Clarifying the Direction of Effects between Alliance and Client Involvement in Treatment for Child Anxiety in Community Settings

Nadia Islam
Virginia Commonwealth University

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CLARIFYING THE DIRECTION OF EFFECTS BETWEEN ALLIANCE AND CLIENT INVOLVEMENT IN TREATMENT FOR CHILD ANXIETY IN COMMUNITY SETTINGS

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University

by

NADIA YASMIN ISLAM
Bachelor of Arts, University of Virginia, 2009

Thesis and Academic Advisor: Bryce D. McLeod, Ph.D.
Associate Professor, Department of Psychology

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Abstract

CLARIFYING THE DIRECTION OF EFFECTS BETWEEN ALLIANCE AND CLIENT INVOLVEMENT IN TREATMENT FOR CHILD ANXIETY IN COMMUNITY SETTINGS

By Nadia Y. Islam, B.A.

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

Virginia Commonwealth University, 2013

Major Director: Bryce D. McLeod, Ph.D.
Associate Professor, Psychology Department

Alliance and client involvement are thought to be important therapy process factors in child psychotherapy; however, few studies have investigated them over the course of treatment. The present study examined change in alliance, client involvement, and the relationship between the two over time in an effectiveness study comparing cognitive behavioral therapy (CBT) and usual clinical care (UC) for child anxiety disorders. The sample included 40 clinically-referred children (57.50%, female, mean age = 10.81, SD = 2.11, 35.00% Caucasian, 32.50% Latino/Hispanic, 5.00% African-American, 7.50% mixed ethnicity, 20.00% not reported) and 39 therapists employed by community clinics. Two doctoral-level students comprised the coding teams for each measure and independently rated alliance and client involvement in all available recorded sessions. Unconditional multilevel growth models indicated alliance and client involvement did not significantly change over time. Findings suggest that when measured by observational coders, initial levels of alliance and client involvement remain relatively stable throughout different treatments for child anxiety in community settings. Existing therapy process models may require further specification based on treatment setting and method of measurement. In practice, these findings suggest strategies to bolster initial alliance and client involvement could help improve the impact and delivery of child anxiety treatment in community settings.
Clarifying the Direction of Effects between Alliance and Client Involvement in Treatment for Child Anxiety in Community Settings

It is widely recognized that children in the United States need effective mental health care services. An estimated 10% to 20% of American children (approximately 15 million) meet criteria for a mental health disorder (Kataoka, Zhang, & Wells, 2002). Researchers have responded to this need with great energy by developing evidence-based treatments (EBTs); however, when transported to and delivered in community settings, effectiveness studies have shown that EBTs do not always outperform usual care (UC) (i.e., Barrington, Prior, Richardson, & Allen, 2005; Southam-Gerow et al., 2010). Given the mixed success rate in transporting treatments from research labs to community settings, there is still a great need for improving the delivery of mental healthcare treatments in communities.

In the child psychotherapy field (hereafter the terms child and children will be used to refer to children and adolescents unless distinctions need to be made), the majority of research has focused on technical factors—the therapeutic interventions (e.g. in vivo exposures, cognitive restructuring) that are involved in treatment. Yet, there is still much to understand about the therapy process, what occurs between the therapist and client and how the client responds to treatment (Hill & Lambert, 2004; McLeod, Islam, & Wheat, 2013). Alliance and client involvement are two therapy process factors that may be of key importance in child psychotherapy. Alliance is commonly defined as the affective and collaborative relationship between the client and the therapist (Elvins & Green, 2008; Shirk & Saiz, 1992). Client involvement refers to the client’s level of participation in therapeutic tasks (e.g., initiating discussion, making treatment suggestions) during a therapy session (Chu & Kendall, 2004). Unfortunately, little research has investigated these factors in the child psychotherapy field.
Understanding how alliance and client involvement are related would increase our knowledge of how treatments work and how to optimize the delivery and impact of treatment.

Treatment delivery involves several different components including therapeutic interventions (e.g. social skill building), sequencing of interventions, and therapist competence (Leeuw, Goossens, de Vet, Vlaeyen, 2009; McLeod et al., 2013). Traditionally, treatment delivery includes the elements the therapist contributes to treatment, particularly the interventions employed. Even studies examining therapy process factors in well-supported treatments are quite scarce (Weersing & Weisz, 2002). Moreover, the field has yet to understand what therapy process factors might be responsible for success across different psychosocial treatments for children (e.g., EBT and UC). Client involvement, or participation in therapy session activities, is thought to be key in improving treatment outcomes (Karver et al., 2008; Karver et al, 2005). Logically, a client that participates in treatment will likely benefit from treatment more; however, establishing a positive bond with the therapist and agreeing on treatment activities (alliance) may be an important prerequisite, especially when treatment requires the client to complete challenging activities (e.g. exposures, discussing traumatic events) (Hill, 2005). Clarifying when alliance and client involvement are expected to be high or low could help inform treatment planning. Therapists might modify the sequencing of interventions based on knowing when having high levels of alliance and involvement in the therapy process might strengthen the receipt of therapeutic interventions. Accordingly, further understanding the role of alliance, client involvement, and the link between the two may help researchers optimize treatment delivery.

A critical empirical gap exists on the relation between alliance and client involvement and their roles throughout the course of child psychotherapy. It has been hypothesized that strong
alliance facilitates increased client involvement in treatment activities, which in turn promotes treatment effectiveness (Kendall & Ollendick, 2004). Karver and colleagues (2008) proposed a temporal model in which alliance influences the emergence of client involvement. According to this conceptual model, a client-therapist relationship marked by warmth, trust, and agreement on treatment activities influences the client’s participation in important treatment activities (e.g. engaging in role-plays) (Chu & Kendall, 2004; Horvath & Bedi, 2002). Limited research has examined the link between alliance and client involvement in child psychotherapy. Existing studies have produced mixed findings, leaving much room for further research (Hudson et al., 2014; Karver et al., 2008; McLeod et al., 2013; Shirk, Gudmundsen, Kaplinski, & McMakin, 2008). Until recently, no studies had concurrently investigated how alliance and client involvement change and how they influence one another over the course of treatment (Hudson et al., 2014; McLeod et al., 2013). Moreover, studies that have examined the alliance-involvement link throughout treatment have only examined these constructs in cognitive-behavioral therapy (CBT) delivered in research/lab-based treatment settings. Therefore, results from previous studies may be limited in their generalizability to community settings.

The majority of research in the child field has focused on only the alliance-outcome association or only the client involvement-outcome association. Few studies have examined the link between these therapy processes. Knowing more about the relation between alliance and client involvement and the direction of effects between these two factors could help optimize the delivery of treatment and maximize treatment effects. If having a strong alliance predicts client involvement, it may be important to ensure alliance is strong before introducing an intervention that requires high levels of client involvement to be effective. For example, Chu and Kendall (2004) found that higher levels of client involvement at mid-treatment just prior to exposures
were positively associated with treatment gains in a CBT treatment for child anxiety. Additionally, knowing more about the course of alliance and client involvement throughout treatment would help therapists know when lower levels of alliance and client involvement are normative versus problematic (Hudson et al., 2014; Kendall et al., 2009). Thus, understanding how alliance and client involvement unfold over the course of treatment would inform therapists when focusing on increasing alliance and/or client involvement may help optimize treatment delivery.

A natural starting point for this type of research is with treatments in which the technical factors, or therapeutic interventions, have been well studied, such as treatments for child anxiety disorders. Therapeutic interventions for treating child anxiety disorders have received laudable research attention. In particular, CBT has garnered prominent empirical support in numerous efficacy trials (e.g. Barrett, Dadds, & Rapee, 1996; Kendall, 1994; Kendall et al., 1997; Silverman, Pina, Viswesvaran, 2008). Yet, when delivered in community settings, effectiveness studies have shown that CBT for childhood anxiety disorders does not outperform usual care (UC) (Barrington et al., 2005; Southam-Gerow et al., 2010). Children in CBT and UC show improvement in anxiety symptoms that is comparable to the success rates of CBT in research/lab-based settings (see Southam-Gerow et al., 2010); however, only about 70% of children are free of their primary anxiety disorder at post-treatment in both research/lab-based and community settings (Barrington et al., 2005; Kendall, 1994; Kendall et al., 1997; Kendall, Hudson, Gosch, Flannery-Schroeder, & Suveg, 2008; Southam-Gerow et al., 2010). There is still much to be understood about the factors that facilitate treatment delivery for childhood anxiety disorders in order to help more children receive the most effective treatment.
Further understanding how alliance and client involvement individually and interactively contribute to the therapy process over the course of treatment has the potential to improve the delivery and impact of treatment for children (Chu et al., 2004; Kazdin, 2007). Limited research suggests that both alliance and client involvement may play an important role in the therapy process, but more research is needed before any firm conclusions can be made. One study found that client involvement measured at mid-treatment was associated with positive treatment gains in CBT for anxiety (Chu & Kendall, 2004); however, findings on the alliance-outcome association in CBT for anxiety have been mixed (Chiu et al., 2009; Kendall, 1994; Kendall et al., 1997; Liber et al., 2010). Indeed, a therapist that follows a CBT protocol precisely but lacks a positive client-therapist alliance and client involvement may not necessarily see positive treatment outcomes (McLeod, Southam-Gerow, & Weisz, 2009).

Especially when treating childhood anxiety disorders, researchers have suggested that alliance promotes client involvement, oftentimes in challenging treatment activities (e.g. exposures), which facilitate positive treatment effects (Chu & Kendall, 2004; Kendall et al., 2009). Though some recent findings suggest the relationship between alliance and client involvement in CBT for child anxiety may be reciprocal and more complex than previously proposed unidirectional models (McLeod et al., 2013). Examining alliance and client involvement concurrently throughout treatment will clarify how these two constructs operate and facilitate the therapy process. Understanding how to improve treatment delivery is critical given the large number of children in need of mental health care services.

**Literature Review**

The literature review will begin with a discussion of the evidence-based practice movement and the call for more empirical research on therapy process factors such as alliance
and client involvement. Next, an overview of alliance and client involvement will follow including definitional issues, process-outcome findings, and support for further research on both alliance and client involvement to improve treatment delivery. The review will continue with a discussion of how investigating the link between therapy process factors such as alliance and client involvement will help researchers better understand how treatment works and improve the delivery of mental health treatments for children. Studies examining the links between alliance and client involvement will be reviewed, and the current conceptual model linking these two factors in child psychotherapy will be discussed in more detail. The literature review will conclude with a discussion of the methodological issues currently confronting the field and an overview of the present study.

**Therapy Process Factors and the Evidence-based Practice Movement**

More research is needed on therapy process factors, such as alliance and client involvement that may optimize treatment delivery. Knowing more about how alliance and client involvement change over the course of treatment and how they are linked may inform therapists of when and how focusing on them may improve treatment delivery. For example, if building a strong alliance early in treatment is critical to client involvement in later more difficult session activities, therapists may want to focus on alliance-building behaviors early in treatment. Similarly, if client involvement in treatment activities is essential to building alliance (the interactive relationship between client and therapist), therapists may want to focus on increasing early child involvement (McLeod et al., 2013). Thus, focusing on either or both of these variables and particular points in treatment could play an important role in how interventions are delivered and received.
Additionally, understanding whether alliance and client involvement operate similarly across treatment approaches and settings may help to optimize the delivery of psychosocial treatments in community settings. For example, identifying critical factors in the therapy process could help with developing treatment manuals and therapist training programs (Kazdin, 2009). Such efforts have the potential to improve children’s mental health treatment and benefit children across different treatment types and settings.

Some therapy process factors are believed to operate as common factors, components that underlie the effectiveness of therapeutic interventions across theoretical orientations (Lambert & Ogles, 2004). Alliance and client involvement have been considered common factors facilitating change in treatment and are also referred to as relational factors, in that they involve the role of the therapist and client (Karver et al., 2006). Though there has been a divide among studies of evidence-based technical factors (i.e. therapeutic interventions; Chambless & Ollendick, 2001) and evidence-based relational factors (Karver et al., 2008), some wisely suggest that studying both types of factors is important to understanding how treatments work (Castonguay & Beutler, 2006; Hill, 2005). Technical and relational factors may individually and interactively influence treatment outcomes across different therapeutic approaches (Hill, 2005).

The Division of Clinical Psychology and Division of Psychotherapy of the American Psychology Association (Divisions 12 and 29) assert that relational factors are an important component of evidence-based practice (Norcross, 2002, 2011; Norcross & Wampold, 2011). Recognizing the need for equal levels of research on technical factors and relational factors, Division 29 formed the Task Force on Empirically Supported Therapy Relationships to identify and disseminate what works best in therapy relationships (Norcross, 2002, 2011; Norcross &
Recently, the Task Force issued an update on research-supported conclusions after synthesizing over 20 meta-analyses (Norcross & Wampold, 2011). These findings identified several relational factors that contributed to therapy effectiveness, including alliance in individual, child, and family psychotherapy; however, research specifically on empirically supported relationships in the child field has lagged behind the adult field (Karver et al., 2006).

Karver and colleagues (2006) conducted a meta-analysis of therapy relationship variables in child psychotherapy including client-therapist alliance and client involvement. They argued that relational factors may be as important, if not more important, in child psychotherapy as they are in adult psychotherapy given that children are typically not self-referred for treatment. Thus, they may enter treatment unaware of or in disagreement with their reason for attending treatment (DiGiuseppe, Linscott, & Jilton, 1996; Shirk & Karver, 2003). The more that a therapist can cultivate a relationship marked by a positive bond and agreement on treatment activities, the more likely a child might be to participate in treatment, especially as activities become more challenging (e.g. exposures) (Kendall et al., 2009). Karver and colleagues (2006) saw the need to test a theoretical model that would explain how various relationship variables work together in treatment. One hypothesis has been that a therapist who cultivates a strong alliance with the client may see more success in treatment due to clients participating more in treatment tasks (Chu & Kendall, 2004). If a child likes his or her therapist and they agree on activities, this may predict the child’s involvement in session activities containing active treatment components (e.g. social skill building, exposures). In turn, the child’s involvement in treatment activities may help promote positive outcomes (Karver et al., 2008).

Most conceptual and empirical work on child psychotherapy processes has focused on alliance predicting client involvement in CBT for anxiety. Current conceptual models offer no
 specifics on the temporal relation between alliance and client involvement or the prospect that these processes may be reciprocal. Recent empirical findings suggest the client involvement may also predict alliance in CBT for anxiety (McLeod et al., 2013). In light of these findings, more research is needed to improve our conceptual understanding of how alliance and client involvement are related across the course of treatment.

To better understand how alliance and client involvement may facilitate the therapy process, it is important to examine how levels of alliance and client involvement change throughout treatment. In the following sections, I will focus specifically on alliance and client involvement as key therapy process factors. In the first section, I will highlight some of the definitional issues with alliance, findings from previous studies on the alliance-outcome association, and the need to further study alliance to improve treatment delivery. Then, I will discuss client involvement with specific attention to how client involvement is defined and measured, the importance of client involvement in producing treatment outcomes, and how studying client involvement may help optimize treatment delivery. Finally, I will provide an overview of a conceptual model linking alliance and involvement and propose how testing this model may further inform evidence-based practice.

