker

Demographics Questionnaire – Consumer Version (Study 1)		
Participant Initials**:** **XX**	Participant ID: **XXXXX**	Date **: XX/XX/XX**

1	**Date of birth** (mm / dd / yyyy)			/			/						

2	**Gender**		
	1	Male	
	2	Female	
3	**Ethnicity**		
	1	**Hispanic or Latino** (A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can also be used in addition to "Hispanic or Latino.")	
	2	**Not Hispanic or Latino**	
4	**Race**		
	1	**American Indian or Alaska Native** (A person having origins in any of the original peoples of North, Central, or South America, and who maintains tribal affiliations or community attachment.)	
	2	**Asian** (A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.)	

	3	**Black or African American** (A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American.")	
	4	**Native Hawaiian or Other Pacific Islander** (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)	
	5	**White** (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.)	

5	**Highest Level of Education** (circle highest for each)	Score	
	Completed post-graduate training, advanced degree	1	
	Some post-graduate training, no degree	2	
	Completed college, 4 year degree	3	
	Some post secondary school, but no 4 year degree; including associate degrees & technical certificates or diploma	4	
	Completed high school, diploma	5	
	Attended high school, no diploma	6	
	Completed 8th grade, no high school	7	
	Attended grade school, not through 8th grade	8	
	No schooling	9	
6	**Is the participant currently a student?**	Yes	No

7	**Is the participant currently working?**	Yes	No
8	**Specify level of Occupation and Size of Business** (e.g., accountant in small business, clerk in convenience store)		
	Occupation (specify)		
9	**Level of Occupation** (circle highest for each) (see manual for additional codes)	Score	
	Higher executive, proprietor of large concern, major professional Physician, lawyer, broker, university/college teacher	1	
	Business manager of large concern, proprietor of medium sized business, lesser professional Personnel/ office manager, accountant, nurse, social worker, elementary and H.S. teachers	2	
	Administrative personnel, owner of small independent business, minor professional, owner of a large farm Insurance agent, sales reps, florist, laboratory asst, photographer, travel agent	3	
	Clerical or sales worker, technician, owner of a little business, owner of a medium sized farm Bank teller, dental technician, laboratory technician, postal clerk, truck or taxi dispatcher, newsstand owner	4	
	Skilled manual employee, owner of a small farm Barber, carpenter, cook, masseur, painter, welder, LP Nurse, Policeman, Homemakers	5	
	Machine operator, semi-skilled employee, tenant farmer who owns little equipment Hospital aide, assembly line worker, bartender, bus driver, housekeeper, taxi driver, waiter	6	
	Unskilled employee, share cropper Cafeteria worker, domestic, messenger, unskilled factory worker, garbage collector	7	
	Not currently employed (client – current)	9	

10	**How old were you when you first started experiencing symptoms of your mental illness (e.g., hearing voices, unusual thinking, suspiciousness)?**	___ ___ years
11	**How old were you when you first received treatment for these problems?**	___ ___ years
12	**How long have you been in treatment for these problems?**	___ ___ years
13	**What type of treatment(s) have you received?**	
	Hospitalization	
	Individual therapy	
	Group therapy	
	Peer Support	
	Medications	
	Supported Employment/Education	
	Family therapy	
	Case management	
	Other (specify) _____	
	Multiple (specify) _____	
14	**Would you be interested in participating in a peer-led support and education group as part of this study?**	Yes / No

Demographics Questionnaire – Peer Provider Version (Study 1)

Participant Initials**:** **XX**	Participant ID: **XXXXX**	Date **: XX/XX/XX**

1	**Date of birth** (mm / dd / yyyy)			/			/						

2	**Gender**		
	1	Male	
	2	Female	
3	**Ethnicity**		
	1	**Hispanic or Latino** (A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can also be used in addition to "Hispanic or Latino.")	
	2	**Not Hispanic or Latino**	
4	**Race**		
	1	**American Indian or Alaska Native** (A person having origins in any of the original peoples of North, Central, or South America, and who maintains tribal affiliations or community attachment.)	
	2	**Asian** (A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.)	

	3	**Black or African American** (A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American.")	
	4	**Native Hawaiian or Other Pacific Islander** (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)	
	5	**White** (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.)	

