Predictors of treatment satisfaction in cognitive behavioral therapy for youth

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Submitted as cand. psychol. thesis, Department of Psychology, Faculty of Social Sciences

UNIVERSITETET OF OSLO

October 2016
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Abstract

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This study aims to investigate predictors of treatment satisfaction in CBT. In this study, treatment satisfaction, motivation, perceived treatment credibility and alliance were investigated in context of a manualized CBT program (FRIENDS) for youth anxiety delivered as either individual treatment (ICBT) or as group treatment (GCBT), in an outpatient community clinic. There were mainly two objectives. The first was to investigate levels of motivation, treatment credibility, alliance, and treatment satisfaction. The second objective was to investigate if motivation, treatment credibility, or alliance predicted treatment satisfaction. Additionally, differences between ICBT and GCBT relating to these two objectives were investigated. Analyses were conducted using descriptive analyses, including t-tests, correlation analyses, and multiple linear regression. In this study, results showed that mean levels of satisfaction, motivation, treatment credibility, and alliance were overall high. There were significant differences between ICBT and GCBT on mean levels of self-reported early youth-therapist alliance, and early and late parent-therapist alliance. Early alliance and alliance change were the only significant predictors of youth rated treatment satisfaction. Implications for research and clinical practice are discussed.

All data in this thesis is from The Assessment and Treatment - Anxiety in Children and Adults study (ATACA). ATACA is a large scale randomized controlled effectiveness trial where manualized empirically supported treatments (EST) were delivered in regular mental health clinics. ATACA started in 2008, and comprised a youth trial and an adult trial. The youth trial comprised 182 youths with anxiety disorders, and data used for analyses in this thesis are collected as part of that youth trial.
Acknowledgements

First of all, I want to express my gratitude towards the youths and parents participating in the ATACA study. They have allowed me some insight into their experiences in therapy by allowing for data to be used in this research. Without them this thesis would never have happened. Secondly, I want to thank my academic supervisor. You came through above and beyond of what I expected of you. You have contributed greatly with your knowledge, constructive feedbacks, and constant availability in times of need.

Importantly, I owe my family eternal gratitude. In dark times, when thoughts of hopelessness and despair have clouded my mind, Iselin, Una, Maya and Vilja have always managed to put a smile on my face. Furthermore, when feeling distressed beyond imaginable levels, the thought of you has always calmed me, by reminding me of what is of most importance in my life.

I also want to thank you-know-who, sitting on the other side of the Facebook chat, providing me endless tips on how to format this thesis according to the APA-style.
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1 Introduction

1.1 Process-outcome studies

In 1977, the first scientific meta-analysis of psychotherapy research on effect, showed psychotherapy in general to be more effective than control-conditions and placebo effects (Smith & Glass, 1977). This was important, because until then some argued that psychotherapy had no, or even possibly detrimental effects (Eysenck, 1966). Since then, numerous meta-analyses contributing evidence to the psychotherapy-outcome association has been published (Wampold & Imel, 2015), also in treatment of youths (e.g., Weisz, Weiss, Han, Granger, & Morton, 1995). Today, there is little controversy regarding whether or not psychotherapy in general has a positive effect. In a rigorous review of research on psychotherapy effects, Wampold and Imel (2015) concluded that a conservative estimate of the effect size of psychotherapy is .80, which is considered a large effect according to Cohen (1988). Wampold and Imel (2015) further wrote: “simply stated, psychotherapy is remarkably efficacious” (p. 94). Since psychotherapy in general is established as efficacious, the question of how it works follows naturally. The questions of why and how psychotherapy works, have laid ground for process-outcome research.

Process outcome research aims to delineate mechanisms of change in treatment (Shirk & Karver, 2006). By identifying these mechanisms, one could improve effects of psychotherapy by modifying and optimizing factors contributing to outcome in therapy. Within process-outcome research, some focus on specific and unique ingredients of different therapies, while others focus on factors common to different therapeutic approaches (Wampold & Imel, 2015). Even though there is disagreement of which factors are common to all therapies, and which common factor contributes the most to outcome in therapy, most emphasize the importance of the clients’ contribution to psychotherapy process and outcomes (Bohart & Wade, 2013). In essence, there would be no therapeutic relationship without client contribution, as relationships arguably constitute at least two participating individuals. In addition, clients must be involved in, and be collaborative during the therapeutic process, to produce beneficial outcomes.

Even though process outcome research has gained relatively much empirical attention in adult psychotherapy research, this area of research has received far less attention within child and
adolescent (from now on referred to as youth, unless further distinctions are necessary) psychotherapy research (Shirk & Karver, 2006). However, there has been an increase in the amount of research on processes in youth psychotherapy in later years (Karver, Handelsman, Fields, & Bickman, 2005; Kendall, Settipani, & Cummings, 2012). However, research has been criticized for not relating processes to outcome, and when this actually is done, it is done within treatments of unknown efficacy (Shirk & Karver, 2006). Consequently, within youth therapy, research linking processes to outcome in known efficacious treatments is warranted.

1.2 Anxiety in youth

Anxiety in childhood is a common phenomenon, and exists on a continuum, with some levels of anxiety being adaptive at different ages (Pine & Klein, 2010). Arguably, anxiety may serve as a protective mechanism when it heightens vigilance in threatening situations. For example, most infants and toddlers become anxious and cry for help when parents leave them alone in a room, or when strangers approach them. Persisting and extreme levels of anxiety however are probably more likely to represent anxiety as a diagnosable disorder (Pine & Klein, 2010). When youths still experience extreme levels of anxiety if separated from parents in grade school, or even early teens, it may be a significant source of distress in addition to hindering social development.

Anxiety disorders is the most common form of psychological disorder in childhood and adolescence (Pine & Klein, 2010; Silverman, Pina, & Viswesvaran, 2008). An estimate of current prevalence of any anxiety disorders in youth population is 5-10% (Pine & Klein, 2010; Silverman et al., 2008). Separation anxiety disorder (SAD) is the most prevalent disorder in pre-adolescents, and social phobia (SoP) and general anxiety disorders (GAD) more common in adolescence (Pine & Klein, 2010).

Youth anxiety disorders are shown to potentially have several negative consequences. Youth anxiety is linked to reduced academic and social functioning (Kendall & Ollendick, 2004; Mychailyszyn, Méndez, & Kendall, 2010). In addition to causing distress itself, anxiety disorders often present with comorbid conditions, such as other anxiety disorders, depression, conduct disorder and substance abuse. (Pine & Klein, 2010), causing further distress. Furthermore, youth anxiety has been linked with both anxiety and depression in adulthood (Alpert, Maddocks, Rosenbaum, & Fava, 1994; Keller et al., 1992). The frequency of anxiety disorders in childhood and adolescence in combination with the severe impact anxiety
disorders may have on individual and family functioning, is imperative for researching, developing and implementing effective treatments of youth anxiety.

1.3 Efficacy and effectiveness of CBT treatment of youth anxiety

A distinction between efficacy and effectiveness is usually made within psychotherapy research. Studies of efficacy are typically performed in university clinics, with rigorous control over confounding variables (e.g., sample homogeneity, therapist education, training, and workload and treatment delivery). This control is necessary to establish reliable estimates of causality between a treatment and its’ effects. This high internal validity often comes at the expense of external validity or generalizability of results to naturalistic setting. Studies of effectiveness on the other hand, are conducted outside university clinics, to represent treatment in real world settings as closely as possible. Studies of effectiveness are more typically conducted in naturalistic settings, such as outpatient community clinics where control over confounding variables is naturally limited. This means that estimates of efficacy do not necessarily reflect effectiveness in naturalistic settings, and tests of both efficacy and effectiveness should be conducted when evaluating a treatment (Chambless & Hollon, 1998; Southam-Gerow et al., 2010).