Alliance

Alliance has long been viewed as a critical component of psychotherapy. Alliance has been credited with improving client motivation, persistence, compliance, attendance, satisfaction and treatment outcomes (e.g., Bordin, 1979; Hawley & Weisz, 2005, Horvath & Luborsky, 1993; Shirk & Saiz, 1992). One of the primary aims of this study was to understand how alliance contributes to the therapy process in child psychotherapy, particularly in terms of how it may influence or be influenced by client involvement.
**Defining alliance.** Researchers have defined alliance in a number of ways including the therapeutic bond, working alliance, and therapeutic alliance (see Elvins & Green, 2008). Most definitions in the child field have focused on the affective and collaborative aspects of the relationship between the therapist and client (McLeod, 2011; Shirk & Karver, 2003). These two dimensions of the alliance, termed bond and task, are particularly relevant to definitions of alliance in child psychotherapy (Shirk & Saiz, 1992). The bond element represents the affective aspects of the relationship between the therapist and client. The task component represents the level of agreement on treatment activities. Developing a relationship with the child marked by a strong affective bond and agreement on treatment activities is thought to be crucial to engaging the child in the therapy process (Shirk & Saiz, 1992). Such beliefs can be traced back to Anna Freud’s (1946) emphasis on the importance of “affectionate attachment” as a necessary prerequisite for all later work (e.g., discussing feelings) when treating children.

Shirk and Saiz (1992) were the first researchers to develop a measure for alliance specific to children, the Therapeutic Alliance Scales for Children (TASC). They based their definition of alliance off of Bordin’s (1979) transtheoretical model in the adult field that includes the bond and task dimensions of alliance and a goals dimension that reflects the level of agreement between the therapist and client on the purpose of treatment. Shirk and Saiz (1992) focused on the bond and tasks elements in Bordin’s model because children are typically not self-referred for treatment and may not have developed the cognitive capacity for forming long-term goals (Shirk, 1988). As such, children may not acknowledge or experience problems and therefore be unaware of or oppose the goals of treatment.

There has been debate in the child literature over whether a goals dimension is relevant in child psychotherapy. Diguiseppe and colleagues (1996) argue that the goals component of
alliance may be an important component for adolescents. They criticize Shirk and Saiz (1992) for overlooking the social contractual features of alliance and emphasize the importance of goal consensus, particularly in adolescents who may resist treatment as part of their struggle to achieve autonomy (DiGiuseppe et al., 1996). However, the field has yet to agree on a definition of the alliance in child psychotherapy (Elvins & Green, 2008; McLeod, 2011). For the purposes of this study, the definition of alliance will focus on the affective and collaborative aspects of the alliance due to limited conceptual and empirical support for a separate goals dimension with children.

Another issue in the child field is agreeing on which alliance relationship is most important to study, particularly given the integral role that parents oftentimes play in treatment. Although many different alliance relations (e.g. child-therapist, parent-therapist, family) may play an important role in treatment for children (Karver et al., 2006), the present study focused exclusively on the alliance between the child and therapist. Given that treatment for anxiety is most often child-focused (Weisz, 2004), the child-therapist alliance was the most prudent starting point for research. Throughout this paper, the term alliance will be used to refer specifically to the affective and collaborative relationship between the therapist and the child client.

The alliance-outcome association. Alliance has long been emphasized as a critical component of positive change in psychotherapy (Elvins & Green, 2008) and has received a wealth of attention in the adult psychotherapy field as a consistent predictor of outcomes (e.g. Horvath, Del Re, Flückiger, & Symonds, 2011; Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000). Findings from hundreds of adult studies indicate there is a consistent, modest relation between alliance and treatment outcome ($r = .22-.26$; Horvath & Symonds, 1991; Martin et al., 2000). Studies have established alliance as a consistent predictor of successful psychotherapy
outcomes across a variety of diagnoses, theoretical orientations, treatment types and outcome measures (Horvath et al., 2011; Horvath & Bedi, 2002; Martin et al., 2000). These findings suggest that alliance may be an important common factor that helps promote successful outcomes in psychotherapy. Accordingly, the Division of Psychotherapy of the American Psychological Association (Division 29) concluded that alliance is an important component of evidence-based practice (Norcross, 2002, 2011; Norcross & Wampold, 2011). This could be because the alliance itself is curative or because alliance promotes therapy engagement, defined as treatment attendance and participation in therapy tasks (Tetley, Jinks, Huband, & Howells, 2011).

Research on alliance in the child psychotherapy field has lagged far behind the adult field. Until recently, the most comprehensive meta-analyses of the link between the therapeutic relationship and treatment outcomes in child psychotherapy grouped all relational factors together (Shirk & Karver, 2003). While it is important to understand the general contributions of relational factors to treatment outcomes, there has been an increased focus on teasing apart the specific role of alliance and how it is linked other similar but separate therapy process factors, such as client involvement (e.g., Hill, 2005; Karver et al., 2006; Karver et al., 2008; Shirk et al., 2008). Two more recent meta-analyses on the alliance-outcome association reflect this shift from treating relational factors as one large construct to focusing specifically on the alliance-outcome association and considering the alliance-involvement link (McLeod, 2011; Shirk, Karver, & Brown, 2011).

Recently, two meta-analyses have been added to the literature that focused exclusively on the alliance-outcome association in child psychotherapy (McLeod, 2011; Shirk, Karver, & Brown, 2011). Shirk and colleagues (2011) provided a meta-analysis of 16 alliance-outcome
association studies ($N = 1306$ participants with studies combined). The meta-analysis included only prospective studies of individual child psychotherapy that used measures specific to alliance. Results were consistent with findings from the adult literature, indicating a weighted mean correlation of .22 between alliance and outcome, with a 95% confidence interval of +/- .06. While all the studies measured alliance prior to outcome, the establishment of temporal ordering is not sufficient to determine a causal relationship between alliance and outcome (Feeley, DeRubeis, & Gelfand, 1999). Results from this study strengthen the argument that alliance may predict treatment outcomes in child psychotherapy; however, due to limited sample size, findings from this meta-analysis are limited in interpretability.

McLeod (2011) provided a larger review of the alliance-outcome literature. The meta-analysis included 38 studies. Like Shirk and his colleagues (2011), McLeod focused exclusively on the results of studies that used alliance measures. One reason this meta-analysis included a greater number of completed studies than Shirk and colleagues’ meta-analysis, was the studies were not required to measure alliance prior to outcome. While this departs from the criteria used in the adult psychotherapy literature, it is consistent with the two prior meta-analyses in child psychotherapy (Karver et al., 2006; Shirk & Karver, 2003), and thus allows for comparisons within the child psychotherapy literature.

Results from the meta-analysis indicated the mean weighted estimate of the alliance-outcome association effect size (ES) was $r = .14$, an estimate smaller than those previously found in the adult and child psychotherapy literature. Based on Cohen’s (1988) criteria for effect sizes, an ES of .14 is slightly above the cutoff for a small effect size. Previous ES estimates in the child psychotherapy and adult psychotherapy field (i.e., Karver et al., 2006, $r = .21$; Martin et al., 2000, $r = .22$; Shirk & Karver, 2003, $r = .22$) were approaching medium effect sizes (Cohen,
These divergent findings raise questions about the strength of the relation between alliance and treatment outcomes in child psychotherapy. Below, a careful review of findings from this meta-analysis will highlight considerations for the accuracy of the results and directions for future research.

One possible explanation for the smaller ES estimate found by McLeod (2011) is that it is more accurate than previous estimates of the alliance-outcome association in child psychotherapy. The estimate reported by McLeod was based on a larger number of studies than previous meta-analyses (Karver et al., 2006; Shirk & Karver, 2003). Previous meta-analyses may have overestimated the strength of the alliance-outcome association due to limited sample size and inclusion of methodologically weak studies (Begg, 1994; Begg & Berlin, 1988). Meta-analyses on the alliance-outcome association in the adult psychotherapy field have required that the studies included (a) focused exclusively on alliance; (b) assessed alliance prior to outcome (to avoid confounds due to concurrent measurement); and (c) evaluated individual psychotherapy (not family therapy). Only nine studies in the child psychotherapy literature met these more stringent criteria (McLeod, 2011), and when these criteria were applied to the child psychotherapy literature, ES estimates were consistently smaller (McLeod, 2011, $r = .14$; Shirk & Karver, 2003, $r = .08$) than those in the adult psychotherapy literature (Horvath & Symonds, 1991, $r = .26$; Martin et al., 2000, $r = .21$).

On the other hand, it is also possible that McLeod (2011) underestimated the strength of the relation. Exploratory analyses from that meta-analysis revealed a number of methodological and substantive factors that may moderate the alliance-outcome association in child psychotherapy (e.g., problem type, referral source). Indeed, it appears that the existing studies on the alliance-outcome association in the child psychotherapy literature are quite heterogeneous
and may not represent a single “population” of studies.

Since then, Hudson and colleagues (2014) have added to the literature with a study using a series of latent growth models (LGMs) to test the effects of three latent variables (intercept, slope, and quadratic) for alliance, involvement, and therapist flexibility on outcome measures. The effects of latent variables for alliance on outcome will be discussed here. Results pertaining to the involvement-outcome association will be discussed separately in a corresponding involvement-outcome association section below. Observational coders measured alliance at eight time points across treatment using two scales from the Child Psychotherapy Process Scales (CPPS, Estrada & Russell, 1999)—the child therapeutic alliance scale (e.g., child’s interest, cooperation, trust) and therapist therapeutic alliance scale (e.g., therapist warmth, empathy). Symptom and coping outcome measures were administered pre-treatment, post-treatment, and at 12-month follow-up and included the perspective of multiple raters (child, parent, teacher). Each outcome measure was regressed individually on the intercept, linear, and quadratic latent variables. Analyses were run separately to examine pre-post differences and pre-follow up differences in outcomes.

Results from this study revealed some evidence of a relationship between alliance and outcome. The intercept, or initial level, of child alliance predicted pre-post treatment changes in mother- and teacher-reported symptoms, pre-post changes in child-rated coping, pre-follow up changes in teacher-reported symptoms, and pre-follow up changes in child-rated coping. Positive linear change in child alliance predicted pre-post changes in child-rated coping and pre-follow up changes in teacher-reported symptoms. When measuring therapist alliance, the intercept predicted pre-post changes in mother- and teacher-reported symptoms and child-rated coping. Linear and quadratic latent models of therapist alliance predicted pre-follow up changes in
teacher-reported symptoms. Overall, the intercept was more often a significant predictor of outcome than linear and quadratic models; however, results were not consistent across outcome measures or outcome measurement points (post-treatment or follow-up). Thus, there is still much room for understanding the interactive process between relational factors that may better explain pathways to treatment outcomes.

**Trajectory of alliance in treatment delivery.** Knowing more about the course of alliance in CBT and UC for child anxiety could help improve treatment delivery. Studies that have examined changes in alliance in treatment for child anxiety disorders have produced mixed findings (Chiu et al., 2009; Chu et al., 2013; Hudson et al., 2014; Kendall et al., 2009; Liber et al., 2010; McLeod et al., 2013). In a study conducted by Kendall and colleagues (2009), researchers examined the shape of alliance in children (N = 86) treated for anxiety disorders with family-based CBT (FCBT) and family education, support, and attention (FESA). The study employed latent growth curve modeling with data from multiple informants (therapist, child, mother, and father) and found therapist, child, mother, and father alliance ratings significantly increased across treatment sessions, at first at a steep incline that then subsequently slowed over time. Another study conducted by Chu and colleagues (2013) investigated the trajectory of alliance in children (N = 69) being treated for anxiety disorders in a CBT trial. This study also included data from multiple informants (therapist and child) and found that a dual slope model best explained the pattern of therapist alliance ratings, similar to the one found by Kendall et al. (2009); however, in this study, there was no evidence of growth in child alliance ratings. Together, these findings suggest a dual slope trajectory with alliance positively increasing steeply, and then subsequently more slowly, may best describe the course of alliance in CBT for child anxiety; however, it appears that this pattern may differ depending on the perspective of the
In those studies that have used observational coding methods for measuring alliance, shifts in alliance have been relatively small and have actually gone in the negative direction (Chiu et al., 2009; Hudson et al., 2014; Liber et al., 2010, McLeod et al., 2013). Chiu and colleagues (2009) used the TPOCS-A to measure alliance early in treatment (sessions 2 and 4) and late in treatment (sessions 8 and 10) and found the mean overall shift was only -.06 (SD = .75). Similarly, Liber and colleagues (2010) used the TPOCS-A to measure alliance in one session randomly sampled from the first half of treatment (sessions 1-4) and one session randomly sampled from the second half of treatment (sessions 7-10). The mean overall alliance shift was -0.12 (SD = 0.71). McLeod and colleagues (2013) also used the TPOCS-A to measure alliance early in treatment (session two) and late in treatment (session eight) and the mean overall alliance shift was -.08 (SD = 1.01) in the child-focused CBT condition and -.16 (SD = 1.29) in the family-focused CBT condition. All of these studies were limited by only having one early and one late time point for measurement and did not specifically assess whether change over time was significant. With only two time points, only a linear slope could be produced and possible changes occurring during the middle of treatment could not be observed. Overall, these studies suggested a small negative shift in alliance from early in treatment to late in treatment, but further research was needed to explain the shape of alliance during the full course of treatment.

Hudson et al. (2014) used observational coding measures to assess alliance at eight different time points during treatment, averaging the mean of every two sessions to reduce missing data. Hudson and colleagues used the child therapeutic alliance and therapist therapeutic alliance scales from the CPPS (Estrada & Russell, 1999). Measuring alliance at multiple time
points across treatment allowed for a more comprehensive description of alliance throughout treatment than measuring alliance at just two time points. Hudson et al., (2014) also found a small decrease in alliance (approximately .04-.06 points every two sessions), suggesting that when observationally coded, alliance changes only slightly in the negative direction.

Knowing more about the trajectory of alliance in treatment and how best to measure it could help therapists know how to monitor alliance and know when the client-therapist alliance is going off course as opposed to going through a normative stage. This would help therapists to identify when focusing on maintaining or building alliance may be of critical importance and when one might expect and need to address potential alliance ruptures (i.e. rifts in the alliance in which the client feels negatively toward the therapist or therapy) (Safran, Samstag, Muran, & Stevens, 2001).

Moreover, studying alliance in conjunction with other therapy process factors over time may help optimize treatment delivery by potentially clarifying mixed findings on the alliance-outcome association in child psychotherapy. Mixed findings on the alliance-outcome association could be due to definitional and methodological issues in how alliance and related constructs, such as client involvement, are studied. One of the reasons alliance may be especially important is because it promotes client involvement, or client participation in therapeutic tasks within the session (Chu & Kendall, 2004; Shirk & Karver, 2006). Understanding the relation between alliance and client involvement has the potential to improve evidence-based practice by identifying ways to increase the extent to which clients participate in treatment.

**Client Involvement**

Client involvement has been less studied than alliance in the child literature, but researchers propose it is an important related, but distinct, factor that influences treatment
outcomes (Hill, 2005; Shirk & Karver, 2006). In the following sections, I will highlight some of the key definitional issues related to client involvement, findings from previous studies on the involvement-outcome association, and the need to further study the link between alliance and client involvement.

**Defining client involvement.** In the adult literature, client involvement has been described as containing cognitive, affective and behavioral components, including willingness to explore thoughts, feelings and memories, expression of positive and negative affect, verbal self-disclosure, and initiation of discussing difficult topics (Eugster & Wampold, 1996; Gomes-Schwartz, 1978; Windholz & Silberschatz, 1988).