5	**Highest Level of Education** (circle highest for each)	Score	
	Completed post-graduate training, advanced degree	1	
	Some post-graduate training, no degree	2	
	Completed college, 4 year degree	3	
	Some post secondary school, but no 4 year degree; including associate degrees & technical certificates or diploma	4	
	Completed high school, diploma	5	
	Attended high school, no diploma	6	
	Completed 8th grade, no high school	7	
	Attended grade school, not through 8th grade	8	
	No schooling	9	
6	**Is the participant currently a student?**	Yes	No

7	**Is the participant currently working?**	Yes	No
8	**Specify level of Occupation and Size of Business** (e.g., accountant in small business, clerk in convenience store)		
	Occupation (specify)		
9	**Level of Occupation** (circle highest for each) (see manual for additional codes)	Score	
	Higher executive, proprietor of large concern, major professional Physician, lawyer, broker, university/college teacher	1	
	Business manager of large concern, proprietor of medium sized business, lesser professional Personnel/ office manager, accountant, nurse, social worker, elementary and H.S. teachers	2	
	Administrative personnel, owner of small independent business, minor professional, owner of a large farm Insurance agent, sales reps, florist, laboratory asst, photographer, travel agent	3	
	Clerical or sales worker, technician, owner of a little business, owner of a medium sized farm Bank teller, dental technician, laboratory technician, postal clerk, truck or taxi dispatcher, newsstand owner	4	
	Skilled manual employee, owner of a small farm Barber, carpenter, cook, masseur, painter, welder, LP Nurse, Policeman, Homemakers	5	
	Machine operator, semi-skilled employee, tenant farmer who owns little equipment Hospital aide, assembly line worker, bartender, bus driver, housekeeper, taxi driver, waiter	6	
	Unskilled employee, share cropper Cafeteria worker, domestic, messenger, unskilled factory worker, garbage collector	7	
	Not currently employed (client – current)	9	

10	**How long have you served in your role as a peer service provider?**	___ ___ years	
11	**What type of service(s) have you provided?**		
	Served as a peer provider in a conventional role (e.g., case manager, supported employment/education specialist)		
	Facilitated groups		
	Served as a consumer advocate		
	Provided one-to-one peer support		
	Assisted with crisis response (e.g., provided support in the emergency room, rode with police)		
	Worked at a peer respite facility or drop-in center		
	Other (specify) _____		
	Multiple (specify) _____		
12	**Would you be interested in facilitating a peer-led support and education group as part of this study?**	Yes	No

Focus Group Interview Guide: Session 1 (Peer Provider Group)

Definitions

Traditional outpatient mental health treatment: Traditional outpatient mental health services include, but are not limited to, individual/group therapy, medications, family therapy, case management (i.e., assistance by a professional who helps to plan and coordinate services), supported employment and education (i.e., assistance by a professional who helps with obtaining and maintaining employment or schooling). These services are delivered by non-peer mental health providers.

Peer provided services: Peer provided services are defined as mental health services that are provided by people with lived experience of any mental health problems (i.e., peers).

General Questions

1. Please tell me about your experiences in traditional outpatient mental health treatment.
2. What incidents and/or people connected with your experience in traditional outpatient treatment stand out for you?
3. How has being in traditional outpatient mental health treatment affected you? What changes have you associated with the experience?
4. What feelings have been generated through your experiences in traditional outpatient mental health treatment?
5. What thoughts stand out for you as you reflect upon your experiences in traditional outpatient mental health treatment?
6. In your opinion, what, if anything, is helpful about traditional outpatient mental health treatment? In what ways, if any, is traditional outpatient mental health treatment associated with recovery? In your experience, what, if anything, is unhelpful about traditional outpatient mental health treatment?
7. Please describe the work that you do as a peer provider.
8. Tell me about a typical day at work.
9. How has being a peer provider affected you? What changes, if any, have you associated with the experience?
10. In your opinion, how do the services you provide affect the people with whom you work?
11. What feelings are generated through your work as a peer provider?
12. What thoughts stand out for you as you reflect upon your work?
13. What, if anything, do you think is helpful about the services you provide and why? In what ways, if any, are the services you provide associated with recovery? In your experience, what, if anything, has *not* worked well and what have you done/would you do to fix this?
14. How could a peer-led support and education group be helpful to consumers?
15. Through your experiences with mental illness, the mental health system, and recovery, what advice would you give to someone who has recently developed mental health problems?