Randomized controlled trials researching efficacy of CBT in treatment of youth anxiety have generally showed large effect sizes (Seligman & Ollendick, 2011), and CBT is shown to be an efficacious treatment of mixed anxiety disorders in youth, in comparison with no treatment control conditions (i.e., waitlist) (Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington, 2004) and active treatment control conditions (Reynolds, Wilson, Austin, & Hooper, 2012). In fact, CBT is now considered an empirically supported treatment (EST) of youth anxiety according to the criteria set by division 12 of APA (Kazdin & Weisz, 1998; Silverman et al., 2008), which to a great extent relies on empirical support from efficacy trials.

Studies of effectiveness of CBT in treatment of youth anxiety are much sparser in amount. Because of this, there is some controversy regarding transferability of results from efficacy trials to naturalistic settings (Kazdin & Nock, 2003). A majority of effectiveness studies on treatment of youth anxiety report recovery rates in line with results from efficacy trials (e.g.
Barrington, Prior, Richardson, & Allen, 2005; Southam-Gerow et al., 2010). However, one study only found a 28% recovery rate for family-focused CBT conducted in a community health clinics on 128 clinically referred youths with anxiety disorders (Bodden et al., 2008). In addition, one recent study comprising 182 youths with anxiety disorders, investigating effectiveness of CBT conducted in an outpatient community clinic, reported recovery rates of 23% (Wergeland et al., 2014). The latter study was part of the ATACA study, the same research project as the current study is a part of.

1.3.1 The ATACA study

The Assessment and Treatment - Anxiety in Children and Adults study (ATACA) was a large scale randomized controlled effectiveness trial where manualized ESTs were delivered in regular mental health clinics. ATACA comprised a youth trial and an adult trial. The youth trial comprised 182 youths with anxiety disorders. The current study is a part of the youth trial, from which several articles on results already have been published (Fjermestad, Haugland, Heiervang, & Öst, 2009; Fjermestad et al., 2015; Fjermestad et al., 2012; Wergeland et al., 2016; Wergeland et al., 2014; Wergeland et al., 2015).

Complicating factors

Even though some points to recovery rates ranging up towards 60% for youth with anxiety disorders treated with CBT (Seligman & Ollendick, 2011), this still leaves a lot of youth ending treatment still suffering from anxiety disorders. In fact, empirical data suggests that 20-60% of youth with anxiety disorders do not respond adequately to treatment (Silverman et al., 2008), and one review concludes that one third of youth entering treatment maintains a diagnosis at the end of the treatment (Cartwright-Hatton et al., 2004). In addition, youths dropping out from treatment prematurely is a substantial problem in community clinics. Dropout rates have been reported up towards 50% in community clinics (de Haan, Boon, de Jong, Hoeve, & Vermeiren, 2013). Considering that youth dropping out of treatment prematurely fail to receive an adequate dose of CBT, many of these youths are also likely to end treatment still suffering from anxiety, and may represent a dark figure in studies reported effects (Chambless & Hollon, 1998). There are several reasons as to why effectiveness rates may be lower than efficacy rates (therapist educational background, workload and client characteristics). For example, youths referred to community clinics differ from youth in university clinics by having more comorbid disorders, more often come from single parent
and low income families and function more poorly in school, in comparison with youths in research clinics (Southam-Gerow, Chorpita, Miller, & Gleacher, 2008). Consequently, they may require more individualized and tailored treatments to achieve successful outcomes. In sum, high rates of poor responders and dropouts from treatment, certainly emphasizes potential improvements of CBT as treatment of youth anxiety in community clinics.

Recognizing potential rooms for improvement of CBT in treatment of youth anxiety in outpatient community clinics, should be an imperative to focus on process-outcome studies. Process-outcome research may cast light upon how CBT works in interaction with anxious youths and their families. Knowledge of this may potentially lead to improvements of CBT. First, process-outcome research may help identify which components of CBT are vital in treatment of youth anxiety. Second, and importantly, it may help identify which factors important to outcome, that also are amenable to change during therapy (e.g., client factors like hope or motivation or factors related to treatment delivery such as alliance). This may allow for tailoring treatment to individual needs and may distillate and potentiate CBT as a treatment of youth anxiety in outpatient community clinics, both by enhancing general effects, but possibly also by reducing dropout.

1.4 Treatment satisfaction

Traditionally, when investigating treatment effects, outcome measures are typically related to assessments of diagnostic recovery and improvement of specific symptoms related to a disorder. Although diagnostic recovery and symptomatic improvement is an important part of effect, there are some caveats when relying on it as sole measures of outcome. For one, single outcome measures may be too narrow to encompass all the effects of psychotherapy and may contribute to an underestimation of treatment effects, especially in naturalistic settings (Hoagwood, Jensen, Petti, & Burns, 1996). For example, use of CBT in treatment of youth anxiety may produce secondary gains (e.g., improved youth social skills, or improved parenting strategies) in addition to diagnostic recovery, or symptom relief (Liber et al., 2008). Second, an exclusive focus on diagnosis or symptoms do not inform of the subjective valence of outcome, which may vary according to youth experiences, life-situation and preferences (Hoagwood et al., 1996). For example, symptom improvement may sometimes partly reflect transient fluctuations actually originating in endogenous biologically processes relating to
puberty or natural maturation (Hoagwood et al., 1996). Hence, to some youths, symptom improvement alone may not reflect a meaningful outcome.

One way to address these issues, is to study outcome in additional domains to diagnosis or symptoms (Chambless & Hollon, 1998; Hoagwood et al., 1996). Several researchers propose or support satisfaction as an important part of outcome in psychotherapy research (Fjermestad, McLeod, Tully, & Liber, 2016; Hoagwood et al., 1996). Client satisfaction measures may offer insight into the valence of the effect of psychotherapy to a given youth, and may be more sensitive to capture secondary gains of treatment. Furthermore, it may capture and enlighten instances where youths experience adverse effects as a result of entering treatment, which is important and partly neglected in psychotherapy research (Chambless & Hollon, 1998). Following this line of argumentation, client satisfaction measures may represent a unique and important perspective, as it may have incremental validity to symptom improvement measures when assessing effects of psychotherapy.

In psychotherapy research, satisfaction is referred to as client-, or treatment satisfaction, and usually involves the appeal, acceptability and approval of the treatment clients have received (Fraser & Wu, 2015). Intuitively, treatment satisfaction could seem to be closely related to symptom improvement, considering that clients who experience a significant improvement in symptoms as a result of therapy, probably are more satisfied with the therapy than those who did not experience such an improvement in symptoms. However, research on the relationship between treatment satisfaction and symptomatic improvement has failed to consistently establish such an association (Fraser & Wu, 2015), suggesting that even though it possibly is associated with pathology change, treatment satisfaction is a separate outcome domain with incremental validity.