Client involvement in the child psychotherapy field has been conceptualized as the child’s level of cooperation, openness, and behavioral participation in completing activities within the therapy session (Chu & Kendall, 2004; Chu, Suveg, Creed, & Kendall, 2010; Karver et al., 2005). Many terms and concepts relate to client involvement or describe parts of client involvement such as client participation, child willingness to participate, therapy engagement, and treatment attendance (Karver et al., 2005; Karver et al., 2006). Client participation and client involvement are for the most part interchangeable in the literature, with Karver and colleagues (2005) defining client participation as the client’s effort, involvement, collaboration, and engagement in therapy or therapy homework tasks. Child willingness to participate in treatment is more cognitive and related to treatment acceptability and a commitment to therapy (Karver et al., 2005). Treatment attendance, or number of sessions completed, has been used as a way of measuring client involvement also (e.g., Shirk et al., 2008); however, session attendance and completion is not an ideal measure of client involvement as there could be several barriers to attending treatment that have little to do with the client’s willingness to participate in treatment.
tasks (i.e. financial constraints, transportation, family chaos, see Kazdin et al., 1997).

Chu and Kendall (2004) provide a behavioral definition and measure for client involvement in the child field that focuses on the child’s participation in session activities. Their definition of involvement includes active behavioral participation (e.g., initiating discussion, asking questions, engaging treatment material) and behavioral indicators of openness to therapy (e.g., self-disclosing information, demonstrating enthusiasm). Chu and Kendall (2004) and others who have defined client involvement similarly (e.g., Braswell et al., 1985; Gomes-Schwartz, 1978; O’Malley et al., 1983; Windholz & Silberschatz, 1988), have found links between this conceptualization of client involvement and positive treatment outcomes. Chu and Kendall’s (2004) definition and measure of behavioral client involvement within session will be used in this study, but there are some limitations that are worth noting.

Focusing on behavioral indicators of participation and openness potentially fails to capture the affective and cognitive aspects of client involvement; however, the definition and measure provided by Chu and Kendall (2004) still provides a much fuller picture of behavioral client involvement than simply measuring session attendance. Another limitation is the exclusive focus on the level of child involvement, given that the level of parent involvement is also thought to be important in the therapy process (Karver et al., 2006). While the significance of parent involvement is important to recognize, this study will focus exclusively on how the child-therapist alliance influences the child’s in-session behavior as a starting point, given that treatment for child anxiety is most often child-focused (Weisz, 2004).

**Client involvement-outcome association.** Previous research with adults suggests that client involvement in treatment is important to obtaining successful treatment outcomes (Tryon & Winograd, 2002). Research with adults has found a significant relation between client
involvement and ratings of outcomes by clients, therapists, and independent raters across different theoretical orientations of treatment (Eugster & Wampold, 1996; Gomes-Schwartz, 1978; O’Malley, Suh, & Strupp, 1983; Windholz & Silberschatz, 1988).

Similar to research on alliance, studies on client involvement in the child psychotherapy field have lagged behind the adult field. Recently, client involvement has gained attention as a topic of empirical research related to components of evidence-based practice (Chu & Kendall, 2004; Karver et al., 2008; Shirk et al., 2008). Earlier empirical research provided preliminary evidence for studying client involvement as a factor involved in effective practice (Braswell et al., 1985) and will be outlined below. A more detailed review of recent research linking client involvement and treatment outcomes will follow (Chu & Kendall, 2004; Hudson et al. 2014; Karver et al., 2006).

Braswell and colleagues (1985) examined the role of client and therapist involvement in a randomized controlled trial comparing CBT, contingency-management, and attention-control treatments for children exhibiting classroom behavioral problems. The researchers coded 7-minute segments from the beginning, middle, and end of sessions 1, 2, 3, 10, 11, and 12. The coding system involved tallying the frequency of behaviors (Russell & Stiles, 1979) across three categories: (a) child category (e.g., child self-disclosure; suggested change in the task or procedure); (b) therapist category (e.g., therapist self-disclosure; emphasizing the feelings of self, child, and others); and (c) therapist and child category (i.e., duration of task-related activity). The researchers found that child behaviors associated with active and positive involvement (e.g., child-suggested changes in task), were significantly associated with positive outcomes. Specifically, behaviors associated with client involvement accounted for approximately 16% of the variance in teacher reports of child self-control and hyperactivity. This represents an
important finding; however, the definition of client involvement used in this study narrowly captures the range of behaviors that could indicate client involvement. Moreover, they did not code sessions that took place in the middle of treatment so it is possible they may have missed important information (Chu & Kendall, 2004; McLeod et al., 2013). Nevertheless, this study provided the basis for future research on the child behaviors that represent client involvement and its role in the therapy process throughout treatment.

Nearly a decade later, Chu and Kendall (2004) advanced the field by creating the Child Involvement Rating Scale (CIRS). The purpose of this study was to develop a psychometrically sound measure of client involvement and evaluate the association between child involvement and treatment outcomes in CBT for anxiety. They provided a definition and a measure of client involvement for the child field that includes behavioral participation (e.g., initiating discussion, asking questions, engaging treatment material) and openness to therapy (e.g., self-disclosing information, demonstrating enthusiasm). The sample was comprised of 59 children diagnosed with anxiety disorders (ages 8-14). Findings from this study established good inter-rater reliability for the CIRS (ICC = .61; Cicchetti & Sparrow, 1981) using independent ratings from 237 sessions. Coders reviewed 2 10-minute audiotaped segments from two early sessions (sessions 2-5) and two later sessions (sessions 6-10). The scores were summed to create an early client involvement score and a later client involvement score. Coders made ratings based off of concrete verbal indicators of client involvement, not on inferences about the child’s interest or motivation. Scores on a 0-5 Likert-type scale reflected frequency and significance of events. Client involvement measured later in treatment, just prior to in vivo exposures, was positively associated with treatment outcomes (i.e., the absence of a primary anxiety disorder diagnosis); however, early client involvement was not significantly associated with treatment outcomes.
Findings from this study have had important implications on future research. Chu and Kendall (2004) provided the child field with an observational measure of client involvement. This measure provided a more in-depth conceptualization of client involvement as the client’s openness and participation in therapy tasks. Such a tool was much needed in the field and provided a way to measure client involvement through multiple observable behaviors. In addition, the results from this study indicated that later client involvement may be more indicative of outcomes than early client involvement. This suggests that there may be a critical opportunity between early treatment and later treatment in which building client involvement may be important. Nearly 20% of the children involved in this study experienced large involvement shifts. It is possible that shifts in client involvement may be more indicative of change in therapeutic outcomes than client involvement measured at a single time point. Continued study of client involvement over the course of treatment could provide beneficial information about how changes in client involvement unfold and potentially lead to changes in outcome.

A 2006 meta-analysis conducted by Karver and colleagues included data from 49 treatment studies and examined relational therapy process factors. Results from the meta-analysis indicated that client participation in treatment was moderately related to treatment outcomes. These findings were not surprising given the number of adult treatment reviews that have linked client participation to treatment outcomes (Clarkin & Levy, 2004; Orlinsky, Ronnestad, & Willutzki, 2004; Tryon & Winograd, 2002). Indeed, it follows that if the content of the tasks involved in treatment is thought to be helpful, participating in those tasks would lead to positive treatment outcomes.
Most recently, Hudson and colleagues (2014) used a series of latent growth models (LGMs) to assess the effects of three latent variables (intercept, slope, and quadratic) for alliance, involvement, and flexibility on outcome measures. The Child Involvement Rating Scale-Revised (CIRS-R), a revised version of the CIRS (Chu & Kendall, 2004), was used to measure client involvement. The CIRS-R includes two additional positive involvement items to assess child disclosure of anxious thoughts and feelings. Client involvement was rated at eight time points throughout CBT for child anxiety. Symptom and coping outcome measures were administered pre-treatment, post-treatment, and at 12-month follow-up and included the perspective of multiple raters (child, parent, teacher). Each outcome measure was regressed individually on the intercept, linear, and quadratic latent variables. Separately analyses were run to assess differences in pre-post outcome scores and differences in pre-follow up outcome scores. Results revealed some evidence of an involvement-outcome association. The intercept, or initial level, of client involvement predicted pre-post improvements and pre-follow up improvements in child-rated coping. Positive linear change in involvement predicted improvement in teacher-reported symptoms from pre-treatment to follow-up. Overall, these findings offer some support for an association between positive increases in client involvement and improvements in symptom and coping outcome measures; however, results were not consistent across outcome measures or timing of outcome measurement (post-treatment or follow-up). Further research is needed to better understand the involvement-outcome association and the interactive processes between relational factors that may better explain the pathways to treatment outcomes.

**Trajectory of client involvement in treatment delivery.** Client involvement is believed to be a critical factor in treatment success. Indeed, client involvement has been found to significantly predict treatment gains in CBT for child anxiety (Chu & Kendall, 2004; Hudson et
Knowing how client involvement typically changes over the course of treatment for childhood anxiety disorders could help improve treatment delivery. For example, such information could be used for benchmarking purposes (i.e. identifying critical levels of client involvement needed for positive outcomes) or monitoring purposes to know when involvement may be going off the expected course. Understanding how client involvement may change over the course of treatment and times when it may be important to increase client involvement represents an important goal for improving treatment impact and delivery.

Regardless of therapeutic intervention, openness to and participation in treatment activities is thought to facilitate the delivery and uptake of the treatment being provided (Karver et al., 2005). Understanding how client involvement changes over the course of treatment is the first step in clarifying its role in the therapy process. Decreased client involvement may be indicative of poorer outcomes and may signal to the therapist when strategies to reengage the client may be helpful (Chu & Kendall, 2004; Hudson et al., 2014). Shifts in client involvement may also be typical markers of critical sessions when important processes occur (e.g., alliance ruptures, Safran et al., 2001). Theory related to the therapy process posits that alliance influences the level of client involvement. Thus, examining both alliance and client involvement over the course of treatment and their relationship with one another may provide information about how alliance affects client involvement.

Two previous studies have presented conflicting findings related to the trajectory of client involvement. Chu and Kendall (2004) used the CIRS to measure client involvement early in CBT for child anxiety (sum of 2 client involvement scores randomly selected from early treatment, sessions 2-5) and later in treatment (sum of 2 client involvement scores randomly selected from later treatment, sessions 6-10). Overall, change in involvement occurred in the
negative direction (mean overall involvement shift was -1.81 points, $SD = 6.22$, range -19.00-9.00).

Hudson et al. (2014) used a revised version of the CIRS (Chu & Kendall, 2004), the CIRS-R, to examine client involvement over the course of treatment, using the mean of every two sessions to create eight time points for measurement. Measuring at multiple time points allowed for a more accurate estimation of how client involvement changes over time. Unlike the negative client involvement shift observed by Chu and Kendall (2004), Hudson and colleagues found a concave quadratic curve fit the trajectory of client involvement best. A single peak occurred around mid-treatment (session 8 and 9 when exposures typically begin). Given the limited research on the trajectory of client involvement and the mixed findings, further research is needed to better understand how client involvement unfolds over the course of treatment and in the context of other relational factors.

**The Relation between Relational Factors: Links between Alliance and Involvement**

Theoretical models posit that alliance facilitates client involvement, and in turn, participation in treatment activities produces more positive treatment outcomes (Hill, 2005; Shirk & Karver, 2006). Understanding the link between alliance and client involvement is important to improving treatment delivery, particularly if there is a temporal relationship between these two factors. If alliance does in fact predict client involvement or vice versa, therapist behaviors may focus on building or enhancing these variables at different points in treatment.

In the following section, I will focus on the importance of studying the link between alliance and client involvement. I will present a conceptual model that has guided existing research and provide an overview of existing empirical evidence related to this model. A review of the limited empirical research will highlight methodological issues and unanswered questions
that will be addressed in this present study.

**A conceptual model for the alliance-involvement link.** Karver and colleagues (2005) proposed a model that links therapy process factors and treatment outcomes in child and family psychotherapy. The model includes numerous factors including client and therapist pre-treatment characteristics and aspects of the client-therapist relationship such as client affect toward the therapist, client/parent participation in treatment, and alliance with the client, parent, and family. According to this model, many different factors are linked to successful treatment outcomes with children and can be considered common process factors that are universally important across treatment types. The model proposes that relational factors such as alliance are linked to outcomes (i.e. decreased symptoms, improved functioning, strengthened cognitive abilities, decreased distress; Salzer, Nixon, Schut, Karver, & Bickman, 1997) via other mediating therapy process factors such as client involvement.

In a 2006 meta-analysis, Karver and colleagues provided the only review of the literature to date on therapy process factors and the associations between them in child psychotherapy. The aim of the review was to examine the evidence for the therapy process model they previously proposed (Karver et al, 2005). According to this model, clients enter treatment with characteristics that may influence how receptive they are to the therapist and treatment (e.g., presenting problems, developmental status, child and parent treatment expectancies) (Fields, Handelsman, Karver, & Bickman, 2004). Therapists also bring certain characteristics into treatment (e.g., theoretical orientation, interpersonal skills) (Llewelyn & Hardy, 2001), which combined with client characteristics, may influence therapists’ feelings, expectations, and attitudes toward their clients and in turn affect their behavior. Therapists’ behaviors impact clients’ cognitive, behavioral, and affective response to treatment, a dynamic process that
continues throughout treatment. Both client characteristics and therapist characteristics may impact the therapy process factors of greatest interest in the present study—alliance and client involvement.

In this model there is a bidirectional relationship between the client’s affect toward the therapist (alliance) and the client’s participation in the therapeutic intervention being offered (client involvement) (see Figure 1). As a result of this link between alliance and involvement, treatment outcomes are attained (Salzer et al., 1997). To date, this is the only conceptual model in the child field linking all of these therapy process components together and one that is still in need of further research.

Figure 1. Conceptual model for the therapy process in child psychotherapy.
Hill (2005) provides a similar conceptual explanation for why alliance and client involvement may be linked. Hill presents a pantheoretical model for how the techniques of a therapeutic intervention, the therapeutic relationship, and client involvement are inextricably linked. In this model, these three variables interact over four stages: (a) treatment initial impression formation; (b) beginning therapy; (c) the core work of therapy; and (d) termination. Hill proposes four main ideas: (a) the therapist cannot effectively deliver a therapeutic intervention if the client is not involved in treatment or there is not a good relationship between the client and therapist; (b) client involvement depends on the therapist interventions and the quality of the therapeutic relationship; (c) the therapeutic relationship is formed as a result of the interaction between therapist interventions and client involvement; and (d) therapist interventions, client involvement, and the therapeutic relationship vary throughout therapy. Hill suggests that initial client involvement is important for beginning the therapeutic relationship, which allows for therapy to begin. As therapy proceeds, client involvement deepens which strengthens the therapeutic relationship. Hill’s model may, however, need to be modified for child psychotherapy. Hill’s model is built on the notion that initial client involvement represents a client’s willingness and motivation to come to treatment, openness to forming a relationship with the therapist, and expression of why he or she came to treatment at this time. As discussed earlier, children are rarely self-referred for treatment and often enter treatment unaware of or in disagreement with the reason for attending so their initial level of client involvement may be low (DiGiuseppe et al., 1996; Shirk & Karver, 2003). Thus, one might reasonably suspect that alliance building is a crucial preliminary step for developing client involvement, which in turn may have an influence on the relationship; however, it remains unclear whether a link between alliance and involvement exists and what the directionality of that relationship may be.
Empirical support for the alliance-involvement link. Research in the adult field has linked alliance and client involvement (Reandeau & Wampold, 1991; Tryon & Kane, 1995); however, the handful of studies that have examined linkages between alliance and client involvement in child psychotherapy have produced mixed findings (e.g., Karver et al., 2008; Hudson et al., 2014; McLeod et al., 2013; Shirk et al., 2008). Results from these studies suggest that a relation between alliance and client involvement may exist, but the strength of the relation varies according to the type of sample and the measures used. Further, issues in how client involvement has been defined and measured in previous studies is important to consider and will be discussed further in the methodological issues section to follow.