16. What do you think should be the primary similarities (differences) between a peer-led support and education group and a group led by a mental health clinician (e.g., therapist, nurse)?

Questions about Education

1. What skills have you learned that have helped with recovery? In what ways do you think they have helped? What hasn't helped and why?
2. If you were to lead a support and education group, what topics would you want to discuss and why? What would you want individuals to know about these topics?
    a. Recovery
    b. General information about psychosis
    c. How to self-disclose mental health problems to others
    d. How to maintain your identity despite experiencing mental health problems
    e. Medications
    f. Other treatments and resources besides medications
    g. Getting what you need from the mental health system
    h. Coping with symptoms or problems related to mental health (e.g., stress)
    i. Problem management
    j. Substance use
    k. Building social skills/communicating effectively with family, friends, and/or treatment providers
    l. Stigma
    m. Developing social networks and leisure activities
    n. Suicide and self-harm
    o. Life skills (e.g., related to getting and keeping a job, going to school, living independently)
    p. Developing a relapse prevention plan
    q. How to use your strengths to overcome your challenges
    r. Setting and working toward your goals
    s. Processing your experiences with mental health problems
    t. Dealing with negative feelings
    u. Staying emotionally and physically healthy
    v. Other?

Questions about Support

1. How do you know when you are being supported? What are some characteristics of being supported?
2. How do you provide support to consumers? Is this support qualitatively different from the support you would provide to a friend or family member? Why or why not?

Miscellaneous

1. Is there anything that you might not have thought about before that occurred to you during this interview?

2. Is there anything you would like to ask me?

Focus Group Interview Guide: Session 1 (Consumer Group)

Definitions

Traditional outpatient mental health treatment: Traditional outpatient mental health services include, but are not limited to, individual/group therapy, medications, family therapy, case management (i.e., assistance by a professional who helps to plan and coordinate services), supported employment and education (i.e., assistance by a professional who helps with obtaining and maintaining employment or schooling). These services are delivered by non-peer mental health providers.

Peer provided services: Peer provided services are defined as mental health services that are provided by people with lived experience of any mental health problems (i.e., peers).

General Questions

1. Please tell me about your experiences in traditional outpatient mental health treatment.
2. What incidents and/or people connected with your experience in traditional outpatient treatment stand out for you?
3. How has being in traditional outpatient mental health treatment affected you? What changes, if any, have you associated with the experience?
4. What feelings have been generated through your experiences in traditional outpatient mental health treatment?
5. What thoughts stand out for you as you reflect upon your experiences in traditional outpatient mental health treatment?
6. In your opinion, what, if anything, is helpful about traditional outpatient mental health treatment? In what ways, if any, is traditional outpatient mental health treatment associated with recovery? In your experience, what, if anything, is unhelpful about traditional outpatient mental health treatment?
7. How could a support and education group be helpful to you or others in similar circumstances?
8. What concerns do you (or people you know) have that could be addressed by a support and education group?
9. Where do you see yourself in 5 years? Describe the person you hope to be and the person you see yourself as now. If a support and education group could assist you with developing into the person you want to be, what would that group discuss?
10. Have you ever received peer support services? How do they compare to other types of treatments you have received? In what ways did they help you? In what ways did they not help you? How would you change them?
11. Please tell me about your experience receiving peer provided services.
12. What incidents and/or people connected with your experience receiving peer provided services stand out for you?
13. How has receiving peer provided services affected you? What changes, if any, have you associated with the experience?

14. What feelings have been generated through your experiences receiving peer provided services?
15. What thoughts stand out for you as you reflect upon your experiences receiving peer provided services?
16. In your opinion, what, if anything, do you think is helpful about peer provided services? In what ways, if any, are peer provided services associated with recovery? In your experience, what, if anything, is unhelpful about peer provided services?
17. What do you think should be the primary similarities (differences) between a peer-led support and education group and a group led by a mental health clinician (e.g., therapist, nurse)?