There are several reasons as to why treatment satisfaction is an important outcome domain in treatment conducted in naturalistic settings. First of all, patient perspectives on treatment is important in itself, and knowledge of when youths experience adverse effects of psychotherapy is especially important in outpatient clinics with relative high rates of poor responders and premature dropout. Second, psychologists have professional guidelines which validates surveying treatment satisfaction. The American Psychological Association (APA) has in their definition of Evidence Based Practice in Psychology (EBPP), emphasized the importance of patient preferences (Levant, 2005). By use of satisfaction measures, therapists
can survey how youths and parents experienced the delivered treatment. If a treatment is satisfactory for groups of patients, then it is more likely to be in accord with their preferences. Third, in the past decades the increasing demands for cost-effective treatments has put pressure on psychology to produce standardized treatments for groups of patients with similar symptoms or diagnoses (e.g., anxiety). As a response to this pressure, lists of ESTs are published and reviewed frequently, also in the field of youth treatment (e.g. Silverman et al., 2008). When ESTs (e.g., CBT for youth anxiety) are delivered to complete patient groups, there exists a risk, that individual clients do not find treatment appropriate or satisfactory, and this is important to monitor. Fourth, ESTs such as CBT for youth anxiety should be delivered in accord with a treatment manual (Chambless & Hollon, 1998). Treatment manuals are typically cogent descriptions of treatments, with to a certain extent standardized instructions on how to deliver the treatment (Chambless & Hollon, 1998). Many therapists are sceptical of delivering manualized treatments. They express concerns about manualized treatments having a dehumanising effect on treatment by reducing clinicians to technicians, and concerns of manuals reducing creativity, reducing possibility of tailoring treatment to clients’ individual needs and undermining alliance (Addis & Krasnow, 2000). Satisfaction measures can help therapists survey clients experience of receiving manualized treatments. In sum, satisfaction measures are not only warranted in outpatient community clinics due to professional guidelines and political pressure on therapists to implement cost-effective treatments, it is necessary to survey how anxious youth and their parents experience treatment delivered in accord with a standardized treatment manual.

This study aims to investigate common process factors in individual CBT (ICBT) and group based CBT (GCBT) delivered in outpatient community clinics in treatment of youth anxiety. Process factors will be linked to an important, but understudied outcome domain, treatment satisfaction. The use of treatment satisfaction as outcome is applied to help cast light upon how youths and parents experience participating in a manualized based treatment in outpatient community clinics.
2 Theoretical and empirical background

2.1 A model of common process factors in youth and family therapy

Process research is often conducted studying processes in isolation, and without a grand theory or model guiding the research. As a response to this, Karver and his associates introduced a model of common process factors (Karver et al., 2005; Karver, Handelsman, Fields, & Bickman, 2006). The model delineates how different common factors are organized and interact during therapy to produce outcome (see figure 1).

Figure 1

*Model of common process factors in youth therapy*

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In essence the model illustrates how client (i.e., youths and parents) and therapist characteristics interact and affect therapists’ perception of, and feelings toward the client, which further influence therapist behaviour. Client characteristics interact with therapist behaviour and affects clients’ perception of therapist credibility, which further affects how susceptible clients are to therapy, cognitively, affectively and behaviourally. Focusing on this third part of Karver et al.’s (2005) model, and distilling it, the model depicts how clients perception of therapist credibility affects clients willingness to participate, affect towards the therapist and client participation in treatment. Affect toward therapist and willingness to
participate are in a reciprocal relationship, mutually affecting each other. Willingness to participate affect actual participation. These three factors in combination again affect outcome.

These dynamic processes illustrated by the model, occurs at the start of treatment as well as throughout treatment and ultimately influences treatment outcome (Karver et al., 2005). This is of particular interest, because hypothetically, if therapists actively could modify specific process factors during therapy (e.g., therapist credibility, willingness to participate, actual participation or affect toward therapist), then outcome would be modified accordingly. In effect, the model both illustrates concrete areas of focus for enhancing tailoring of treatment to individual clients, as well as addressing modifiable proxies of outcome, which could help enhance general effectiveness of CBT in general.

Karver et al.’s (2005) model has a strong theoretical rationale, but has received little empirical attention. No study has directly tested Karver et al.’s (2005) theoretical relationship between these process factors. In this study, elements of the model will be tested empirically using constructs linked to therapist credibility, willingness to participate, and affect toward therapist, namely treatment credibility, client motivation, and therapeutic alliance. There are mainly two arguments supporting using these linked process factors, as opposed to those originating in the model. For one, treatment credibility, motivation, and alliance are conceptually linked to those in the model. Treatment credibility is linked with therapist credibility, because therapists are inherently linked to a therapy as well as perceived professional representatives for therapy. Willingness to participate in treatment comprises factors such as readiness to change through treatment, desire for therapy, perceived importance or relevance of therapy, commitment to therapy, and clients’ self-efficacy regarding whether they have the capability to change through therapy (Karver et al., 2005). Willingness to participate in treatment, thus parallels common definitions of client motivation (Keijsers, Schaap, Hoogduin, Hoogsteyns, & de Kemp, 1999). Affect toward therapist is included in most definitions of the working alliance in CBT (Bordin, 1979; Fjerestad et al., 2016). Second, when the current study was planned, reliable and well-validated measures of treatment credibility, motivation and alliance were already translated into Norwegian, and administrative decision were made to use these measures. Taking this into consideration, the use of treatment credibility, motivation and alliance in this trial will allow for more theoretical and empirical foundations for drawing hypothesis and discussing results. This study will, with theoretical foundations in Karver et al.’s (2005) model, investigate how the process factors
treatment credibility, client motivation and alliance are associated with each other, and their influence on treatment satisfaction.

Few, if any studies have tested relationships between credibility, motivation and alliance in treatment of youths. A few studies have investigated the association between credibility and motivation directly. In research on 76 youths with oppositional, aggressive, and antisocial behavior, and their parents treated with parent management training in an outpatient clinic, parent rated treatment credibility was moderately correlated with parent rated motivation. (Nock, Ferriter, & Holmberg, 2007). Previous published research papers from the ATACA study have reported some correlations between these process factors within the complete or parts of the sample in this study. Wergeland et al. (2015) investigated predictors of dropout from treatment and reported that in the current sample youth rated motivation was moderately correlated with youth rated treatment credibility. Fjermestad et al. (2012) investigated the factor structure of Coding System for Child Psychotherapy–Alliance Scale (TPOCS–A) on a subsample of 52 youths drawn from the same sample used in the current thesis. They reported that in that subsample treatment credibility was moderately and significantly correlated with motivation and alliance. Even though there is little research investigating associations between motivation, treatment credibility, and alliance, these constructs seem moderately correlated, suggestive of them being associated but not completely overlapping process factors.

### 2.2 Motivation

There is not a pan-theoretical agreed upon definition of motivation in psychotherapy. However, several researchers and clinicians include readiness to change one’s behaviour as a part of client-motivation (Bohart & Wade, 2013; De Nadai & Karver, 2013; Keijzers et al., 1999). In CBT, several researchers have conceptualized motivation as a readiness to change prior to psychological treatment. This conceptualization has included acknowledgement of problems, level of distress, and commitment for change (Keijzers et al., 1999). In this paper, motivation will refer to this conceptualization.

The concept of motivation has further been elaborated and differentiated. Readiness to change has been defined as a process in the stages of change model (Prochaska, DiClemente, & Norcross, 1992), consisting of five different phases. First is a phase where clients have not yet considered behaviour change (precontemplation phase), followed by a phase where clients
consider changing their behaviour, but still feel ambivalent about it (contemplation phase). In the next phase, clients begin planning behavior (preparation phase). Finally, clients work actively on changing their behavior or maintaining behavior change (action phase and maintaining phase). Another important differentiation is if motivation is mainly internally or externally grounded (Bohart & Wade, 2013). This differentiation refers to the hypothesis that motivation can originate from clients’ own awareness of intrinsic processes such as interests and need for behaviour change, or motivation may originate from external promises of punishment of reward or others expectations of behaviour change.

Motivation may be a crucial factor in treatment of youth with anxiety. A youth with extensive and persisting separation anxiety, presenting to treatment with low motivation, may be difficult to engage sessions and in exposure plans involving separation from parents.