In the child psychotherapy literature, the client’s emotional bond with the therapist has been associated with the degree of task involvement (Allen, Deering, Buskirk, & Coyne, 1988; Shirk & Saiz, 1992); however, these studies only measured the variables at the same time point and often used single-informant methods, which limited the conclusions that could be drawn about the predictive relationship between alliance and client involvement. Multiple studies have found that alliance predicts treatment attendance in the child literature (see McLeod, 2011 for review). For example, Hawley and Weisz (2005) found that parent-rated alliance was significantly related to more frequently attended sessions and less frequent cancellations and no-shows in a sample of children receiving community-based outpatient psychotherapy. It is important to note that treatment attendance may have failed to capture the full scope of client involvement that includes participation and cooperation with specific treatment activities within sessions. These studies provide some preliminary evidence for a link between alliance and client involvement; however, they do not assess the predictive relationship between the two.

Shirk and colleagues (2008) conducted a study that provided an examination of the
predictive relationship between alliance, treatment participation (measured as number of sessions attended), and outcomes in CBT for adolescent depression. The study involved 54 adolescents meeting criteria for a depressive disorder that were treated in school-based clinics. Therapist-reported and child-reported alliance was measured after the third session using the Therapeutic Alliance Scale for Adolescents (TASA; Shirk, 2003). Treatment outcomes were measured by change in depressive symptoms assessed through structured interviews and self-report. This study tested two models of the alliance-outcome association, one direct and one indirect via number of completed sessions. Therapist-reported alliance was only marginally related to change in symptoms; however, it predicted the number of completed sessions. The authors found that number of treatment sessions attended did not mediate the relation between alliance and outcome. The absence of a significant association between number of sessions completed and treatment outcomes should be interpreted cautiously, as number of sessions attended is a crude measure of client involvement. These findings indicate early alliance predicts the number of completed sessions; however, they do not clarify how alliance influences client involvement in treatment activities during attended sessions or how alliance and client involvement over the course of treatment impact outcomes.

Karver and colleagues (2008) also investigated a temporal mediation model linking associations between therapist engagement strategies, alliance, client involvement, and treatment outcomes. Participants were in a study comparing CBT and nondirective support therapy (NST) for depressed adolescents who had attempted suicide. According to the proposed model, therapist engagement strategies predict alliance, which predicts client involvement, which in turn predicts treatment outcomes. The extensiveness of engagement strategies was measured by independent coders using the Adolescent Alliance Building Behavior Scales (Diamond, Liddle, Dakof, Hogue,
& JohnsonLeckrone, 1996) in 2 10-minute segments from sessions 1 and 2. Alliance was measured at the third session using the Working Alliance Inventory short form (WAI-S) (Tracey & Kokotovic, 1989) and the Alliance Observation Coding System (AOCS; Karver et al., 2003). Client involvement was coded using the Patient Participation subscale of the Vanderbilt Psychotherapy Process Scale (O’Malley, Suh, & Strupp, 1983) in a 10-minute segment following the introduction of a therapy task in session 4 (problem-solving training in CBT and requesting information about an internal state in NST). Change in depressive symptoms was measured by subtracting baseline scores on the Center for Epidemiologic Studies Depression Scale (CES-D, Radloff, 1977) from scores at three months.

Results of Pearson’s correlations tests indicated self-report and observational measures of alliance at the third session were associated with client involvement at the fourth session in both conditions ($r = .76, p < .05$); however, client involvement appeared to be differentially associated with treatment outcome depending on treatment approach. There was no relation between client involvement and outcome for the NST condition ($r = -.08$), but there was a large effect size approaching significance in the CBT condition ($r = .56, p = .095$). This emerging evidence suggests client involvement may be associated with greater improvement in CBT, but not in NST, despite the fact that the conditions did not significantly differ in client involvement ($t = .85, p = .41$) or symptom change ($F = 1.68, p = .21$). Due to limited sample size ($N = 23$), mediation model testing could not be conducted. Findings from this study added to existing evidence for an association between alliance and client involvement in the adult and child literature (Allen et al., 1988; Champion, 1998; Shirk & Saiz, 1992; Taft et al., 2003). This study strengthened support for an alliance-involvement link by measuring constructs across separate sessions, using multiple informants, and in the context of multiple therapeutic approaches. These
findings provided a strong rationale for further more methodologically rigorous research. Because alliance and client involvement were measured closely together at sessions three and four respectively and the sample size was too small, the causal direction of the association between alliance and client involvement remained uncertain.

McLeod and colleagues (2013) recently completed another study examining the predictive relationship between alliance and client involvement in a study comparing manual-based individual CBT and manual-based family CBT for child anxiety. In this study, researchers investigated whether early alliance predicted later client involvement and, vice versa, if early client involvement predicted later alliance. In this study, alliance and client involvement were both observationally measured at two time points - session two and session eight. Alliance was measured using the TPOCS-A (McLeod & Weisz, 2005) and client involvement was measured via the CIRS (Chu & Kendall, 2004). Unlike previous studies, this study’s design uniquely allowed for the researchers to also test whether in-session involvement early in treatment predicted alliance later in treatment. Findings suggested that early alliance did not predict later involvement and early involvement did not predict later alliance; however, using residualized change scores, change in alliance was related to later involvement and change in involvement was related to later alliance. Thus, the relationship between alliance and client involvement appeared to be reciprocal, such that positives changes in one relational factor predicted increased levels of the other. Overall, these findings suggested that the relationship between alliance and client involvement may be more complex than previous conceptual models in the child field have proposed. To better understand the causal relationship between alliance and client involvement, more methodological precision is needed. Measuring alliance and client involvement at only two time points may not be sufficient to understand the dynamic relationship between these two
variables. A logical next step for further research was to examine session-to-session change in alliance and client involvement.

Hudson and colleagues (2014) conducted a recent study that examined the relation between alliance and client involvement at multiple points throughout treatment. Alliance and client involvement were observationally measured using the child therapeutic alliance scale and therapist therapeutic alliance scale from the CPPS (Estrada & Russell, 1999) and the CIRS (Chu & Kendall, 2004) throughout treatment. Both constructs were measured at eight different time points, using the mean of every two sessions to reduce missing data. The slopes of child and therapist therapeutic alliance were highly and positively correlated with one another and demonstrated a small negative linear slope. The slopes of these alliance measures were also highly correlated with the slope for child involvement, which followed a concave quadratic curve that peaked around the middle of treatment. While this study offered a more rigorous sampling approach, the authors did not test the predictive relationship between alliance and client involvement, leaving questions about any relationship, aside from correlational, between alliance and client involvement unanswered.

**Methodological Issues**

A number of methodological issues in previous studies have been raised. These issues are important considerations for the design of future studies, as they may have hindered our understanding of the process of change in child psychotherapy. Issues include, but are not limited to, inconsistencies in the measurement of alliance and involvement, the rater or source of information, and variations in the timing and frequency of measurement.

Measurement of alliance and client involvement in child psychotherapy has been problematic. Most studies have employed different rating systems, which may assess different
dimensions of these constructs. Furthermore, many of the measures used in studies were from the adult field and were not specifically designed for children (i.e., the Working Alliance Inventory; Florsheim et al., 2000). Therefore, these measures may not address developmental differences between adults and children in the conceptualization of alliance and client involvement. In this study, two psychometrically supported measures of alliance (TPOCS-A; McLeod & Weisz, 2005) and client involvement (CIRS; Chu & Kendall, 2004) that were adapted from adult measures, but designed for use with children, were employed.

There has also been some debate over the source of information on relational factors in child psychotherapy. Some studies suggest that children may tend to give high ratings on relational factors and this restricted range makes it difficult to clarify the role of relational factors such as alliance (Kendall & Ollendick, 2004). This may be due to demand characteristics or an inability to understand items on the measures (McLeod & Weisz, 2005). There are also common rater variance concerns when the same individual rates alliance and client involvement, particularly when the reporter may be biased by his or her subjective experience. Therefore, it is important to utilize different and/or unbiased informants, such as observational coders, when measuring relational factors (McLeod et al., 2013).

The use of carefully trained and monitored observational coders was selected for the present study because they provide relatively objective accounts of therapy process variables (McLeod et al., 2013). While observational coders may not be completely unbiased themselves, steps such as blinding them to treatment condition and outcome are possible means of reducing bias (Perepletchikova, 2011). Training coders to an acceptable level of inter-rater reliability, continually monitoring for inter-rater reliability, and requiring ICC values to meet acceptable cutoffs for each item included in analyses (Cicchetti, 1994) increases confidence in the reliability
of the observational coding measures used.

Another measurement issue in alliance-involvement research is the use of treatment attendance as a proxy for measuring client involvement. Findings from multiple studies have linked alliance to treatment attendance (i.e. Hawley & Weisz, 2005; Flicker et al., 2008; Periera et al., 2006; Robbins et al., 2006; Robbins et al., 2008; Shirk et al., 2008). These findings suggest that alliance may be associated with client involvement, but do not provide sufficient evidence. While attending sessions is an important and necessary part of client involvement, simply being present for a session is a much more basic measure of participation than a measure of involvement in session tasks. Moreover, session attendance may also be determined by other factors (e.g., transportation, insurance, financial reasons) (Kazdin et al., 1997). Thus, the use of a measure designed to objectively capture behavioral indicators of openness and participation (CIRS; Chu & Kendall, 2004) provides valuable information about how client involvement in session activities changes over the course of treatment.

The time point at which alliance and client involvement are assessed (e.g., early, middle, or late in the course of treatment; simultaneously vs. prospectively) is another methodological issue that has varied across studies. It is important to measure relational factors early and throughout treatment to minimize potential confounds and allow for the testing of predictive relations (McLeod et al., 2013). Different elements of the therapy process may occur or be more important at different points in the therapy process. Directionality and causal inferences are at the root of design considerations in the timing of assessments. By measuring constructs at separate time points and not evaluating them simultaneously over the course of treatment, previous researchers may have overlooked the possible connections between related but distinct processes occurring.
The current study specifically aimed to examine the course of alliance and client involvement throughout treatment for childhood anxiety disorders delivered in community settings. Additionally, the study sought to explore the potential directional relationship between alliance and client involvement. Thus, a key strength of this study was the measurement of both alliance and client involvement at multiple time points throughout the entire course of treatment. This study advanced the field by providing a more precise measure of change in alliance and client involvement from session to session and examining the relationship between these factors in a community setting. Using a comprehensive sampling plan and analytic methods that supported missing data allowed this study to include data from all available sessions, including data from participants who did not complete treatment. From a theoretical standpoint, there is value in knowing the trajectory of alliance and involvement throughout treatment. Such information would inform when higher levels of alliance and client involvement are expected and when they may be indicative of these relational factors going off course (Kendall et al., 2009). This information could be used in future studies to examine whether particular levels of alliance and/or client involvement are associated with or predictive of treatment gains.

Sampling numerous sessions over the course of therapy also provided the potential for dynamic latent growth models to be used to evaluate the predictive relation between alliance and involvement over time (McArdle, 1988; McArdle & Hamagami, 2001; McArdle & Nesselroade, 2003). This made it possible to investigate if a predictive relationship between alliance and client involvement might exist such that alliance predicts client involvement or client involvement predicts alliance throughout treatment. Clarifying if there is a direction of effects has important implications for treatment delivery; this information could inform how clinicians go about
assessing and developing alliance and client involvement and sequencing interventions accordingly.

Another major strength of this study’s design was using a sample from an effectiveness trial as it enhances the generalizability of findings to community settings. The characteristics of the population from this effectiveness trial made for a diverse sample, not only in ethnic background and socioeconomic status, but also in diagnostic presentation. Unlike tightly controlled efficacy studies, the children involved in effectiveness studies more accurately represent the complexity of clinically-referred populations. In addition, the therapists involved in the study were randomly assigned to CBT and UC, rather than just the clients. Overall, this study increased the scientific yield of the clinical trial itself and contributed to our understanding of the therapy process in CBT and UC for childhood anxiety disorders. Understanding the therapy process can ultimately help advance treatment design, refine therapist training, enhance treatment manuals, and improve treatment outcomes.

The methodological strengths of the present study enabled it to uniquely contribute to existing literature on alliance and client involvement in child psychotherapy. Beyond the analytic method fitting the research question particularly well, there are a number of factors that were considered in the design of this study that have strengthened its methodological rigor. The details of the methodological design are further described below. While research on how alliance and client involvement together influence the therapy process in the child field has lagged behind in the past, this study helped to advance this important and understudied area of research.

**Statement of the Problem**

Understanding how to improve the effectiveness of treatment is critical given the large number of children in need of mental health care services. One way to optimize treatment
delivery is by understanding how critical therapy processes work over the course of treatment. The goal of the current study was to test the theoretical model for the link between alliance and client involvement. The present study investigated the temporal relationship between alliance and involvement and sought to examine how alliance and client involvement individually and interactively change over the course of treatment. Investigating how alliance and client involvement unfold throughout the therapy process could help optimize treatment delivery by sequencing interventions and techniques based on when levels of alliance and client involvement are high or low.

Until recently, most studies on the therapy process with children have focused on how alliance and client involvement separately influence treatment outcomes, and may have overlooked important information about how these factors interact in treatment. Without a clear understanding of how the alliance and client involvement are interrelated, it is difficult to discern how these factors are connected in the therapy process (Elvins & Green, 2008; Karver et al., 2008; Karver et al., 2006; McLeod, 2011; Shirk et al., 2008; Shirk & Karver, 2003). Hill (2005) contended that alliance and client involvement are related, but conceptually and methodologically separate constructs. Measuring these constructs simultaneously, provided more information on their relative contribution to the therapy process and has revealed a potential reciprocal relationship between alliance and client involvement in previous findings (McLeod et al., 2013). To expand on these findings and investigate them in community settings, the trajectory of alliance and client involvement as well as the relationship between these two factors was examined in the present study.

Participants included children diagnosed with anxiety disorders that participated in a randomized clinical trial comparing cognitive behavioral therapy (CBT) to usual care (UC) in
community settings (Southam-Gerow et al., 2010). Two coders used the Therapy Process Observational Coding System – Alliance Scale (TPOCS-A; McLeod & Weisz, 2005) to rate the alliance. Two separate coders used the Child Involvement Rating Scale (CIRS; Chu & Kendall, 2004) to rate client involvement. All available sessions were sampled from each case for coding. The analytic approach involved establishing how alliance and client involvement change over time in treatment using multilevel longitudinal growth modeling. The use of numerous sessions sampled over the course of therapy allowed for modeling change more precisely and in a more sophisticated way than most previous research. The following three hypotheses were proposed:

*Hypothesis 1.* It was hypothesized that alliance and client involvement would change over the course of treatment (Chu et al., 2013; Chiu et al., 2009; Hill, 2005; Hudson et al., 2014; Kendall et al., 2009; Liber et al., 2010; McLeod et al., 2013).

*Hypothesis 2.* It was hypothesized that alliance and client involvement would be interrelated and change in relation to one another over the course of treatment (Hill, 2005; McLeod et al., 2013).