Questions about Education

1. What skills have you learned for dealing with your problems? In what ways have these skills been helpful? What skills do you wish you had and why?
2. If you were to participate in a support and education group led by a peer provider, which of the following topics would you want to discuss and why? What would you want to know about these topics?
    a. Recovery
    b. General information about psychosis
    c. How to self-disclose mental health problems to others
    d. How to maintain your identity despite experiencing mental health problems
    e. Medications
    f. Other treatments and resources besides medications
    g. Getting what you need from the mental health system
    h. Coping with symptoms or problems related to mental health (e.g., stress)
    i. Problem management
    j. Substance use
    k. Building social skills/communicating effectively with family, friends, and/or treatment providers
    l. Stigma
    m. Developing social networks and leisure activities
    n. Suicide and self-harm
    o. Life skills (e.g., related to getting and keeping a job, going to school, living independently)
    p. Developing a relapse prevention plan
    q. How to use your strengths to overcome your challenges
    r. Setting and working toward your goals
    s. Processing your experiences with mental health problems
    t. Dealing with negative feelings
    u. Staying emotionally and physically healthy
    v. Other?

Questions about Support

1. How do you know when you are being supported? What are some characteristics of being supported?
2. Who has been most helpful to you in the recovery process? How has he/she been helpful?
3. On a scale of 1-10 with 10 being high, how important is support from people your own age? From family members? From people who have "been there, done that"? From people currently experiencing similar circumstances? From people with different experiences? Why did you choose these numbers?

Miscellaneous

1. Is there anything that you might not have thought about before that occurred to you during this interview?
2. Is there anything you would like to ask me?

Focus Group Interview Guide: Session 2 (Peer Providers)

General Questions

1. How can a balance be struck between formal and informal group processes?
2. Should group sessions be divided into "support time" and "education time," or can support and education be provided simultaneously? If you believe the latter is possible, how could this be done?

Questions about Structure of Education

1. What strategies seem most/least effective when providing education to consumers and why?
2. If you were to facilitate a support and education group, what educational strategies would you prefer to use and why?
    a. Educational handouts
    b. Individual workbooks
    c. Home practice assignments
    d. Presentation of material by you
    e. Reading of the material by group members
    f. Whole group discussions
    g. Small group or partner discussions
    h. Provision of personal examples related to material by group members and leader
    i. Individual exercises
    j. Group exercises
    k. Guest speakers
    l. Videos
    m. Role plays
    n. Other?

Questions about Structure of Support

1. What strategies seem most/least effective when providing support to consumers and why?
2. If you were to facilitate a support and education group, which of the following strategies would you recommend to help group members feel supported and why?
    a. A social event outside of group with other members
    b. Group member partnerships
    c. Having group members talk or hang out outside of group sessions
    d. Having group members establish and consult with a support person who is not involved in the group
    e. Having "social time" at each group session
    f. Having "support time" at each group session
    g. Simply having group members share their experiences and having others listen and respond
    h. Other?

Focus Group Interview Guide: Session 2 (Consumer Group)

General Questions

1. What helps you to learn new things? What helps you to remember what you have learned?

Questions about Structure of Education

2. If you were to participate in a support and education group, which of the following educational strategies would help you to learn and why?
    a. Educational handouts
    b. Individual workbooks
    c. Home practice assignments
    d. Presentation of material by the group leader
    e. Reading of the material by group members
    f. Whole group discussions
    g. Small group or partner discussions
    h. Provision of personal examples related to material by group members and leader
    i. Individual exercises
    j. Group exercises
    k. Guest speakers
    l. Videos
    m. Role plays
    n. Other?

Questions about Structure of Support

3. If you were to participate in a support and education group, which of the following strategies would help you to feel supported and why?
    a. A social event outside of group with other members
    b. Having a partner in the group
    c. Talking to or hanging out with a partner or other group members outside of session
    d. Establishing and consulting with a support person who is not involved in the group
    e. Having “social time” at each group session
    f. Having “support time” at each group session
    g. Simply being able to share your experiences and have others listen and respond
    h. Other?