### 2.2.1 Motivation and outcome

There are conflicted findings on the motivation-outcome association in general psychotherapy (Bohart & Wade, 2013; Keijzers, Schaap, & Hoogduin, 2000). Research on this association from treatment of adults with anxiety disorders have produced more homogenous results, and have mainly reported that motivation significantly affects outcome (Keijzers et al., 2000). Furthermore, when motivation is defined as a multiphased concept, where clients’ readiness for change varies along the five phases from precontemplation to maintenance, clients in later phases typically have better outcomes (Norcross, Krebs, & Prochaska, 2011). Investigation of how motivation relates to outcome in psychotherapy with youths however, is somewhat sparse. In his review of research on alliance-outcome associations in youth therapy, McLeod (2011) found a substantially larger effects of alliance on outcome when youths were treatment seeking, in comparison with youth that were recruited of mandated to treatment. This may indicate a relationship between alliance and motivation, if one assume that treatment-seeking youth are more motivated for treatment than recruited or mandated youth, and not just brought to therapy by their parents. Adelman, Kaser-Boyd, and Taylor (1984) investigated how motivation related to different short term outcomes in university clinic treatment of 42 youths with various disorders. They found that motivation moderately affected outcome. A recent trial from the ATACA study investigated predictors of immediate and long term outcome of CBT. Youth motivation was a significant predictor of diagnostic recovery one year after end of the treatment (Wergeland et al., 2016). That study lends support to an existing trend from multiple studies of motivation-outcome associations within psychotherapy. Self-reported
measures of motivation is stronger associated with outcome compared to observational measures of motivational behaviour or therapist ratings of client motivation (Bohart & Wade, 2013; Keijsers et al., 2000).

2.3 Treatment credibility

Treatment credibility is defined as how logical, plausible, convincing or believable a treatment seems to the client (Constantino, Arnkoff, Glass, Ametrano, & Smith, 2011; Kazdin, 1979). Treatment credibility is hypothesized to arise as a result of direct experience with treatment or therapist, or as a result of gaining knowledge about treatment (e.g., upon hearing treatment rationale and content) (Constantino et al., 2011; Greenberg, Constantino, & Bruce, 2006). It has been suggested that therapist characteristics and behaviors serve as credibility cues, affecting clients’ perception of therapist credibility (e.g., in form therapists having expertise, and being worthwhile forming an alliance with) (Karver et al., 2005).

Treatment credibility is an important but partly neglected client variable in psychotherapy research (Kazdin, 1979). While several studies include treatment credibility in their assessments, it is often entangled with treatment outcome expectancy (Devilly & Borkovec, 2000), because these concepts are closely related (Constantino et al., 2011). As opposed to treatment credibility, outcome expectancy often entails prognostic beliefs about consequences of engaging in therapy (Constantino et al., 2011; Kazdin, 1979), and thus is closer related to clients hope or faith (Devilly & Borkovec, 2000). Research on treatment credibility and expectancy has supported separation of these constructs (Devilly & Borkovec, 2000; Nock et al., 2007). In this paper, treatment credibility is investigated separately from outcome expectancy, and is conceptualized in line with Kazdin (1979) as how believable, convincing and logical a treatment is.

Treatment credibility may be central in treatment of youth anxiety. A youth presenting to treatment with social phobia, having no beliefs that the treatment offers a logical, plausible or convincing explanation or treatment for his or her condition, may be harder to engage in sessions and especially in demanding and uncomfortable tasks such as exposure. In some cases, the youth may possibly decide to discontinue treatment all together.
2.3.1 Association between treatment credibility and outcome

Research on how treatment credibility affects outcome in general psychotherapy has shown that there is some indication of an association between credibility and outcome, but this association has received mixed empirical support (Devilly & Borkovec, 2000). Within therapy of youth with anxiety disorders, treatment credibility has not been found to predict outcome (Hudson et al., 2009; Rapee, 2000). Rapee (2000) investigated effects of GCBT on 95 youths with anxiety disorders treated in a university clinic. They also investigated if parent rated treatment credibility predicted symptomatic improvement. Treatment credibility was rated by parents after they were informed about treatment rationale and content. The authors did not find treatment credibility to predict symptom improvement. In another study, Hudson et al. (2009) compared GCBT with a control group treatment, in treatment of 112 youths with anxiety disorders treated in a university clinic. In that study, treatment credibility was also rated by parents after they were informed about treatment rationale and content. The authors did not find treatment credibility to have a significant association with symptom improvement. However, these studies have left several questions unanswered. First, both studies were conducted in university clinics, and treatment credibility ratings may differ in outpatient community clinics. Treatment credibility ratings in university clinics may be biased by characteristics related to the research setting. For example, treatment rationale and content may be presented more cogently as a result of treatment often being manualized and structured accordingly, or as a result of specialized therapists presenting treatment. Second, in both these studies, treatment credibility was examined in the context of GCBT and not ICBT, and because of that, it cannot be ruled out that there is an association between treatment credibility and outcome in ICBT for youth anxiety. Furthermore, in both studies treatment credibility was rated by parents and not by youths in treatment, leaving the possibility that youth ratings of treatment credibility may be associated with outcome.

2.4 Alliance

Psychotherapy occurs in context of an interpersonal relationship (Shirk & Saiz, 1992). The relationship between a client and a therapist has been under heavy theoretical scrutiny and empirical investigations, both in context of therapy with adults and with youths (e.g. Bordin, 1979; Shirk & Saiz, 1992), and is commonly referred to as the alliance. Edward Bordin (1979) made a pan-theoretical definition of the working alliance, later adopted by many
researchers and clinicians, including many practicing CBT (Karver et al., 2005). The
definition of Bordin’s working alliance included three dimensions, agreement on therapeutic
goals, agreement on therapeutic tasks and the development of an emotional bond. The goal
dimension refers to agreement between client and therapist on the goals of therapy, the task
dimension constitutes the agreement on, and participation in the different therapeutic tasks
and the bond dimension refers to the affective aspects of the client therapist relationship. In
this paper the term alliance will refer to bond and task dimensions of Bordin’s (1979) alliance.
These dimensions have received the most empirical attention in the youth field (McLeod,
2011; Shirk, Karver, & Brown, 2011), partly because there is controversy of whether children
have the cognitive capacity to agree upon long-term goals (Shirk & Saiz, 1992).

The alliance is not thought to be a construct that remains static through the course of therapy
(Wampold & Imel, 2015), and research has shown that the quality of the alliance changes
over therapeutic course in CBT with anxious youths (Chu, Skriner, & Zandberg, 2014;
Kendall et al., 2009). Alliance fluctuations might be caused by tasks in therapy putting
pressure on the alliance (e.g., exposure tasks), or by external events in the youth’s life (e.g., a
fight with the parents) (Wampold & Imel, 2015). Alliance fluctuations necessitates measuring
alliance on several occasions during the course of therapy, in order to gain a proper
understanding of how alliance influences process and outcome of therapy (Fjermestad et al.,
2016). However, research on alliance growth in treatment of anxious youths is limited (Chu et
al., 2014). Kendall et al. (2009) investigated alliance growth over 16 sessions of therapy with
86 anxious youth being treated in a university clinic with either family based CBT or family
educational support. Alliance was measured from both youths’ perspective and therapists’
perspective at the end of each session. They found both youth rated and therapist rated
alliance to increase consistently during treatment, even though growth rate was higher before,
compared to after onset of exposure tasks. Chu et al. (2014) investigated alliance growth over
16-20 sessions of ICBT with 69 youths with anxiety disorders being treated in a university
clinic. They measured alliance from therapists’ perspective at the end of each session, and
from youths’ perspective at the end of every fourth session. They found that therapists’ ratings
of alliance showed alliance growth during the course of therapy, even though this growth
decreased after onset of exposure. They could however, not fit any growth model to youths’
ratings of alliance. In sum, existing research on alliance growth curves in CBT with youths
having anxiety disorders indicates that alliance growth is steepest early in treatment, and that
growth, even though it still is positive, decreases some after initiation of exposure tasks (Chu et al., 2014; Kendall et al., 2009).