*Hypothesis 3.* It was hypothesized that a temporal relationship between alliance and client involvement would exist such that change in alliance would predict change in client involvement, change in client involvement would predict change in alliance, or both would predict change in the other over the course of treatment (Hill, 2005; Karver et al., 2006; Karver et al., 2008; McLeod et al., 2013, Shirk et al., 2008).

**Method**

**Participants**

Participants were drawn from an effectiveness study comparing the Coping Cat CBT Program (Kendall, Kane, Howard, & Siqueland, 1990) and UC in community clinics (see Southam-Gerow et al., 2010 for details). The purpose of the parent study was to evaluate the
effectiveness of an empirically supported treatment (CBT) when delivered by clinic-employed therapists to children clinically referred from the community.

**Child participants.** The 48 children in the parent study (56.20% female, mean age = 10.90, SD = 2.10) were diverse in their ethnic background and socioeconomic status (see Southam-Gerow et al., 2010 for details). Children were clinically-referred from the community and were required to meet DSM-IV criteria for a primary anxiety disorder (generalized anxiety disorder (GAD), separation anxiety disorder (SAD), social phobia (SOP), or specific phobia (SP)). Diagnoses were based on the Diagnostic Interview Schedule for Children Version 4.0 (DISC 4.0, Shaffer, Fisher, Duncan, & Davies, 1996), combined parent and child report. Many of the children presented with comorbid anxiety and non-anxiety disorders and were included in the parent study; however, children with a diagnosis of a pervasive developmental disorder, psychotic disorder, and/or mental retardation were excluded. Participants were randomly assigned to the CBT (n = 24) or UC condition (n = 24).

There were two cases that were excluded in the parent study but were coded and included in the current sample. One child was excluded in the parent study because the child had a primary diagnosis of agoraphobia. The other child was excluded from the parent study because the case was a pilot case without outcome data. For the purposes of the current study, these cases were included to maximize the number of cases based on available alliance and client involvement data. Given that the current study focused on the therapy process and not specific diagnoses and therapeutic outcomes, these cases were not deemed problematic to include for the purposes of the study. Participants from the parent study were excluded in the current sample if they received treatment from multiple therapists (n = 1) or if they had alliance and involvement data from fewer than two sessions (n = 9). It was necessary to have at least two time points from
within the same therapist-client dyad to examine how alliance and involvement influenced one another without the potential effects that a change in therapist might have had.

The current sample included 40 children (57.50 % female, mean age = 10.81, $SD = 2.11$). The sample was 35.00% Caucasian, 32.50% Latino/Hispanic, 5.00% African-American, 7.50% identified as “mixed/other,” with eight participants who chose not to report ethnic background. Of those reporting income, annual family income was under $15,000 for 36.10% of families, $15,000-$30,000 for 36.10% of families, $45,000 to $60,000 for 5.60%, $60,000 to $75,000 for 2.30%, and over $90,000 for 13.90%. Four participants did not report annual family income.

Primary anxiety disorders were 10.00% GAD, 35.00% SAD, 25.00% SOP, 25.00% SP, and 5.00% agoraphobia. Comorbid diagnoses were common with an average of 2.84 diagnoses ($SD = 1.15$). Comorbid anxiety disorders included 65.00% SP, 47.50% SAD, 40.00% SOP, 20.00%, GAD, 10.00% panic disorder, and 2.50% posttraumatic stress disorder. Comorbid non-anxiety disorders included 30.00% attention deficit/hyperactivity disorder, 27.50% oppositional defiant disorder, 7.50% conduct disorder, 5.00% major depressive disorder, and 2.50% dysthymic disorder.

**Therapist participants.** The 39 therapists in the parent study (88.00% female, mean age 33.67, $SD = 9.59$) were diverse in their ethnic background, level and type of clinical training, and years of experience (see Southam-Gerow et al., 2010 for demographic details). Therapists were clinic employees who volunteered to participate and were randomly assigned to provide either UC ($n = 21$) or CBT ($n = 18$). Nine therapists were removed from the original sample due to exclusion criteria (i.e., cases involving multiple therapists).

The current sample of therapists included 30 individuals (86.70% female, mean age 33.97, $SD = 10.13$). The sample was 46.70% Caucasian, 30.00% Latino/Hispanic, 6.70%
Asian/Pacific Islander, and 13.30% mixed or other ethnicity; one therapist did not report ethnicity. The therapists were 10.00% doctoral-level psychologists, 36.70% masters-level psychologists, 26.70% social workers, and 10.00% other masters-level professionals (e.g., marital and family therapists); five therapists did not report their degrees. On average, the therapists had 4.40 years of training ($SD = 2.21$) and 5.30 years ($SD = 8.20$) of additional experience before involvement in the study.

**Coders.** Four doctoral students in clinical psychology (75% female) comprised the coding teams and averaged 27.75 years of age ($SD = 3.10$, range = 25-32). The coders were 50.00% Caucasian, 25.00% Latino/Hispanic, and 25.00% Asian/Pacific Islander. Two of the coders were responsible for coding sessions for the alliance. The other two coders coded client involvement.

**Settings and Recruitment**

Participants in the parent study were families that contacted one of six community mental health clinics in the greater Los Angeles area. If the family’s initial description of the problem included anxiety symptoms and the child was between 8 and 15 years of age, the family was informed of the parent study. Families and children that indicated interest in the study completed an assessment sequence approved by the Institutional Review Board and were invited to participate in the study if (a) they met DSM-IV criteria for an anxiety disorder (i.e., GAD, SAD, SOP, SP) and (b) the family, project staff, and therapist considered anxiety to be a treatment priority. Children receiving medication were included in the study to accurately represent the population and context of children seen in community clinics. Diagnoses were determined based on the DISC 4.0 combined parent and child report. Project staff, senior clinic staff, and the family discussed the child’s diagnosis, symptoms, referral problem and impairment to determine
whether anxiety was a treatment priority. Compensation was provided for participation in the study.

**Treatment Procedures**

**Usual care.** Therapists were clinic-employed therapists who volunteered to participate in the study and were randomly assigned to the UC condition. UC therapists were instructed to use the treatment procedures they regularly used and thought to be effective in their clinic practice. Treatment in the UC condition lasted as long as the family and clinician agreed further progress was attainable. The average number of UC treatment sessions was 14.00 ($SD = 5.92$) in the parent study. Treatment included a range of treatment procedures from multiple theoretical orientations. Therapists in the UC condition used more client-centered approaches than generic CBT, psychodynamic, and family strategies according to results from a measure of treatment differentiation (see Southam-Gerow et al., 2010 for more details).

**Coping Cat.** Therapists were clinic-employed therapists who volunteered to participate in the study and were randomly assigned to the CBT condition. The *Coping Cat* program (Kendall et al., 1990) was used in the CBT condition of the study. *Coping Cat* is an empirically supported manualized treatment for childhood anxiety disorders that consists of 16-20 sessions. The average number of CBT sessions was a 13.96 ($SD = 8.15$) in the parent study. Coping Cat includes two phases: skills training and exposures. The first phase of treatment provides psychoeducation about how anxious feelings, thoughts, and behaviors are connected and teaches anxiety management skills (relaxation, identifying and challenging anxious thoughts, problem-solving, rewarding effort and approach behavior). The second phase of treatment focuses on practicing anxiety management skills through gradual imaginal and in-vivo exposures.
**Therapist training and supervision.** The therapists assigned to the CBT condition attended a 1-day, 6-hour training and received weekly supervision by one of two doctoral-level psychologists with expertise in the *Coping Cat* manual. The therapists in the UC condition received case supervision that was standard practice in their clinics.

**Treatment fidelity.** Researchers in the parent study used an 11-item treatment integrity checklist based on the checklists used previously by Kendall (1994) and Kendall and colleagues (1997). Results from adherence coding indicated 98.90% ($SD = 3.77$, range = 87.50-100.00) of CBT sessions contained the expected procedures. The researchers also performed a treatment differentiation check and found that there were significantly more CBT interventions from the Coping Cat program found in the CBT condition compared to the UC condition. (see Southam-Gerow et al., 2010 for more details). In the parent study, there was an average of 14.00 ($SD = 5.92$) sessions held over the course of 27.68 ($SD = 18.77$) weeks in the UC condition and an average of 13.96 ($SD = 8.15$) sessions held over the course of 21.54 ($SD = 13.97$) weeks in the CBT condition. Results of t-test comparisons showed UC and CBT conditions did not significantly differ in the number of sessions or weeks in treatment in the parent study.

**Diagnostic and Symptom Measures**

**The Diagnostic Interview Schedule for Children Version 4.0 (DISC 4.0).** The DISC 4.0 (Shaffer et al., 1996) is a structured, respondent-based, computer interview comprised of yes/no questions. Separate interviews with parents and children were combined and used to generate a DSM-IV diagnosis. The DISC 4.0 has demonstrated strong reliability and validity data.

**The Child Behavior Checklist (CBCL).** The CBCL (Achenbach, 1991) is a 118-item parent rated measure that was used to assess anxiety and internalizing symptoms as well as
externalizing symptoms. The CBCL is supported by extensive reliability and validity research and widely used throughout child psychotherapy research.

Assessment Procedures

Pretreatment assessments were conducted prior to treatment (T1) and post-treatment assessments were administered immediately following termination (T2) for the CBT and UC conditions. This ensured that the outcome assessments would reflect the effects of treatment after each individual child had ended treatment as treatment duration was allowed to vary in both conditions.

Pairs of interviewers (a clinical psychology graduate student and a research assistant) completed the assessment interviews and were blind to treatment condition. The interviewers were trained through didactics, modeling, and individually supervised practice sessions. The interviews were highly standardized to ensure adherence to the structure and content. Throughout the course of the study, supervisors randomly sampled recordings of full interviews and reviewed them to assess adherence to the interview protocol.

A multi-informant, multi-domain assessment approach (Hoagwood, Jensen, Petti & Burns, 1996) was employed to evaluate diagnoses and symptoms and included the DISC 4.0 (Shaffer et al., 1996) parent and child responses and the CBCL (Achenbach, 1991). Because the primary focus of the current study did not include an investigation of treatment outcomes, a more in depth review of the treatment outcome assessment procedures and the reliability, validity, and use of outcome measures can be found in the parent study (Southam-Gerow et al., 2010).

Summary of the Effectiveness Trial

Therapists and participants were randomized to the UC or CBT condition. More than half the participants (66.70% in CBT and 73.70% in UC) no longer met criteria for their primary
anxiety disorder at the end of treatment, however, there were no significant differences between the UC and CBT conditions on symptom or diagnostic outcome. Analyses conducted with the intent to treat sample yielded similar results. The proportion of children in both conditions that no longer met criteria for their primary anxiety disorder was comparable to previous efficacy studies (Kendall, et al., 1997; Kendall, et al., 2008). Yet, only 52.00% of the children receiving CBT completed the full 16-sessions and only 59.00% received any exposure sessions at all. This suggests that community therapists can achieve similar outcomes to efficacy trials without even delivering the full treatment protocol (Kendall, 1994; Kendall et al., 1997); however, results showed that children in the CBT condition used fewer additional mental health services (e.g., additional therapy, group therapy), indicating CBT may provide more cost-effective consolidated services.

Coding Measures

Therapy Process Observational Coding System for Child Psychotherapy – Alliance Scale (TPOCS-A). The TPOCS-A (McLeod & Weisz, 2005) is a 9-item scale used to measure the child-therapist alliance quality based on independent evaluators’ objective ratings of recorded therapy sessions. Coders rate each item on a 6-point Likert-type scale with the anchors: 0 = not at all, 3 = somewhat, 5 = great deal. Bond items assess the affective aspect of the relationship (e.g., “To what extent did the client indicate that s/he experiences the therapist as understanding and/or supporting) and task items assess the client’s willingness to engage in treatment activities (e.g., To what extent did the client engage/participate in therapeutic tasks?). The TPOCS-A has demonstrated adequate inter-rater reliability, internal consistency, and convergent validity (Chiu et al., 2009; Fjermestad et al., 2012; McLeod & Weisz, 2005). Findings indicate the TPOCS-A
has a one-factor structure (Fjermestad et al., 2012) representing a unidimensional construct comprised of bond and task elements.

**Child Involvement Rating Scale (CIRS).** The CIRS (Chu & Kendall 1999, 2004) is a 6-item observational scale completed by independent coders to assess behavioral markers of child engagement during therapy sessions. Four items assess “positive” involvement (e.g., initiating discussions, elaboration on therapist points) and two items assess “negative involvement” (e.g., withdrawal or passivity, inhibition or avoidance). Coders rate each item on a 6-point scale from 0 (Not at all present) to 5 (A great deal present). Strong internal consistency and inter-rater reliabilities have supported the use of this measure (Chu & Kendall, 2004, 2009).

**Coding Procedures**

**Coder training.** Each coder completed training on the TPOCS-A or CIRS. Training included reading the coding manual, coding practice sessions, and attending training meetings. Coders were required to reach adequate pre-study reliability (ICC [2,2] at least .60; Cicchetti, 1994). Inter-rater reliability was regularly assessed and discussed to prevent coder drift.

**Sampling and distribution of therapy sessions.** All available sessions except the first and last sessions were selected from each case and randomly assigned to coders. Therapy sessions were not coded if (a) they were shorter than 15 minutes; (b) less than 15 minutes of the session was audible; (c) less than 75% of the dialogue was in English; (d) the session recording was missing/damaged; or (e) the session involved only parents and the child was not present. The first and last treatment session were excluded because these sessions were likely to have varied from typical therapy sessions (e.g., intake or termination sessions). Sessions with only parents present were removed because the TPOCS-A and CIRS are child-focused measures and could not be coded without the child present. Finally, if a case had greater than 30 sessions, 30 sessions
were randomly selected for coding. A total of 424 sessions were coded for the current study and 400 were included in final analyses (see Results). Coders were naïve to treatment condition and outcome of all cases and recordings were assigned in a random order.

**Results**

The overall goal of the analyses was to determine the trajectory of alliance and client involvement over the course of treatment and to investigate if and how these two processes were related over time. Analyses consisted of two phases. First, a number of preliminary steps were necessary to ensure accurate interpretation of the data including (a) determining whether the current sample significantly differed from the parent sample on demographic, clinical, and treatment characteristics to ensure findings could be generalized to the parent sample; (b) comparing the CBT and UC conditions in the current sample on demographic, clinical, and treatment characteristics to perform a randomization check; (c) assessing the distribution of sessions across time in treatment and checking for patterns of missing data to rule out that unevenly distributed data and/or systematically missing data did not bias findings; (d) evaluating the psychometric properties of the TPOCS-A and CIRS to assess inter-rater reliability and internal consistency; (e) providing a descriptive analysis of TPOCS-A and CIRS scores and correlations, checking for outliers, and comparing conditions to assess if the constructs performed similarly across conditions. Once these steps were completed, a method for modeling time was determined and primary analyses were conducted to test study hypotheses. Chiefly, change in alliance and client involvement was modeled over time using multilevel modeling. Finally, other demographic and clinical factors that could influence alliance and client involvement scores were explored.
Preliminary Analyses

Sample representation. Analyses were conducted to compare the current sample to the parent sample to examine if the samples differed significantly on demographic, clinical, or treatment characteristics. T-tests were used for continuous measurements and chi-square tests were used for categorical measurements. The parent sample and current sample of child participants did not significantly differ in age, gender, ethnicity, annual family income, initial primary diagnosis, or initial symptom severity as measured by the CBCL total score. There were also no significant differences between the parent sample and current sample in therapist gender, ethnicity, professional degree, years of training, or years of experience after training. Additionally, the parent sample and current sample did not significantly differ in the number of sessions held or number of weeks in treatment when calculated at the study level or the condition level. Based on these findings, the removal of ten cases from the parent study and the addition of two cases that were not originally included did not appear to significantly alter the characteristics of the current sample compared to the parent sample.