Focus Group Interview Guide: Session 3 (Peer Providers)

Questions about Peer Support Work

1. What are your ideas about when it is appropriate to breach confidentiality, considering that you are both a peer and a provider of mental health services?
2. If you were to facilitate an education and support group, could you accept support offered to you by the people you would serve? If so, how?
3. Does the distinction between service provision and friendship make sense to you? In your experience, does this distinction make sense to those you provide services to?
4. How can you succeed in being friendly toward consumers in the support group without actually becoming friends with them?
5. When is it OK to disclose personal information about yourself?
6. How do you disclose personal information in a way that is constructive?

Questions about Match between Peer Supporters and Group Members

1. How important is match between yourself and the consumers that you serve?
2. What characteristics between yourself and the consumers you serve should be similar?
3. Please comment about whether match based on these factors would matter to you:
    - Culture
    - Diagnosis
    - Personality
    - Interests
    - Mental health experiences

Focus Group Interview Guide: Session 3 (Consumer Group)

Questions about Treatment Engagement

1. What keeps you going to your mental health appointments?
2. If someone were having difficulty going to treatment, what would you recommend to him/her?

Questions about Match between Peer Supporters and Group Members

1. How important would match be between yourself and the peer leader of the group?
2. What characteristics should be similar?
3. What expectations would you have for the leader as far as where he/she is in his/her recovery process?
4. Please comment about whether match based on these factors would matter to you:
    a. Culture
    b. Diagnosis
    c. Personality
    d. Interests
    e. Mental health experiences

Demographics Questionnaire – Consumer Version (Study 2)

Participant Initials**:** **XX**	Participant ID: **XXXXX**	Date **: XX/XX/XX**

1	**Date of birth** (mm / dd / yyyy)			/			/						

2	**Gender**		
	1	Male	
	2	Female	
3	**Ethnicity**		
	1	**Hispanic or Latino** (A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can also be used in addition to "Hispanic or Latino.")	
	2	**Not Hispanic or Latino**	
4	**Race**		
	1	**American Indian or Alaska Native** (A person having origins in any of the original peoples of North, Central, or South America, and who maintains tribal affiliations or community attachment.)	
	2	**Asian** (A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.)	

	3	**Black or African American** (A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American.")	
	4	**Native Hawaiian or Other Pacific Islander** (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)	
	5	**White** (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.)	

5	**Highest Level of Education** (circle highest for each)	Score	
	Completed post-graduate training, advanced degree	1	
	Some post-graduate training, no degree	2	
	Completed college, 4 year degree	3	
	Some post secondary school, but no 4 year degree; including associate degrees & technical certificates or diploma	4	
	Completed high school, diploma	5	
	Attended high school, no diploma	6	
	Completed 8th grade, no high school	7	
	Attended grade school, not through 8th grade	8	
	No schooling	9	
6	**Is the participant currently a student?**	Yes	No

7	**Is the participant currently working?**	Yes	No
8	**Specify level of Occupation and Size of Business** (e.g., accountant in small business, clerk in convenience store)		
	Occupation (specify)		
9	**Level of Occupation** (circle highest for each) (see manual for additional codes)	Score	
	Higher executive, proprietor of large concern, major professional Physician, lawyer, broker, university/college teacher	1	
	Business manager of large concern, proprietor of medium sized business, lesser professional Personnel/ office manager, accountant, nurse, social worker, elementary and H.S. teachers	2	
	Administrative personnel, owner of small independent business, minor professional, owner of a large farm Insurance agent, sales reps, florist, laboratory asst, photographer, travel agent	3	
	Clerical or sales worker, technician, owner of a little business, owner of a medium sized farm Bank teller, dental technician, laboratory technician, postal clerk, truck or taxi dispatcher, newsstand owner	4	
	Skilled manual employee, owner of a small farm Barber, carpenter, cook, masseur, painter, welder, LP Nurse, Policeman, Homemakers	5	
	Machine operator, semi-skilled employee, tenant farmer who owns little equipment Hospital aide, assembly line worker, bartender, bus driver, housekeeper, taxi driver, waiter	6	
	Unskilled employee, share cropper Cafeteria worker, domestic, messenger, unskilled factory worker, garbage collector	7	
	Not currently employed (client – current)	9	