Alliance is thought to play a crucial role in treatment of youth anxiety. A youth with anxiety, not trusting the therapist, or not feeling understood or that it is okay to collaborate with the therapist, may disengage from treatment, possibly not wanting to come back.

2.4.1 Association between alliance and outcome

Early meta-analysis of associations between alliance and outcome in youth therapy, found effect sizes that suggested a small to moderate association between the therapeutic relationship and outcome. Shirk and Karver (2003) found an average effect size of .22 and Karver et al. (2006) found an average effect-size of .21. These effect sizes were consistent with the estimates found in therapy with adults (Horvath, Del Re, Flückiger, & Symonds, 2011; Wampold & Imel, 2015). However, a more comprehensive and recent meta-analysis from research on psychotherapy with youths suggests that the effect of alliance on outcome, may be smaller than first estimated. McLeod (2011) did a meta-analysis aiming to clarify the strength of alliance and outcome association in youth therapy. He found an average effect size of .14. This effects size estimate classifies as a small effect size. Of importance is that in that meta-analysis, simultaneous post treatment assessment of alliance and outcome was not an exclusion criterion. In effect, that means the association could reflect how improved outcome affect alliance. Shirk et al. (2011) did a meta-analysis of studies investigating prospective relationship between alliance and outcome in youth therapy. This means that alliance had to be measured prior to outcome, and consequently the result offers increased possibility of causal inferences. They found an effect size of .22. In sum, alliance has consistently been shown to be associated with outcome in youth therapy, but the exact magnitude of this association is uncertain.

It has been suggested that changes in alliance may be the predictive element of outcome (Bickman et al., 2012). This hypothesis has received some empirical support. Bickman et al. (2012) developed a brief measure of alliance, and investigated how alliance change rated by youths, therapist and parents were associated with outcome in outpatient treatment of 288 youths with mixed clinical disorders. They found that therapist rated alliance change predicted ratings of symptom improvement from multiple informants.
Some have questioned the direction of the relationship between alliance and outcome. Arguably, it is logical that the quality of the alliance affects outcome, but it is also possible that early symptom change serves to improve the alliance. Hence, it is possible that alliance and outcome is in a mutual relationship, affecting each over the therapy course. Marker, Comer, Abramova, and Kendall (2013) investigated if alliance and outcome is in a reciprocal relationship in a sample of 86 youths with anxiety disorder treated with CBT in a university clinic. They measured youth report of experienced anxiety the last week in the beginning of each session, and alliance from youths’, fathers’ and therapists’ perspective after each session using an alliance measure. They found that therapist rated alliance change predicted symptom improvement, but also found that youth reported anxiety reduction predicted therapist and father rated alliance. This supports the idea that alliance and outcome is in a reciprocal relationship, mutually affecting each other over the course of therapy.

A few studies have investigated how alliance is related to treatment satisfaction in youth treatment. In his meta-analysis, McLeod (2011) found a significantly larger effect of alliance on outcome when consumer satisfaction (ES = .36) was assessed as outcome, in comparison to symptoms (ES = .13). Hawley and Weisz (2005) investigated associations between different alliances in youth therapy and treatment retention, outcome and satisfaction in a mixed patient group with 65 youths from outpatient treatment clinics. Among other things, they found that alliance between parent and therapist predicted parents’ treatment satisfaction, and alliance between youth and therapist predicted youths’ treatment satisfaction. They note however, that the results may be biased due to shared method variance, since the same informants filled in both alliance ratings and satisfaction ratings. Ormhaug, Shirk, and Wentzel-Larsen (2015) investigated how youth and therapist ratings of alliance related to outcome in trauma focused CBT delivered in outpatient community clinics in Norway. In a sample of 156 youths they found that both youth and parent ratings of alliance in session 6 of treatment predicted treatment satisfaction after completion of treatment. A previous published article from the ATACA study, investigating how various aspects of alliance predicted different outcomes in a subsample of 91 youths drawn from the same sample used in this study. They found that within ICBT youth rated early alliance predicted treatment satisfaction (Fjermestad et al., 2015).
2.5 **Group therapy**

In search for ways to maximize CBTs efficiency, there is also empirical interest in examining whether more cost-effective formats of implementation, such as group delivered CBT influence effects when treating youth anxiety.

### 2.5.1 Efficacy and effectiveness of GCBT

In a meta-analysis of the effect of psychotherapy in treatment of youth anxiety, Reynolds et al. (2012) found that GCBT had a medium effect size compared to control conditions, while ICBT had large effect size compared to control conditions. In that meta-analysis however, outcome was measured solely as self-report symptom improvement, which in itself may serve as a serious limitation when estimating effects of treatments (Chambless & Hollon, 1998; Hoagwood et al., 1996). Studies comparing relative efficacy (e.g., Liber et al., 2008; Manassis et al., 2002) and effectiveness (Wergeland et al., 2014) of ICBT and GCBT directly, suggests that ICBT and GCBT are equally effective. Manassis et al. (2002) investigated if 78 youths with anxiety disorders treated in a university clinic would benefit more from either ICBT or GCBT. They found ICBT and GCBT to be equally effective treatment modalities. Liber et al. (2008) investigated relative efficacy of ICBT and GCBT delivered in a university clinic in treatment of 127 youths with anxiety disorders. They did not find any difference in efficacy between ICBT and GCBT. The Wergeland et al. (2014) was part of the ATACA study and compared effectiveness between ICBT and GCBT in a regular outpatient community clinics. They did not find difference in effect between ICBT and GCBT. Taken together, these studies suggest that ICBT and GCBT are equally effective in treatment of youth anxiety.

### 2.5.2 Treatment credibility in group treatment

There are no studies directly comparing treatment credibility in ICBT and GCBT treatment of youth anxiety. There are however, some reasons as to why treatment credibility may differ between ICBT and GCBT. On one hand, in GCBT, the notion of attending psychotherapeutic treatment alongside with peers, may be anxiety provoking to youths with anxiety disorders, especially those with social anxiety. This could negatively affect treatment credibility of GCBT. On the other hand, there are strong and unique therapeutic elements in GCBT which could enhance credibility in comparison with ICBT. GCBT offers a unique setting for peer
normalization, peer modelling and social support, in addition to providing a continuous setting for social exposure training among peers (Manassis et al., 2002).

### 2.5.3 Alliance in group treatment.

Alliance in GCBT may not be conceptually comparable to alliance in ICBT, because there are several elements complicating the alliance in GCBT. For one, in group therapy, there exists multiple simultaneous individual client-therapist alliances. In addition, there are simultaneous parallel therapeutic relationships between clients in the group, but also between clients and the group itself (Joyce, Piper, & Ogrodniczuk, 2007; Lerner, McLeod, & Mikami, 2013; Yalom, 1985). The relationships between clients in a group, and between clients and the group is often referred to as group cohesion (Joyce et al., 2007; Yalom, 1985).