Condition comparison. Next, the CBT and UC conditions in the current sample were compared on demographic, clinical, and treatment characteristics. The CBT and UC conditions in the current sample did not significantly differ in age, gender, ethnicity, annual family income, initial primary diagnosis, or initial symptom severity as measured by the CBCL total score. The CBT and UC conditions in the current sample also did not significantly differ in therapist gender, ethnicity, professional degree, years of training, or years of experience after training. Additionally, there were no differences between the CBT and UC conditions in the current sample in number of sessions held, number of weeks in treatment, number of sessions coded, or
the percentage of sessions coded per case. Overall, these results indicate the CBT and UC conditions did not differ on demographic, clinical, and treatment characteristics.

**Distribution of data across treatment.** It was important to assess whether the sessions that were coded were representative of the sessions that were held for each client across treatment. To evaluate whether the sessions coded accurately represented the sessions held across treatment, every session was categorized into early, middle, or late treatment phases. Treatment phases were determined for each individual client by dividing the total number of sessions held for each client into thirds (early, middle, and late phases) and categorizing those sessions in the first third of treatment as early, those in the second third of treatment as middle, and those in the final third of treatment as late. For example, if a case had 21 sessions total, sessions 1-7 would be considered “early,” sessions 8-14 would be considered “middle,” and sessions 15-21 would be considered “late.” A case with only 9 sessions would have sessions 1-3 considered “early,” sessions 4-6 considered “middle,” and sessions 7-9 considered “late.”

The percentage of sessions coded for each client in each phase of treatment was computed to assess that all components of treatment were sufficiently sampled. In the full sample, the average percentage of sessions coded within each phase was: 70.00% (*SD* = .26, range = .00-1.00) in Phase 1, 78.00% (*SD* = .27, range = .00-1.00) in Phase 2, and 62.00% (*SD* = .27, range = .00-1.00) in Phase 3. T-test comparisons were used to compare the percentage of cases coded across the three phases. The average percentage of cases coded in Phase 3 was significantly lower than the average percentage of cases coded in Phase 2, *t* (77) = 2.70, *p* = .01. These findings suggest that Phase 3 of treatment may be missing more data compared to Phase 2 of treatment; however Phases 1 and 2 do not significantly differ in percentage of cases coded, nor do Phases 1 and 3. Furthermore, treatment condition did not predict the percentage of cases
coded in each phase. Overall, a sizeable representation of sessions in each phase of treatment was coded (> 60.00% in every phase) in both conditions.

**Patterns of missing data.** Next, linear regression and one-way ANOVAs were conducted to test if client or therapist demographic characteristics predicted missingness—whether sessions held but not coded were missing at random or whether such sessions were systematically missing. Client’s age, gender, ethnicity, and CBCL Total scores did not significantly predict missingness. Therapist’s age, gender, and ethnicity also did not significantly predict missingness. Based on Rubin’s taxonomy of missingness (1976), the data appeared to be at least missing at random (MAR). The probability data are missing for a client is not a function of any of these variables. Overall, this suggests that client and therapist demographic characteristics were not associated with missing data.

**Psychometric properties of TPOCS-A and CIRS.** Next, inter-rater reliability was calculated for each of the TPOCS-A items and each of the CIRS items using intra-class correlations (ICC, Shrout & Fleiss, 1979). The reliability coefficients represent the model ICC (2, 2), based on a two-way random effects model for the average of two coders. The ICC provides an estimate of the ratio of the true score variance to total variance. These correlations therefore provide a reliability estimate of the mean scores of all coders considered as a whole, and allow for generalizability of the results to other samples. Following Cicchetti (1994), ICCs below .40 reflect "poor" agreement, ICCs from .40 to .59 reflect "fair" agreement, ICCs from .60 to .74 reflect “good” agreement, and ICCs .75 and higher reflect "excellent" agreement. Inter-rater reliability was calculated using the full sample of participants with TPOCS-A and CIRS data.
Inter-rater reliability was “poor” to “excellent” for the items on the TPOCS-A ($M$ ICC = .57, $SD = .16$, range = .24-.80). Two items (client-therapist discomfort interacting; client non-compliance with therapeutic tasks) were below the acceptable level of reliability (ICC < .40, Cichetti, 1994). In previous studies using the TPOCS-A, if the overall scale level reliability was good, all items were retained, even if ICCs at the item level were fair (see Liber et al., 2010). The mean item level reliability in the current study ($M$ ICC = .57, $SD = .16$) was similar to some other previously published studies (e.g., $M$ ICC = .48, $SD = .06$, Liber et al., 2010; $M$ ICC = .59, $SD = .10$, McLeod & Weisz, 2005) and the overall scale reliability remained good (ICC = .73, Cichetti, 1994). Thus, all items were retained because of their theoretical importance and to remain consistent with previous studies in which the TPOCS-A was found to be reliable and valid (e.g., Chiu et al., 2009, Liber et al., 2010; McLeod & Weisz, 2005).

For the items on the CIRS scale, inter-rater reliability was “fair” to “good” ($M$ ICC = .60, $SD = .09$, range = .42 -.66). Although one item (client makes suggestions) had fair reliability (ICC = .42), the item was retained because it was theoretically relevant and the ICC was within acceptable limits (> .40, Cichetti, 1994). Additionally, even with the item included, the overall scale reliability of the CIRS was .72 reflecting good agreement (Cichetti, 1994). In previous studies, item level ICCs have not been published, but the overall CIRS scale ICCs have ranged from .61-.76 (Chu & Kendall, 2004, 2009). Thus, the overall reliability of the CIRS scale was consistent with previous studies.

Additionally, the internal consistency of each scale was measured by calculating Cronbach’s alpha. Following George and Mallery (2003), Cronbach’s alpha values below .50 reflect “unacceptable” agreement, values from .50 to .60 reflect “poor” agreement, values from .60 to .70 reflect “acceptable” agreement, values from .70 to .80 reflect “good” agreement, and
values .90 and higher reflect “excellent” agreement. Internal consistency was calculated using the full sample of participants with TPOCS-A and CIRS data. The internal consistency of the TPOCS-A scale was “acceptable” (α = .79), though this was lower than in previous studies (α = .92 - .95) (Liber et al., 2010; McLeod & Weisz, 2005). The internal consistency of the CIRS scale was “good” (α = .86), which was higher than previous published findings (α = .73, Chu & Kendall, 2004, 2009). In sum, internal consistency was acceptable to good on both scales and all items were retained to maintain consistency with previous studies using the TPOCS-A and CIRS.

**TPOCS-A and CIRS scoring.** TPOCS-A and CIRS scale scores were calculated by taking the average of the two coders for each item and then taking the average of all the items to represent the overall alliance and client involvement scores. The TPOCS-A (McLeod & Weisz, 2005) and CIRS (Chu & Kendall, 2004) are interval rating scales, therefore the average score between coders was used to reduce measurement error. Using the mean of all items to create an overall alliance score was consistent with previous scoring methods for the TPOCS-A (McLeod & Weisz, 2005), however, differed from the original scoring approach for the CIRS (Chu & Kendall, 2004) in which the sum of all items was used. The decision to use the mean score for overall involvement scores was made because it places the overall score used in analyses on the same metric as the item rating scale and keeps the TPOCS-A and CIRS on the same scale to ease the interpretability of findings (McLeod et al., 2013).

**Outliers in TPOCS-A and CIRS scores.** TPOCS-A scores and CIRS scores were examined for normality. Skewness and kurtosis were considered within the bounds of normality for TPOCS-A scores (-.72 and .97 respectively) and CIRS scores (-.51 and .03 respectively) based on the criteria the values be within the -1.00 to 1.00 range (see George & Mallery, 2003; Morgan, Griego, & Gloeckner, 2001).
TPOCS-A and CIRS values were checked for univariate outliers by visual inspection of histograms, boxplots, and normal probability plots as recommended by Tabachnick and Fidell (2007). When producing boxplots, SPSS defines values > +/- 3.0 interquartile ranges from the inner fences as extreme outliers and values between +/-1.5 and +/-3.0 interquartile ranges from the inner fences as mild outliers. Visual inspection of boxplots showed no extreme outliers and few mild outliers (n = 10 for TPOCS-A, n = 5 for CIRS). Based on histogram inspection, removal of mild outliers would have limited the range of the scale being used. Given that skewness and kurtosis values were within acceptable limits and the outliers were few in number and mild, all TPOCS-A and CIRS scores were retained to allow for the range of the scales to be represented.

To check for multivariate outliers, the Mahalanobis distance values were calculated for TPOCS-A and CIRS scores. Only one multivariate outlier was identified based on Mahalanobis distance values (critical value = 13.82 for 2 variables, p < .001, Tabachnick & Fidell, 2007). Once this session was removed, Mahalanobis distance values were again calculated and no multivariate outliers were identified. This session was removed from all subsequent analyses.

**Condition comparison.** Descriptive analyses of the TPOCS-A and CIRS scales were run for the overall sample and for each condition. The mean overall TPOCS-A scale score was 3.07 (SD =.48). T-test comparisons between CBT (M = 3.18, SD = .45) and UC (M = 2.96, SD = .47) conditions of overall TPOCS-A scale scores revealed statistically significant differences, $t(422) = 4.90, p < .001$. The mean TPOCS-A scale score was higher in the CBT condition than the UC condition. The mean overall CIRS scale score was 2.88 (SD = .78). T-test comparisons between CBT (M 2.83, SD = .73) and UC (M = 2.94, SD = .83) conditions of overall CIRS scores revealed no statistically significant differences, $t(422) = 1.46, p = .146$. These findings indicate
that while alliance is significantly higher in CBT compared to UC, involvement does not quite significantly differ between conditions.

It was also important to examine the relation between alliance and involvement, as this relation was of critical interest for the research question proposed. The CBT and UC conditions could have similar mean overall TPOCS-A and CIRS scores, but the relation between alliance and client involvement could still differ across conditions. Correlational analyses were run using the TPOCS-A and CIRS scores for each client at the session level.

First, correlational analyses using the full sample indicated an overall positive relationship between alliance and involvement, \( r(423) = .67, p < .001 \). This suggests children who have a strong alliance with their therapist tend to be more involved in treatment and vice versa. Next, the correlation between TPOCS-A and CIRS scores were compared across the CBT and UC conditions. When examining the conditions separately, alliance and client involvement remained significantly correlated in both conditions; however, the strength of the relationship appeared stronger in UC \( (r[204] = .77, p < .001) \) than CBT \( (r[218] = .63, p < .001) \).

Using a fisher r-to-z transformation, the alliance-involvement correlations for each condition were compared to see if there was a statistically significant difference. Results indicated the correlation between alliance and client involvement significantly differed between UC and CBT delivered in community settings \( (z = -2.35, p = .018) \). Taken together, these findings suggest that alliance and client involvement are more strongly correlated in the UC condition than the CBT condition. For the purposes of main analyses, it was decided to keep both conditions together, and then the effect of condition would be controlled by adding it as a covariate in models of change.
Multilevel Modeling of Change in Alliance and Client Involvement

The central aim of this study was to examine how alliance and client involvement change and relate to one another over the course of treatment. It was hypothesized that alliance and client involvement positively change over the course of treatment. Further, it was hypothesized that change in alliance and client involvement would be interrelated and a temporal relationship would be demonstrated such that change in alliance would predict change in client involvement, change in client involvement would predict change in alliance, or both would predict change in the other over the course of treatment (Hill, 2005; Karver et al., 2006; Karver et al., 2008; McLeod et al., 2013, Shirk et al., 2008).

To test these hypotheses, a series of latent growth models following methods previously used by McArdle and colleagues were planned (McArdle, 1988; McArdle & Hamagami, 2001; McArdle & Nesselroade, 2003). This analytic approach required a number of steps to be completed (for exemplars see Hawley, Ho, Zuroff, & Blatt, 2006, Teachman, Marker, & Smith-Janik, 2008). First, a method for modeling time needed to be determined. Next, modeling change in TPOCS-A and CIRS scores independently over time was needed to establish separate change processes. If change in TPOCS-A and CIRS scores over time was present, then bivariate latent growth curve modeling could be used to simultaneously model growth in both variables and interpret whether these change processes were correlated. Finally, dynamic bivariate latent difference score modeling could be used to investigate whether the initial level of alliance and change in alliance lead to change in client involvement, or vice versa, if initial level of client involvement and change in client involvement lead to change in alliance, or both. Latent difference score modeling requires three main assumptions are met: (a) a non-zero variance in
initial scores; (b) variance in slope scores; (c) covariance among initial levels and slope scores (McArdle & Nesselroade, 2003). Thus, it was necessary to test these assumptions first.

**Modeling time.** Time was a critical variable in these analyses. There were two potential ways of modeling time in treatment—number of sessions or number of weeks in treatment. Descriptive analyses of both time variables were conducted to examine the normality of the time variables, identify and handle time variable outliers, and determine whether to use number of sessions or number of weeks to model time in treatment.

It was important to assess the normality of both time variables because while multilevel change models allow for varying numbers of data collection waves, problems can arise when data sets are unbalanced and not easily parameterized (Singer & Willet, 2003). With a more balanced dataset, models can be parameterized more easily, random effects can be estimated more precisely, and computer algorithms converge more rapidly. Thus, to create a more balanced dataset, outliers that contributed to skewed and kurtotic distribution needed to be identified and addressed.

Data screening was conducted to examine the skewness and kurtosis of time in terms of both time variables—session number (skewness = 2.37, kurtosis = 8.18) and weeks in treatment (skewness = 1.66 and kurtosis = 3.37). Values that are +/- 1.00 for skewness or kurtosis suggest non-normality (e.g. George & Mallery, 2003; Morgan Griego, & Gloeckner, 2001). Thus, it appeared both time variables were skewed and kurtotic; however, the weeks in treatment variable was slightly less so. Examination of histograms revealed there were long tails to the right for both time variables due to a few cases that continued in treatment for a particularly long time (i.e., 53 sessions, 481 days).
To make an informed decision on which time variable to use, previous published literature was also referenced. In previous studies examining the course of alliance, session number was used to model time in treatment and analyses were limited to 18 sessions (Chu, Skriner, & Zandberg, 2013) or 16 sessions (Hudson et al., 2014; Kendall et al, 2009) of manualized treatment. The present study involved a manualized treatment delivered in a community clinic and UC procedures in community clinics. Therapists were instructed to continue treatment as long as the family and clinician agreed further progress was attainable. As such, the number of weeks in treatment varied and the number of weeks that passed between sessions also varied. In the CBT condition, the manualized treatment consisted of 16-20 sessions, but therapists were not restricted in the number of sessions or weeks of treatment they were allowed. The number of sessions held and weeks in treatment varied from client to client even though the two treatment conditions did not significantly differ. Because of the individual variation in the weeks spent in treatment and the spacing between sessions, it seemed most appropriate to model time in treatment based off of weeks in treatment. Results reported from herein will be presented with time modeled as weeks in treatment.