10	**How old were you when you first started experiencing symptoms of your mental illness (e.g., hearing voices, unusual thinking, suspiciousness)?**	___ ___ years
11	**How old were you when you first received treatment for these problems?**	___ ___ years
12	**How long have you been in treatment for these problems?**	___ ___ years
13	**What type of treatment(s) have you received?**	
	Hospitalization	
	Individual therapy	
	Group therapy	
	Peer Support	
	Medications	
	Supported Employment/Education	
	Family therapy	
	Case management	
	Other (specify) _____	
	Multiple (specify) _____	

Demographics Questionnaire – Peer Provider Version (Study 2)

Participant Initials**:** **XX**	Participant ID: **XXXXX**	Date **: XX/XX/XX**

1	**Date of birth** (mm / dd / yyyy)			/			/						

2	**Gender**		
	1	Male	
	2	Female	
3	**Ethnicity**		
	1	**Hispanic or Latino** (A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can also be used in addition to "Hispanic or Latino.")	
	2	**Not Hispanic or Latino**	
4	**Race**		
	1	**American Indian or Alaska Native** (A person having origins in any of the original peoples of North, Central, or South America, and who maintains tribal affiliations or community attachment.)	
	2	**Asian** (A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.)	

	3	**Black or African American** (A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American.")	
	4	**Native Hawaiian or Other Pacific Islander** (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)	
	5	**White** (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.)	

5	**Highest Level of Education** (circle highest for each)	Score	
	Completed post-graduate training, advanced degree	1	
	Some post-graduate training, no degree	2	
	Completed college, 4 year degree	3	
	Some post secondary school, but no 4 year degree; including associate degrees & technical certificates or diploma	4	
	Completed high school, diploma	5	
	Attended high school, no diploma	6	
	Completed 8th grade, no high school	7	
	Attended grade school, not through 8th grade	8	
	No schooling	9	
6	**Is the participant currently a student?**	Yes	No

7	**Is the participant currently working?**	Yes	No

8	**Specify level of Occupation and Size of Business** (e.g., accountant in small business, clerk in convenience store)	
	Occupation (specify)	

9	**Level of Occupation** (circle highest for each) (see manual for additional codes)	Score
	Higher executive, proprietor of large concern, major professional Physician, lawyer, broker, university/college teacher	1
	Business manager of large concern, proprietor of medium sized business, lesser professional Personnel/ office manager, accountant, nurse, social worker, elementary and H.S. teachers	2
	Administrative personnel, owner of small independent business, minor professional, owner of a large farm Insurance agent, sales reps, florist, laboratory asst, photographer, travel agent	3
	Clerical or sales worker, technician, owner of a little business, owner of a medium sized farm Bank teller, dental technician, laboratory technician, postal clerk, truck or taxi dispatcher, newsstand owner	4
	Skilled manual employee, owner of a small farm Barber, carpenter, cook, masseur, painter, welder, LP Nurse, Policeman, Homemakers	5
	Machine operator, semi-skilled employee, tenant farmer who owns little equipment Hospital aide, assembly line worker, bartender, bus driver, housekeeper, taxi driver, waiter	6
	Unskilled employee, share cropper Cafeteria worker, domestic, messenger, unskilled factory worker, garbage collector	7
	Not currently employed (client – current)	9

10	**How long have you served in your role as a peer service provider?**	___ ___ years
11	**What type of service(s) have you provided?**	
	Served as a peer provider in a conventional role (e.g., case manager, supported employment/education specialist)	
	Facilitated groups	
	Served as a consumer advocate	
	Provided one-to-one peer support	
	Assisted with crisis response (e.g., provided support in the emergency room, rode with police)	
	Worked at a peer respite facility or drop-in center	
	Other (specify) _____	
	Multiple (specify) _____	

Psychosocial Treatment Compliance Scale (PTCS)

Instructions

The degree of participants' engagement in group is examined by peer providers. Scoring on level of engagement is based on participants' overall performance in group at each session.

Rating

Please circle the corresponding scores to reflect participant's engagement in group.