Empirical investigations have suggested that alliance and cohesion are partly overlapping constructs (Johnson, Burlingame, Olsen, Davies, & Gleave, 2005; Lerner et al., 2013), but may have separate associations with outcome in group therapy (Joyce et al., 2007). For example Joyce et al. (2007), investigated aggregate alliance and cohesion scores predictive ability of outcome in group treatment of 139 adults with complicated grief and social role dysfunction. Participants did either receive group supportive therapy or group interpretative therapy in a university clinic. They found patient rated alliance to be a better predictor of outcome in addition to cohesion and alliance having different associations with outcome.

Individual therapy on the other side, may offer increased opportunities to address individual needs of each client and tailor treatment accordingly (Wergeland et al., 2014). Examples of such needs might be involving parents or families in therapy, helping to solve practical problems outside therapy or reschedule appointments. This is likely to increase clients’ involvement in therapy, and consequently also alliances, since alliance and involvement are shown to influence each other during the course of therapy (McLeod et al., 2014).

In sum there are several elements complicating the alliance in GCBT. Alliance in GCBT are complicated by several existing parallel relationships in the group. Alliance may conceptually differ from alliance in ICBT. Furthermore, the alliance outcome association in GCBT may be different from ICBT, due to cohesion having a different association with outcome in addition to alliance in GCBT.
2.6 Developmental perspectives

Treatment with youths differ from treatment with adults in numerous ways. First youths, especially children, do not typically refer themselves to therapy, rather they are referred to therapy often because their immediate environment is concerned about them (Shirk & Saiz, 1992). Researchers have raised the possibility that motivation for treatment may differ in several ways when it comes to psychotherapy with youths compared to psychotherapy with adults (Karver et al., 2005; McLeod, 2011; Shirk & Karver, 2003). Youths may enter treatment, without awareness insight into their problems why they are referred to therapy, and sometimes they may be in direct conflict with their parents (Shirk & Saiz, 1992). This may cause youths to enter treatment with externally grounded, or suboptimal levels of motivation.

Second, treatment with youths, and especially children often involve parents to different degrees. Parents or caregivers often initiate, plan, organize and consent to treatment, as well as manage attendance (Nock et al., 2007). In addition, helping youths resolving their problems, often involve changing parents’ or caregivers’ behavior as well. Consequently, treatment with youths often entails multiple clients, in form of parent or sometimes whole families. Involving parents in therapy, affects important aspects of treatment. First of all, it necessitates not only making youth perceive treatment as credible, but possibly equally important is to convince parents that treatment is credible, as they often manage treatment adherence (Nock et al., 2007). Furthermore, what makes a treatment seem credible may differ for youths as compared to adults. In addition, treatment with multiple clients may affect alliance in treatment. In youth therapy, involvement of parents and sometimes whole families lead to multiple alliances. Youths may enter therapy with their own goals for treatment, while parents or caregivers have additional and sometimes different goals (Fjermestad et al., 2009; Karver et al., 2005). Developing alliances with both parents and youths require therapists to attend to the multiple perspectives, managing and resolving differences of opinion and negotiating agreed-upon goals for therapy (Shirk et al., 2011).

Third, it has been questioned if youth can give accurate self-report ratings on measures (Elvins & Green, 2008; Kendall & Ollendick, 2004; Shirk & Saiz, 1992). Youths response are varies according to their cognitive, social and emotional development (Kendall & Ollendick, 2004). It has also been stated that youths have developmental constraints that can limit their comprehension of experiences in therapy (Elvins & Green, 2008), and ability to report on
experiences in therapy (Shirk & Saiz, 1992). In addition, youth may be more susceptible to situational pressure to rate or say things nicely (Shirk & Karver, 2003).

### 2.7 Study questions and hypotheses

The first study question pertains to levels of measured process factors: motivation, treatment credibility, alliances and treatment satisfaction in this manualized CBT program delivered in outpatient community clinics.

1a) How satisfied are youth and parents about with the treatment?
1b) Are youth motivated for treatment?
1c) Do youth and parents find treatment credible?
1d) During the course of therapy, to what degree do therapists, youth and parents develop and maintain positive alliances with their therapists?
1e) Are there differences in levels of treatment satisfaction, treatment credibility and alliance between ICBT and GCBT?

There is no specific hypothesis regarding questions 1a, 1b, 1c, 1d and 1e, because there is little empirical data on this matter. Consequently, research questions 1a, 1b, 1c, 1d and 1e are investigated openly. Regarding question 1e, motivation is expected not do differ, as this was measured before allocation to treatment.

The second study question concerns prediction of treatment satisfaction from client motivation, perceived treatment credibility and alliance.

2a) To what degree are motivation, treatment credibility, alliance and treatment satisfaction associated process factors?
2b) Does motivation, treatment credibility, early alliance or alliance change predict youth- or parent treatment satisfaction?
2c) Are there different associations between process factors and/or predictors of treatment satisfaction between ICBT and GCBT?

Regarding question 2a, it is expected that these process factors are associated, but not completely overlapping. That is, small to moderate correlations between these process variables are expected. Regarding question 2b, the hypothesis is that motivation, treatment credibility and alliance predicts treatment satisfaction. Both theory and empirical data
suggests that motivation and alliance should explain variance in treatment satisfaction. Regarding treatment credibility, empirical data are more mixed, but since treatment credibility theoretically is expected to be associated with motivation and alliance, it is also expected to explain variance in treatment satisfaction. There is no specific hypothesis regarding question 2c, due to limited previous empirical and theoretical knowledge.
3 Method

3.1 Participants

The sample consisted of 182 youths and one of their parents (92.0 % mothers). The youths were 8 to 15 years old ($M = 11.5, SD = 2.1$). The sample comprised 96 girls (52.7%) and 86 boys (47.3%). The youths were recruited between 2008 to 2010 from referrals to seven outpatient treatment clinics for youths in the western region of Norway. Inclusion criteria were a principal diagnosis of either separation anxiety (SAD), social phobia (SoP) or generalized anxiety disorder (GAD) based on a structured interview following criteria set by the DSM-IV (American Psychiatric Association, 1994). Exclusion criteria were pervasive developmental disorder, psychotic disorder and/or mental retardation. Youths on psychotropic medication were included if dosage had been stable at least three months before study start, and the dosage did not change during the study ($n = 11, 6.0\%$).

Of the youths, 165 were Caucasian (90.7%), three participants were Asian (1.6%) and the rest ($n = 14, 7.7\%$) did not report ethnicity. Using the Registrar General Social Class coding scheme (Currie et al., 2008), parents’ occupational status was classified as high (30.7%), medium (50.5 %) or low (7.7 %). For the rest of the families (11.1%) social class was unknown. Most of the youths lived in two-parent households ($n = 105, 57.7\%$), 36 (19.8 %) lived in single-parent households, 24 (13.2%) lived with a biological parent and a step-parent and three (1.6%) lived with foster parents. 14 (7.7%) did not report living status.

Youth were randomly assigned to either ICBT ($n = 77$) GCBT ($n = 67$) or to a 10-week wait list (WL) ($n = 38$). Those assigned to WL were later randomly assigned to either ICBT or GCBT and were included in the present analyses. During the 10-week wait, one subject improved and no longer met inclusion criteria, and were excluded from the study. A total of 26 youths (14.4%) dropped out before treatment ended, including two who dropped out before treatment start. This resulted in a total of 91 youth participating in the ICBT condition and a total of 88 youth participating in the GCBT condition.