Upon inspection of a boxplot of the weeks in treatment variable, there were 13 mild outliers and 5 extreme outliers according to the SPSS definition (values between +/- 1.5 and +/- 3.0 interquartile ranges from the inner fences are mild outliers; values > +/- 3.0 interquartile ranges from the inner fences are extreme outliers). Based on these criteria, extreme outliers would be sessions at 64 weeks and beyond; however, this did not seem like an accurate reflection of the typical course of treatment in this sample (average of 26.54 weeks in treatment), likely because some extreme values were distorting the mean. Eliminating mild outliers and extreme outliers would exclude sessions that took place at 40 weeks in treatment and beyond, which
appeared to be a more fair representation of the typical course of treatment in this sample. Accordingly, sessions that took place at 40 weeks into treatment or greater \(n = 24\) were excluded as outliers for the multilevel growth models, leaving a final sample size of 400 sessions. Once this method for modeling time was established and the dataset was balanced, an examination of longitudinal change in alliance and client involvement ensued.

**Modeling change in TPOCS-A and CIRS.** The first hypothesis was that alliance and client involvement would positively change over the course of treatment. This was the foundation for testing further hypotheses involving how changes in alliance and client involvement are interrelated across time using latent difference score modeling. Two of the most crucial assumptions of latent difference score modeling are non-zero variance in intercept and slope (McArdle & Nesselroade, 2003). Thus, establishing whether variance in the intercepts and slopes of these variables existed was a critical first step. Unconditional multilevel modeling was the method used to determine whether between-client and/or within-client variability exists in intercepts and slopes and to partition these different levels of variation (Singer & Willet, 2003). This approach was used to achieve the first step of assessing whether change in alliance and client involvement was present.

Unconditional means models and unconditional growth models were employed to examine and partition the outcome variation. Unconditional means models were used to establish whether TPOCS-A and CIRS scores varied across clients without taking time into consideration. Then, unconditional growth models were used to examine the effect of time (e.g. weeks) on TPOCS-A and CIRS scores (Singer & Willet, 2003). These unconditional growth models assessed the intercept and slope of each variable over time as defined as weeks in treatment. For continuous temporal variables, it is often necessary to re-center these variables by subtracting a
constant from each observed value. Thus, if the constant selected represents the first time point of data collection, the intercept in the level 1 model indicates the true value of Y (i.e., the TPOCS-A or CIRS score), a client’s initial status. In this study, the weeks in treatment variable was already centered because the first session occurred at week “0,” the first time point of data collection. All models were estimated in SPSS 21 using maximum likelihood estimation. All were random effects models allowing for individual variance around intercept and growth parameters.

Unconditional means models were fit to the TPOCS-A and CIRS data using MIXED procedure in SPSS 21 with ML estimation and an unstructured covariance structure (UN). The UN was selected because it has the least assumptions regarding normality and equality of variances. TPOCS-A and CIRS scores were examined separately to determine if there was significant between client variability in scores. The level-1 fixed effect for TPOCS-A was significant, \( F(1, 41.15) = 2951.48, p < .001 \). The estimate of the grand mean TPOCS-A score was 3.05 (SE = .06), \( t(41.15) = 54.33, p < .001 \). The model estimates that the average client, collapsing across session, had an average overall TPOCS-A score of 3.05. The level-1 fixed effect for CIRS was also significant, \( F(1, 41.07) = 872.90, p < .001 \). The estimate of the grand mean CIRS score collapsing across time was 2.85 (SE = .10), \( t(41.07) = 29.56, p < .001 \). The model estimates that the average client had an average overall CIRS score of 2.85.

Subsequently, an unconditional growth model that included the effect of time (e.g. weeks in treatment) was fit to the TPOCS-A and CIRS data. Compared to the means model, the level-1 fixed effect remained significant for the TPOCS-A, \( F(1, 39.69) = 2294.73, p < .001 \). The average initial TPOCS-A score, taking changes across time into effect was 3.10 (SE = .06), \( t(39.68) = 47.90, p < .001 \). The average rate of change was -.004 points per week on average (SE = .003),
\( t(22.77) = -1.3, p = .207 \), indicating change in TPOCS-A scores over time was not significant.

See Table 1 for a summary of results.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Unconditional Means Model</th>
<th>Unconditional Growth Model</th>
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<tr>
<td><strong>Fixed Effects (t-statistic)</strong></td>
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*Note. AIC= Akaike’s Information Criteria; BIC= Bayesian Information Criteria. *p < .05, **p<.001

A growth plot for individual TPOCS-A scores across time was completed to provide a visual depiction of alliance each client throughout treatment. Individual plots suggested little variability in TPOCS-A scores. A graph of the full sample’s TPOCS-A scores over time was also constructed and indicated that TPOCS-A scores did not systematically vary over time. Visual inspection of the graph suggested that no change occurred in TPOCS-A scores over time. See Figure 2 below.
An unconditional growth model that included the effect of time (e.g. weeks in treatment) was also fit to the CIRS data. Compared to the means model, the level-1 fixed effect remained significant for the CIRS, $F(1, 39.78) = 549.53, p < .001$. The average initial CIRS score, taking changes across time into effect was $2.87 (SE = .12), t(39.78) = 23.44, p < .001$. The average rate of change was $.001$ points per week $(SE = .005), t(26.00) = .13, p = .895$, indicating change in CIRS scores over time was not significant. See Table 2 for a summary of results.
### Table 2

**Results of Unconditional Models of Change for CIRS**

<table>
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<tr>
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<th>Unconditional Means Model</th>
<th>Unconditional Growth Model</th>
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<td>In initial status</td>
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<tr>
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</table>

*Note. AIC= Akaike’s Information Criteria; BIC= Bayesian Information Criteria.  
*p < .05, **p < .001*

A growth plot for individual CIRS scores across time was completed to provide a visual depiction of client involvement for each client throughout treatment. Individual plots suggested inconsistent variability in CIRS scores. A graph of the full sample’s CIRS scores over time was also constructed and indicated that CIRS scores did not systematically vary over time. A visual inspection of the graph indicated that no change in CIRS scores occurred over time. See Figure 4 below.
Figure 3. Observed trajectory of client involvement scores scattered around mean trajectory.

Overall, these results suggest that there are differences between clients in TPOCS-A and CIRS scores, collapsing across time and also significant differences in intercept; however, there are no meaningful differences between clients with regard to rate of change across time in treatment in TPOCS-A and CIRS scores. In fact, the TPOCS-A and CIRS scores did not meaningfully change as a result of time in treatment at all.

**Condition as a covariate.** Because the mean TPOCS-A score was significantly higher in the CBT condition than the UC condition, I explored adding study condition as a covariate to the means model to assess whether it improved model fit (i.e. significantly decreased information
criteria, Singer & Willet, 2003) and if it had a significant fixed effect on TPOCS-A scores. The addition of study condition did not significantly improve to model or have a significant fixed effect on TPOCS-A scores, \( F(1, 40.87) = 3.18, p = .08 \).

**Predictors of mean alliance and client involvement.** Although significant change in alliance and client involvement did not occur across time, there were significant differences in initial and mean levels of alliance and client involvement. Analyses were conducted to explore factors that may systematically relate to mean alliance and client involvement scores. Because the effect of time was not significant, TPOCS-A and CIRS scores for each client were collapsed up to the level of the individual client. Aggregated alliance and client involvement scores were created that took into account all the session scores for each given client. Aggregating scores provided a more dependable estimate of overall alliance and client involvement than a single time-point such as the intercept (Crits-Christoph et al., 2011). For the following analyses, we first evaluated whether each demographic or clinical characteristic was significant and then performed post-hoc analyses. To control for Type I error in the post-hoc analyses, we used a Bonferoni procedure applied across each family of tests. The adjusted p-value for each family of tests was generated by dividing the p-value (.05) by the number of comparisons.

Based on the results of separate one-way ANOVAs, age of children, gender, and symptom severity (using total CBCL score at baseline) were not related to TPOCS-A or CIRS scores. A one-way ANOVA on the TPOCS-A scores indicated significant variation among the ethnic groups, \( F(3, 31) = 3.28, p = .036 \). When pairwise comparisons were conducted, no significant differences emerged. There were no significant effects of ethnicity on CIRS scores.

A one-way ANOVA was also used to investigate whether a child’s primary anxiety diagnosis was related to TPOCS-A and CIRS scores. There were no significant differences
between groups with different primary anxiety disorders (i.e., GAD, SAD, SP, Phobia) in TPOCS-A scores; however, CIRS scores did significantly differ depending on primary anxiety disorder, $F(3, 39) = 3.00, p = .044$. The only pairwise comparison that was statistically significant was between children with a primary diagnosis of a SP ($M = 2.57, SD = .74$) and those with a primary diagnosis of SAD ($M = 3.22, SD = .42$), $t(23) = -2.79, p = .025$; however, a post-hoc Bonferroni correction using the adjusted p-value of .0083 (.05/6 = .0083) indicated that the groups no longer significantly differed after controlling for family wise error.

Therapist age, gender, and ethnicity were not related to significant differences in TPOCS-A and CIRS scores based on the results of separate one-way ANOVAs. Therapist degree (e.g. doctoral level psychologist, masters’ level psychologist, social work) was significantly related to TPOCS-A scores $F(3, 32) = 3.42, p = .03$. Post-hoc comparisons revealed that therapists with a doctoral level degree had higher TPOCS-A scores ($M = 3.42, SD = .24$) than therapists with degrees classified as “other” such as marital and family therapists ($M = 2.65, SD = .55$), $t(5) = 2.23, p = .025$; however, using a post-hoc Bonferroni correction with an adjusted p-value of .0083 (.05/6 = .0083), results were no longer significant after controlling for family-wise error. Therapist degree was not significantly related to CIRS scores.

**Predictors of change across time.** Because no significant change in either alliance or client involvement scores occurred over time, it was not possible to examine how changes in alliance and client involvement were interrelated (Hypothesis 2) or whether change in alliance predicted change in client involvement, change in client involvement predicted change in alliance, or both (Hypothesis 3). The planned approach of latent difference score modeling relied on the following assumptions: (a) non-zero variance in initial scores; (b) non-zero variance of slope scores; (c) non-zero covariance among initial levels and slope scores (McArdle, 1988;
McArdle & Hamagami, 2001; McArdle & Nesselroade, 2003). While there was a non-zero variance in initial scores, there was a lack of change in alliance and client involvement scores over time (non-zero slope). Thus, was not possible to run bivariate growth curve analyses to examine whether change in alliance and change in client involvement were interrelated or to run latent difference score analyses to examine if change in alliance predicted change in involvement, if change in involvement predicted change in alliance, or both.

Discussion

The primary aims of this study were to examine how alliance and client involvement change over time in treatment and better understand how these therapy processes relate over the course of treatment. Alliance and client involvement are considered critical therapy process variables that are ingredients of effective treatment (McLeod et al, 2009), especially among children who often enter treatment unaware of or in disagreement with their reason for attending (DiGiuseppe et al., 1996; Shirk & Karver, 2006). Yet, few studies have investigated how therapy process factors change and are related to each other over the course of child psychotherapy. I approached the question of change in alliance, client involvement, and the alliance-involvement link with a rigorous methodological design that involved measuring alliance and client involvement concurrently across time in treatment using two separate observational coding teams. The study was unique in using data from an effectiveness trial in which CBT and UC were delivered in community settings (Southam-Gerow et al., 2010), furthering our understanding of how treatments work outside of research/lab-based settings and how treatment delivery may be improved.

I hypothesized that alliance and client involvement would change over time in treatment. Furthermore, I hypothesized that alliance and client involvement would change in relation to one
another over time and that there would be a temporal relationship between the two, such that change in alliance would predict change in client involvement, change in client involvement would predict change in alliance, or both. The initial hypothesis that alliance and client involvement would change over time was not supported. Results indicated alliance and client involvement were positively correlated, but no significant change in either of the variables occurred over time. Thus, further hypotheses about the interrelated change in alliance and client involvement could not be tested.

Although there was no significant change in alliance and client involvement over the course of treatment, there were differences in mean levels of alliance and client involvement between clients. Overall results suggested that a client’s level of alliance and client involvement at the beginning of treatment did not systematically change throughout time in treatment. This could mean initial alliance and client involvement levels are especially important, as these levels appear to remain relatively stable over the course of treatment.

Results also indicated the CBT and UC conditions differed in their mean overall alliance scores, with the CBT condition having significantly higher alliance scores than the UC condition. Alliance and client involvement were positively correlated in both conditions; however, correlations between alliance and client involvement were significantly higher in the UC condition. Predictors of mean alliance and client involvement were also investigated. A few factors were related to alliance and client involvement (e.g., therapist degree), but these findings did not remain following Bonferroni correction. This suggests that some pre-treatment factors may be related to alliance and client involvement, but more research is needed with a larger sample. It is important to note that these results were found when observational coders rated alliance and the sample consisted of children in treatment for anxiety in community settings.
Therefore, these results may not generalize to other methods of measurement, other samples, or other settings.

**Implications of Study Findings**

The goals of this study were to investigate whether the alliance and client involvement change and are related to one another throughout child anxiety treatment in community settings. According to previously proposed conceptual models of the child therapy process, alliance is linked to outcomes (e.g. decreased symptoms, improved functioning) via other mediating therapy process factors like client involvement (Karver et al., 2005, 2008). Prior models have suggested that alliance and client involvement are interrelated processes (Karver et al., 2005), however few have investigated how they may dynamically influence one another over the course of treatment (Hudson et al., 2014; McLeod et al., 2013). Recent empirical findings on the trajectory of alliance and client involvement and their relationship with one another have been mixed depending on a number of factors including the rater of the construct and the timing of measurement (Chu & Kendall, 2004; Chiu et al., 2009; Hudson et al., 2014; Kendall et al., 2009; Liber et al., 2010; McLeod et al., 2013). The current findings are consistent with previous studies in which observational measures have demonstrated little to no change in alliance over time in treatment (Chiu et al., 2009; Hudson et al., 2014; Liber et al., 2010; McLeod et al., 2013), however, findings on the trajectory of involvement remain mixed.

Present findings suggest that alliance and client involvement are positively correlated therapy process factors; however, the extent to which alliance predicts change in client involvement or client involvement predicts change in alliance could not be tested because these variables did not significantly change over time. The current study’s findings on the alliance trajectory are consistent with previous results of studies using observational measures of alliance.
that have found only slightly negative change in alliance (Chiu et al., 2009; Hudson et al., 2014; Liber et al., 2010). Finding similar results with an observational measure in a community setting further supports that there is no observable change or very little negative change in alliance to an outside rater. Self-report measures from the therapist, child, and/or parent perspective were not included in the present study. Thus, the trajectory of self-reported alliance could not be compared to previous studies showing a positive dual-slope trajectory in self-report measures of alliance (Chu et al., 2013; Kendall et al., 2009). Unlike studies using observational measures of alliance, studies using observational measures of client involvement have found some change in client involvement; however, these studies have not shown consistent patterns of change (Chu & Kendall, 2004; Hudson et al., 2014; McLeod et al., 2013). Finding no change in client involvement in the present study was inconsistent with previous studies indicating observer-rated change in client involvement exists.

Overall, these findings have important implications for our conceptual understanding of how alliance and client involvement operate separately and together in treatment. The conceptual model explaining the alliance-involvement link proposed by Karver and colleagues (2005) may need to be revised or may still be relevant, but only under certain conditions. For example, focusing on how alliance and client involvement change over time when rated by an outside observer may not be as important as how these two variables are initially established or how they operate within a session. This represents the first study, to my knowledge, to observe alliance and client involvement over time in treatment in both CBT and UC for child anxiety in community settings. Accordingly, these findings may be more generalizable across treatment types and settings; however, the overall lack of consistent findings in therapy process studies suggests that future research is needed to confirm any results.
**Alternative explanations of findings.** Though meaningful change in alliance and client involvement did not occur between sessions over the course of treatment, this does not mean that alliance and client involvement are not interrelated processes or that they do not change at all. It is important to consider other explanations and methodological factors that may have contributed to these findings and explain differences between these and previous findings. As the field has advanced to more rigorous and sophisticated methods to longitudinally examine therapy process factors, it is also important to consider incorporating new empirical findings into existing conceptual models.