	Item	Never	Infrequently	Sometimes	Frequently	Always
1	Attended group	1	2	3	4	5
2	Attended group on time	1	2	3	4	5
3	Was self-motivated in joining group	1	2	3	4	5
4	Was willing to follow providers' instructions	1	2	3	4	5
5	Actively participated in group	1	2	3	4	5
6	Was attentive during group	1	2	3	4	5
7	Was willing to communicate with providers (e.g., took initiative in asking or answering questions)	1	2	3	4	5
8	Was willing to communicate with other participants	1	2	3	4	5
9	Was willing to provide help to other participants when needed	1	2	3	4	5
10	Was able to remember content/skills taught in previous sessions	1	2	3	4	5
11	Completed homework assignment from previous session	1	2	3	4	5
12	Was willing to review topics discussed in previous sessions	1	2	3	4	5
13	Was willing to try new things	1	2	3	4	5
14	Avoided premature termination	1	2	3	4	5

15	Sought advice to improve situation	1	2	3	4	5

Participant Feedback Survey

		1	2	3	4	5
1.	Overall, how *useful* was this group?	Very Useless	Somewhat Useless	Neither Useless Nor Useful	Somewhat Useful	Very Useful
2.	Overall, how would you describe the *quality* of the service you received?	Very Poor	Somewhat Poor	Neither Poor Nor Good	Somewhat Good	Very Good
3.	Overall, how *appropriate* to your situation was the information presented in group?	Very Inappropriate	Somewhat Inappropriate	Neither Inappropriate Nor Appropriate	Somewhat Appropriate	Very Appropriate
4.	Overall, how *understand able* was the information presented in group?	Very Difficult to Understand	Somewhat Difficult to Understand	Neither Difficult Nor Easy to Understand	Somewhat Easy to Understand	Very Easy to Understand
5.	Overall, how *supported* did you feel by the group facilitators in group?	Very Unsupported	Somewhat Unsupported	Neither Unsupported Nor Supported	Somewhat Supported	Very Supported

6.	Overall, how *supported* did you feel by other participants in group?	Very Unsupported	Somewhat Unsupported	Neither Unsupported Nor Supported	Somewhat Supported	Very Supported

1. What should we keep the same about this group?
   _____
   _____
   _____
   _____
   _____

2. What should we stop doing in this group?
   _____
   _____
   _____
   _____
   _____

3. What should we start doing in this group?
   _____
   _____
   _____
   _____
   _____

4. Other comments:
   _____
   _____
   _____
   _____
   _____

Thank you for your feedback and participation!!

Provider Feedback Survey

		1	2	3	4	5
1.	Overall, how *useful* was the manual?	Very Useless	Somewhat Useless	Neither Useless Nor Useful	Somewhat Useful	Very Useful
2.	Overall, how *understandable* was the manual?	Very Difficult to Understand	Somewhat Difficult to Understand	Neither Difficult Nor Easy to Understand	Somewhat Easy to Understand	Very Easy to Understand
3.	Overall, to what extent do you believe that the group was *helpful* to the participants?	Very Unhelpful	Somewhat Unhelpful	Neither Unhelpful Nor Helpful	Somewhat Helpful	Very Helpful
4.	Overall, how *comfortable* were you with facilitating groups?	Very Uncomfortable	Somewhat Uncomfortable	Neither Uncomfortable Nor Comfortable	Somewhat Comfortable	Very Comfortable

5. What should we keep the same about this group?

   _____
   _____
   _____
   _____
   _____

6. What should we stop doing in this group?

   _____
   _____
   _____
   _____
   _____

7. What should we start doing in this group?

   _____
   _____
   _____
   _____
   _____

8. Other comments:

   _____
   _____
   _____
   _____
   _____

Thank you for your feedback and participation!!

ADVERSE EVENT TRACKER

Since the last group session you attended, have you (circle your answer):

1) Been hospitalized?	**YES**	**NO**
2) Used crisis services (for example, went to the emergency room, called a crisis line)?	**YES**	**NO**
3) Made a suicide attempt?	**YES**	**NO**
4) Experienced a medically significant event (for example, broke a bone)?	**YES**	**NO**
5) Experienced a severe or permanently disabling event (for example, had a stroke which left you paralyzed?)	**YES**	**NO**
6) Given birth to a baby with a birth defect?	**YES**	**NO**

*****If the answer to any of these questions is yes, please discuss the event with your group facilitator.**