The principal diagnoses of the youth were SoP ($n = 84, 46.4\%$), SAD ($n = 59, 32.6\%$), and GAD ($n = 38, 21.0\%$). Among the youths, 141 (77.9%) had at least one comorbid disorder.
Amongst these, 125 (69.1%) had an additional diagnosis of SAD, SoP or GAD, 25(13.8%) had other specified anxiety disorders. Additionally, there were 21 youths (11.6%) with comorbid depression, 16 youths (8.8%) with comorbid externalizing disorders (oppositional defiant disorder and/or ADHD), and 12 youths (6.6%) with comorbid tic disorders.

3.2 Therapists

There were 17 participating therapists (\(M\) age = 48.2 years, \(SD\) 11.0, range 30.0 - 63.0, 94% females). Therapists had on average 10.8 years of clinical experience (\(SD\) 6.3, range 3.0 – 27.0 years). Among the therapists, 10 were clinical psychologists, six clinical pedagogues, and one a clinical social worker. All therapists were all regular employees at the participating clinics, volunteered for the study, and conducted the treatments as part of their ordinary workload. Of the 17 therapists, five had completed a 2-year education in CBT. The remaining therapists had minimal training in CBT prior to the study. All therapists attended a two-day workshop on CBT and childhood anxiety disorders in addition to a two-day FRIENDS workshop. Therapists also treated two pilot cases approved by the supervisors before study start.

3.3 Setting

The study was conducted in seven public child and adolescent outpatient community mental health clinics. These clinics covers both urban and rural areas. Youth are most often referred to these clinics by their general practitioners, but may in some instances be referred by child welfare services. Services are free of charge for all families.

3.4 Treatment

Youths in this trial were treated with the FRIENDS program. FRIENDS is a manual based CBT program that addresses cognitive, physiological and behavioural components that act and interact in development and maintenance of anxiety. The program teaches skills like relaxation, identifying and challenging anxious thoughts, problem-solving skills training, social support training. FRIENDS can be delivered in both individual and group treatment formats. Both formats include the same agenda and session tasks. The program runs for 10 weeks with one session each week. Individual sessions are 60 minutes long, and group
sessions are 90 minutes long. FRIENDS is shown to be effective in treatment of youth anxiety disorders (Liber et al., 2008; Shortt, Barrett, & Fox, 2001; Wergeland et al., 2014). As a part of the research project, the FRIENDS manual was translated into Norwegian in a collaboration with the program developer. For each session therapists were instructed about which tasks were essential and which were optional. Exposure exercises were planned in collaboration with youths and parents, and were performed as home assignments starting mid treatment and onwards. Two age-adjusted formats of the program were delivered, a child version (< 12 years) and an adolescent version (> 12 years), youths 12 years of age were assigned to age-format based on clinicians’ assessment of developmental level. Youths missing a session in either condition, were offered an individual catch-up session. Youths absent for more than three sessions were considered dropouts. Parents attended two of 10 youth sessions, in addition to attending the last 15 minutes of the rest of the youth sessions. In addition, parents attended two parent only sessions, prior to session one and six. Parents in the individual treatment condition had individual sessions, and parents in the group treatment condition had group sessions. During parent sessions, program content was explained in detail. Two booster sessions were conducted, one and three months after session 10.

3.5 Measures

In this study motivation, treatment credibility, alliance and treatment satisfaction were measured. Detailed description of the scales applied to measure these process factors will follow. Internal consistency of all scales on this sample were estimated using Cronbach’s α, and α-levels were categorized according to DeVellis (2012) criteria, in which: Cronbach’s α > .80 – very good, Cronbach’s α > .70 – respectable, Cronbach’s α > .65 – minimally acceptable, Cronbach’s α >= .60 – Undesirable and Cronbach’s α < .60 – unacceptable.

NMLc-2 Nijmegen Motivation List–child version 2

The NML is a self-report measure developed for adults to assess motivation for CBT treatment (Keijzers et al., 1999). It has later been modified for use with youths. The NML-c version consists of 15 items (e.g., I think this treatment is the right kind of help for me) rated on a three-point Likert scale (0-2). NML-child version has showed acceptable internal consistency when applied on a sample of 196 youths with specific phobias in Norway (Ollendick et al., 2009).
In this trial, NML was administered pretreatment, before youths had been allocated to either ICBT or GCBT and before they met their therapists. Internal consistency for NML in this sample was very good (Cronbach’s α = .86).

**CS - Credibility scale**

The credibility scale is a self-report measure developed to assess treatment credibility generated by different treatment rationales for adults (Borkovec & Nau, 1972). The CS used in this study consists of four items and focuses exclusively on treatment credibility (*e.g.*, *How confident are you that this treatment will help your anxiety*?), rated on a nine-point Likert scale (0-8). CS has shown discriminative validity between a treatment containing exposure sessions and a treatment without exposure sessions in treatment of youths with specific phobia (Ollendick et al., 2009).

In this trial, CS was administered to both youths and parents in the first session of therapy after they had been allocated to ICBT or GCBT and heard content and rationale of the treatment condition they had been allocated to. Internal consistency of CS in this sample was very good (Chronbach’s α: youths = .84, parents = .82).

**TASC-R Therapeutic alliance scale for children – revised**

The TASC is a self-report measure of alliance, and was developed to assess the child’s experience of the therapeutic relationship (Shirk & Saiz, 1992). Today TASC is widely known and used in research on alliance with children and adolescents (Creed & Kendall, 2005; Ormhaug et al., 2015). TASC was revised (TASC-R) by Creed and Kendall (2005), so that it could be used to assess alliance at multiple sessions during therapy. TASC-R consists of 12 items rated on a four-point Likert scale (1-4). The questions address both the emotional bond (*e.g.*, *I liked spending time with my therapist*) and the agreement on therapeutic tasks component (*e.g.*, *I worked with my therapist to find new ways of dealing with my feelings*) of Bordin’s (1979) alliance construct, but do not address the goal component.

TASC has demonstrated good internal consistency and overall adequate reliability. In his meta-analysis, McLeod (2011) found an average Cronbach’s α of .88 for alliance between child and therapist, and a Cronbach’s α of .81 for alliance between therapist and parents.
Furthermore, TASC-r has shown very good internal consistency in research of CBT for youth anxiety (Creed & Kendall, 2005; Ormhaug et al., 2015).

In this trial all alliances were measured using different versions of TASC-R. Both youth-therapist alliance and parents–therapist alliance were measured (these will be referred to as respectively alliance and parent-alliance in subsequent part of the thesis). The alliance was measured from both youth perspective and therapist perspective, and parent-alliance was measured from both therapist perspective and parent perspective. Furthermore, each alliance was measured twice during the course of therapy, in the third session of therapy and in the seventh session, which will be referred to as respectively early and late alliance in subsequent parts of the paper. Alliance change scores were later calculated by subtracting early alliance from late alliance scores. This gave a total of 12 different alliance variables, where eight were measured and four calculated. Youths filled in TASC without therapists present in the room, and were informed that therapists would not be shown their ratings. This was done to prevent possible ceiling effects caused by youths’ eagerness to please therapists.

Internal consistency of administered TASC versions in this sample varied (see Table 1). All ratings except one, fell in the range of respectable – very good. However, parent ratings of parent-alliance in the seventh session failed to reach acceptable internal consistency ($\alpha = .58$). Closer inspection revealed that by removing one item, internal consistency would increase substantially ($\alpha = .71$). This item was “I felt that the FRIENDS therapist used to much time working at my child’s problems”. As a result, that item was deleted from parent ratings of late parent-alliance in subsequent analyses.