A number of different possibilities could explain the present findings and warrant attention. It could be that alliance and client involvement are interrelated but simply do not systematically change over time in treatment. Correlational analyses suggested that alliance scores and client involvement scores aggregated at the client level were positively related. Meaning, children with an overall positive alliance with their therapist were also likely to have overall positive levels of client involvement. While the initial hypothesis that alliance and client involvement would change significantly over time and change in relation to one another was not supported, the finding that alliance and client involvement were positively associated with one another is still consistent with the hypothesis that they are related.

Another possibility is that measuring changes in alliance and client involvement from week-to-week or session-to-session may not best capture the relationship between alliance and client involvement. Alliance and client involvement may be interrelated processes that do not observably change over the course of anxiety treatment in community settings, but rather interact within a given session or over short periods of time in treatment. The TPOCS-A and CIRS were both used to provide global ratings of sessions, so they may not have captured possible within-
session variability. It could be that the relationship between alliance and client involvement plays out during the course of a session, or that this proposed relationship plays out over a shorter time frame (i.e. early in treatment) (Diamond et al., 2006; Diamond, Liddle, Hogue, & Dakof, 1999). For example, a child may be initially resistant to participate in therapy when he or she arrives to treatment, but by the end of the session or first few weeks of treatment the child may feel more comfortable and willing to engage in activities with the therapist. The same could be true of alliance and client involvement. For example, a child may be initially resistant or closed off to a therapist, but participate in an activity in session that he or she really enjoys and become more warm and open. It may be important to investigate within session variability in alliance and client involvement or specifically focus on changes that may just take place in initial sessions.

Overall, alliance and client involvement were strongly correlated and remained at relatively stable levels throughout treatment, suggesting pre-treatment inputs such as child, family, and therapist characteristics, may have a more direct influence on levels of alliance and client involvement than the interventions delivered. However, the correlation between alliance and client involvement was significantly stronger in the UC condition than the CBT condition. It is possible that there is more overlap between alliance and client involvement in UC. Alliance and involvement are perhaps more enmeshed and less distinct in UC than they are in CBT where tasks are more specifically outlined (e.g. relaxation exercises, exposure tasks).

A potential alternate therapy process model is presented below (see Figure 4). Pre-treatment inputs are shown influencing both alliance and client involvement. Alliance and client involvement are interrelated and may vary within a session, but overall do not significantly change from session to session. Connecting lines represent relationships between alliance, client, involvement, and therapeutic interventions that together produce treatment outcomes. Outcomes
in turn, may influence alliance and client involvement (Marker, Comer, Abramova, & Kendall, 2013).

Figure 4. Alternate conceptual model for the therapy process in child psychotherapy.

Findings may also be explained by methodological factors. To my knowledge, this was the first study to examine observational measures of both alliance and client involvement simultaneously over the course of treatment in a community setting. Based on previous studies, growth and change in alliance appear to vary depending on the perspective of the rater. Kendall and colleagues (2009) conducted a study using therapist, child, and parent-report of alliance across treatment sessions in CBT for child anxiety and found that alliance significantly increased across sessions until exposures at which time it leveled off. Chu and colleagues (2013) similarly found that therapist-reported data on alliance in CBT for child anxiety evidenced a similar dual
slope trajectory, but child self-report data in the same study did not show any systematic growth. In contrast, studies that have used observational alliance measures in CBT for child anxiety have found no change or little change in the negative direction (Chiu et al., 2009; Hudson et al., 2014; Liber et al., 2010; McLeod et al., 2013). Overall, it appears that the current findings on the alliance trajectory are most consistent with previous studies using observational measures of alliance across multiple sessions (Hudson et al., 2014; Liber et al., 2010; McLeod et al., 2013).

One possible reason for more stable alliance trajectories with observational coders is that observational coders are limited to what can be behaviorally observed about the therapeutic relationship from child and therapist interactions in a given session. Observational measures are not able to provide access to subjective components of the alliance that may not be possible to directly observe (Elvins & Green, 2008; Shirk & Saiz, 1992). On the other hand, changes in self-report, parent-report, or self-report measures of alliance can also be easily confounded by improvement in symptoms and rater expectancy biases (McLeod et al., 2013). Clients, parents, and therapists may be biased toward reporting improvements in alliance. For these reasons, observer-rated measures of therapy process variables were selected for use, despite their limitations (McLeod et al., 2013).

Similar to research on alliance, studies on changes in client involvement over time in child psychotherapy are limited (Chu & Kendall, 2004; Hudson et al., ). Findings from previous studies using observational measures are inconsistent with one another. Chu and Kendall (2004) found that mean shifts in client involvement (measured by the CIRS) between early treatment (sessions 2-5) and later in treatment (sessions 6-10) were negative. By contrast, Hudson et al., (2014) found that client involvement (measured by CIRS-R at eight different time points in treatment) was best described by a concave curve. Client involvement in the current study did
not significantly change over time. Thus, results are not consistent among any of these studies, despite the use of the same measure or modified version of the same measure.

In this study, treatment took place over a more flexible period of time. Therefore, clients did not have the same spacing between treatment sessions. For example, one client may be attending his or her sixth session at week six, while another client may be attending his or her third session. With so much individually variability in the timing of sessions, especially compared to a randomized clinical trial in a research/lab-based setting, it may have been too difficult to find patterns of meaningful change over time across participants.

Different characteristics in a community based setting compared to a university lab-based setting also may have contributed to findings (i.e. more complex diagnostic presentation, more variable treatment attendance, more variability in the training and background of therapists). While the overall trajectory of observer-rated alliance appeared similar across research/lab-based settings and community-based settings, differences in the trajectory of observer-rated client involvement may be accounted for by differences in community clinics and more tightly controlled research settings in university-based clinics (Chu & Kendall, 2004; Chu et al., 2013; Chiu et al., 2009; Hudson et al., 2014; Liber et al., 2010; McLeod et al., 2013).

**Future Directions**

In future research studies, it will be important to consider differences in observer and self-report ratings of alliance and client involvement from multiple perspectives (therapist, child, and client) over multiple time points in treatment. Based on observer ratings at multiple time points, alliance and client involvement did not change from session to session over the course of treatment for childhood anxiety disorders in a community setting. If there appears to be no significant change in alliance when rated by an observer, it may be important to focus on initial
or early levels of alliance or self-report measures from multiple perspectives. In previous studies, change in alliance has been found when measured from the perspective of the therapist, parent, or child (Chiu et al., 2009; Hudson et al., 2014; Liber et al., 2010; McLeod et al., 2013). By contrast, studies using observational measures of client involvement, results have been more mixed (Chu & Kendall, 2004; Hudson et al., 2014). Thus, it remains unclear if a pattern of change in observational ratings of client involvement exists and what the shape of this change looks like and future research in this area is needed. Additionally, future research assessing the trajectory of self-reported alliance from multiple perspectives in a community setting would add to literature.

To my knowledge, this is the first study of this kind to investigate both alliance and client involvement over the course of CBT and UC for child anxiety in a community setting. It is important to conduct further research in community settings to see if the same results are repeated. Continued use of rigorous methodology like the use of ratings from multiple sessions, simultaneous ratings of alliance and client involvement, and using psychometrically robust measures is needed. Even if alliance and client involvement do not observably change, research on self-report measures of alliance has found that aggregating multiple ratings of the same construct provides a more dependable estimate than a single time point (Crits-Christoph et al., 2011). It also may be necessary to reconsider how therapy processes work in treatment and rethink current conceptual models. For example, measuring alliance and client involvement at the session level may not be the ideal method. Perhaps measuring within session changes in alliance and client involvement would reveal change processes, which an observational rater could more easily provide.
Future research should also explore what factors predict initial levels of alliance and client involvement. Initial levels of alliance and client involvement may be especially important given that these levels did not substantially change throughout treatment in this study. There may be particular types of clients or therapists that are more likely to have a weak or strong alliance or client involvement. Identifying such factors that are modifiable (e.g. treatment expectations, level of motivation) will help therapists to know whether alliance-building or engagement strategies may be especially important to focus on in treatment or before treatment even begins (McKay & Bannon, 2004). Future research might explore if there are any pre-treatment strategies that could enhance initial levels of alliance and client involvement. For example, many children arrive in treatment with no knowledge of why they are there or what treatment involves (DiGiuseppe et al., 1996). A child’s first impression of the therapist may be crucial to the level of alliance and client involvement. Thus, studies identifying ways to influence alliance and client involvement from the beginning of treatment may benefit the field. For example, a welcome packet before the initial session describing treatment and treatment expectations may help children to feel more comfortable when they begin treatment. Pre-treatment motivational interviewing strategies might also be likely to increase initial levels of alliance and client involvement. Such research efforts could ultimately aid in the dissemination and implementation of EBTs.

While identifying predictors of alliance and client involvement was not a focus of the current study, some analyses were conducted to examine if there were any factors that systematically related to them. Findings suggest that the child’s ethnicity and the child’s primary anxiety diagnosis may influence levels of alliance and client involvement. Additionally, the therapist may influence levels of alliance based on their degree and training, but does not
fluence client involvement in the same way. These findings did not remain significant after a Bonferroni correction was applied, so they have to be considered speculative. More research in this area is warranted as the small sample size likely limited the ability to detect meaningful relations between pre-treatment factors and the therapy process variables. Increased knowledge and awareness of what factors are associated with alliance and client involvement can help therapists to be more prepared, sensitive, and able to address these challenges in the therapy process.

This study also did not examine any links between alliance, client involvement, and treatment outcomes. While previous studies have established a small but consistent link between alliance and treatment outcomes (see McLeod, 2011) and client involvement (defined as in-session participation) and treatment outcomes (see Karver et al., 2006), there has been great methodological variability, particularly given how few studies have actually focused on this topic. Including treatment outcomes in future studies focusing on the trajectories and alliance and client involvement would greatly benefit our field. Involving multiple therapy process measures form multiple types of raters (child, therapist, parent) in a study investigating outcomes would be ideal to inform which type of measure may have the most value in informing how to improve treatment.

Finally, observational coding methods are very time and labor intensive. Crits-Christoph and colleagues (2011) recommend aggregating self-report measures of alliance from at least four sessions to obtain a dependable estimate of alliance. The same may be true of observational measures of alliance; however, has yet to be tested. Thus, if a smaller number of aggregated observer ratings of alliance essentially provide the same information as coding all sessions, investing time and resources into coding as many sessions as possible may not be necessary.
Further research may even find that observational coding measures do not predict treatment outcome as well as child- or therapist-report measures. If such were the case, then research could focus on the use and refinement of self-report measures. Another future research direction would be to investigate whether discrepancies between raters of alliance and client involvement is valuable in predicting treatment outcomes.

**Strengths and Limitations**

The present study benefitted from a number of strengths. In terms of measures and coding procedures, there were several advantages. The use of psychometrically robust measures of both alliance and client involvement were used to assess these therapy processes at multiple time points during treatment ($M = 9.48, SD = 4.22$). Independent coding teams were used to code each therapy process and eliminate coder effects and contamination of constructs. Coders were carefully trained and achieved an adequate level of inter-rater reliability; ICCs monitored throughout the study to prevent coder drift. In some ways, using observational coding measures was a strength, as it eliminated any biases that a self-report measure can add; however, because only ratings from observational coders were used to assess alliance and client involvement, these measures may not have fully or accurately captured the perspective of the client or therapist. Additionally, alliance and client involvement measures were highly correlated, and observers may arguably be measuring redundant constructs. This possibility cannot be entirely ruled out and represents a limitation in this study. Future research involving multiple measures from different perspectives (i.e. client-report, therapist-report, and observational) and studies distinguishing alliance and client involvement would be beneficial.

Sampling procedure was another overall strength of this study. This study represents an increase in the number of sessions coded per case compared to previous studies. Although there
was variability in the number of sessions coded per case, the analytical method used supported
missing data. It also allowed for clients with varying numbers of data points to be included in the
sample (Singer & Willet, 2003). Further, observational coders rated the entirety of sessions
rather than segments. This was intended to provide a more comprehensive assessment of what
occurs between the client and therapist in a session; however, because only global session ratings
were used, valuable information about within session variability may have been washed out.
Thus it may be helpful to examine and compare various units of measurement.

The use of data from an effectiveness trial also strengthened the current study and the
yield of the parent study (Southam-Gerow et al., 2010). The children involved in the study were
all clinically-referred from the community and randomly assigned to receive UC or CBT. The
therapists were all employed in community clinics and were also randomized to condition. The
children had much more diverse clinical presentations than typically seen in tightly controlled
efficacy studies. Overall, these factors help with the external validity of the study and
generalizability of the study findings across a diverse clinical sample, different therapeutic
approaches and different treatment settings. At the same time, the study focused exclusively on
children receiving treatment for anxiety disorders. Thus, these findings may not generalize to
children presenting with other primary problem types.

Conclusions

The goal was to examine how alliance and client involvement change and are interrelated
throughout the therapy process with hopes to use this information to inform optimal treatment
delivery (e.g. sequencing interventions and techniques based on when levels of alliance and
client involvement are high or low). Crucial information on how alliance and client involvement
are related in community settings has been missing from the field. No research on alliance and
client involvement in UC or CBT for childhood anxiety had been conducted to date in community settings.

Contrary to the original hypothesis, alliance and client involvement did not demonstrate change over the course of treatment. As a result, hypotheses related to the temporal relationship between alliance and client involvement could not tested. This suggests that alliance and client involvement may be relatively stable throughout the treatment of childhood anxiety disorders in community settings. It could also reflect a homeostatic effect in which alliance and client involvement may vary within an individual session, or vary some from session to session, but for the most part remain at or return to a set level.

This study represents a step in the right direction for better understanding the role of alliance and client involvement in the therapy process. This study was the first to examine alliance and client involvement at multiple time points throughout CBT and UC for child anxiety disorders in community settings. Thus far, very little empirical research has investigated conceptual models linking multiple therapy process factors. Conceptual models have provided a framework for understanding the therapy process initially, but based on more recent empirical work (Hudson et al., 2014; McLeod et al., 2013) these models may be in need of revision or further specification. Findings of this study do not rule out that alliance and client involvement play an important role in the therapy process and treatment outcomes; rather they suggest that change in these variables from session to session may not be expected in treatments delivered in a community setting. On the other hand, these findings may speak to the potential for more research to understand what could help improve alliance and client involvement and at what point it might it be expected and/or beneficial to have a strong level of alliance and/or
involvement. Structuring alliance-building and involvement boosting activities into treatment and treatment manuals may be the next step in improving EBTs.
References


Vita

Nadia Yasmin Islam was born in Portsmouth, Virginia and is an American citizen. She graduated from Norfolk Academy in Norfolk, Virginia in 2005. She graduated with distinction from the University of Virginia in May 2009 with a Bachelor of Arts in Psychology. She then worked as a research assistant in the Department of Psychology at the University of Virginia before entering the Clinical Psychology doctoral program at Virginia Commonwealth University in Richmond, Virginia.