Table 1:

<table>
<thead>
<tr>
<th></th>
<th>Youth Alliance</th>
<th>Parent-Alliance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Youth-rating</td>
<td>Therapist-rating</td>
</tr>
<tr>
<td>Early</td>
<td>.77</td>
<td>.75</td>
</tr>
<tr>
<td>Late</td>
<td>.84</td>
<td>.84</td>
</tr>
</tbody>
</table>
**CSS Client satisfaction scale**

The Client Satisfaction Scale (CSS) is a self-report measure designed to assess clients’ satisfaction with treatment. The scale was developed for this research project, and is modelled after a treatment satisfaction scale used by Barrett, Dadds, and Rapee (1996). The scale comprises ten items (e.g., “I got what I needed through the treatment”) rated on a five point Likert scale (1-5).

In this trial CSS was administered post-treatment to both the youth and the parents participating. Internal consistency for CSS was acceptable when rated by the youths (Cronbach’s $\alpha = .79$), excellent when rated by the parents (Cronbach’s $\alpha = .92$).

### 3.6 Data analytic plan

The data were analyzed using IBM SPSS Statistics 22.0. Analyses were conducted using descriptive analyses, including t-tests, correlation analyses and multiple linear regression.

First total score variables were calculated for each of the measures. Total score on scales was calculated by adding scores for all items on a scale, and divide the sum on number of scale items (i.e., mean pr. item sum score). Alliance change scores were calculated subtracting early alliance total scores from late alliance total scores for each participant. A negative alliance change score indicated a negative development of the alliance from session three to session seven. Finally, total scores and alliance change scores were averaged in the sample and sample means and standard deviations were reported.

Independent sample t-tests were administered to check for significant differences between sample means of total scores and alliance change in ICBT and GCBT. A Bonferroni-corrected $\alpha$-value of .003 (.05/17) was applied to counteract possibilities of type I error due to multiple comparisons.

To test whether there were associations between youth motivation, treatment credibility, alliance and treatment satisfaction, data were analyzed using bivariate correlation analyses calculating Pearson product-moment correlation coefficient with a two-tailed test of significance. Bonferroni corrected $\alpha$-values of .004 (.05/13), was applied to counteract possibilities of type I error due to multiple comparisons. Correlation analyses were run using pairwise deletion of missing data. This was done to utilize as much as the dataset as possible.
To test whether motivation, treatment credibility or alliance predicted treatment satisfaction, data was analyzed using multiple linear regression. Predictors in the regression model were motivation, treatment credibility, and early alliance and alliance change, the latter three measured from multiple informants (e.g., youth, parents, therapist). Regression analyses were run separately with youth reported treatment satisfaction and parent reported treatment satisfaction as dependent variables. All predictors were entered simultaneously into the model, using forced entry (Jaccard, Guilamo-Ramos, Johansson, & Bouris, 2006). Due to the high percentage of missing data, missing data were deleted pairwise (cases missing one data point is excluded from the specific sub analyses in the regression analyses utilizing that specific data point) when regression analyses were run. This was done to include as much data as possible in the analyses. To partly control for the caveats of deleting cases pairwise in regression analyses, analyses which returned significant models, were run deleting cases listwise (cases missing one data point is excluded from the complete regression analysis) as well. Analyses deleting cases pairwise and analyses deleting cases listwise were then compared, to control for similarities (i.e., explained variance, and significant predictors). If not otherwise addressed, results from analyses using pairwise deletion of cases are listed.

Regression analysis was first run for the complete sample. Next, separate analyses were run for each of the two treatment conditions, comparing output between ICBT and GCBT. After regression analyses were done, assumptions of linearity, homoscedasticity and independent errors in the models were investigated. Finally, investigations of possible multicollinearity among predictors in the model were conducted.

### 3.6.1 Preliminary analyses

Total score variables were plotted in histograms, boxplots and P-P plots and inspected visually to check for normality. Inspection of histograms and boxplots revealed a relative high number of extreme scores in the lower end of the distributions. Furthermore, visual inspection of histograms suggested that variables were approximately normal distributed, but with some possible deviations by being slightly negatively skewed. This suspicion was supported by inspecting calculated skew and kurtosis scores, revealing that all variables had a negative skew, indicative of a prolonged tail on the left side of the normal curve. Inspection of the P-P plots showed that for all variables, most values fell on the diagonal of the curve, but with small tendencies toward forming a shape of an S along the line, indicating possible problems of skewness but not kurtosis (Field, 2013). The aforementioned problem of skewness may be
at least partly due to the high presence of extreme scores. Two extreme scores who partly contributed to the skew were a couple of youths scoring 0 on treatment credibility, in addition these youths dropped out of treatment before session 5, also contributing to the percentage of missing data on variables measured later in the therapy course. However, no extreme scores were removed from further analysis, due to the fact there was not legitimate reason to suspect that these scores were error scores in the data material, but instead represented real cases. The possible deviations from normal distribution were considered acceptable, in light of the central limit theorem, which states: regardless of the shape of the population, parameter estimates of that population will have a normal distribution provided the samples are big enough. In this study, the size of the sample ($N = 182$) far exceeds Field’s (2013) criteria for sample sizes large enough for the central limit theorem to apply ($N >= 30$).

**Missing value analysis**

There was a high percentage of missing data in this study (i.e., 23.4 % of the data are missing from the total score variables). When testing if data were missing completely at random (MCAR), Little’s Missing Completely at Random (MCAR) test gave significant ($p = .018$) results when data from the sample as a whole were tested, indicating that the data were systematically missing. Data were then separated by type of intervention, individual or group. Little’s MCAR test was run separately for missing data in the two treatment conditions. The test was not significant for the group treatment condition ($p = .185$), indicating that data were missing completely at random. In the individual treatment condition, Little’s MCAR test returned significant ($p = .021$). Closer inspection of missing value patterns, shows that there were substantially more missing data among participants in the individual treatment condition, compared to those receiving CBT in a group setting (29.0% total missing data compared to 17.6% total missing data).
4 Results

4.1 Levels of motivation, treatment credibility alliances and treatment satisfaction.

The first objective was to examine levels of process factors in the sample, and differences in these between ICBT and GCBT. Sample means of total score and alliance change scores are displayed in Table 2.

Table 2:
Sample means and descriptive statistics of calculated total scores and alliance change scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Possible range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation-Y</td>
<td>160</td>
<td>1.32</td>
<td>0.39</td>
<td>0.13 - 1.93</td>
<td>0.00-2.00</td>
</tr>
<tr>
<td>Treatment credibility-Y</td>
<td>142</td>
<td>5.70</td>
<td>1.65</td>
<td>0.00 - 8.00</td>
<td>0.00-8.00</td>
</tr>
<tr>
<td>Treatment credibility-P</td>
<td>124</td>
<td>6.04</td>
<td>1.19</td>
<td>3.00 - 8.00</td>
<td>0.00-8.00</td>
</tr>
<tr>
<td>E-Alliance-Y</td>
<td>154</td>
<td>3.24</td>
<td>0.44</td>
<td>2.00 - 4.00</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>L- Alliance-Y</td>
<td>128</td>
<td>3.26</td>
<td>0.51</td>
<td>1.75 - 4.00</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>E-Alliance-T</td>
<td>139</td>
<td>3.44</td>
<td>0.32</td>
<td>2.33 - 4.00</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>L-Alliance-T</td>
<td>130</td>
<td>3.45</td>
<td>0.39</td>
<td>2.25 - 4.00</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>E-Parent-Alliance-P</td>
<td>142</td>
<td>3.51</td>
<td>0.33</td>
<td>2.42 - 4.00</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>L-Parent-Alliance-P</td>
<td>130</td>
<td>3.56</td>
<td>0.32</td>
<td>2.42 - 4.06(^a)</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>E-Parent-Alliance-T</td>
<td>140</td>
<td>3.32</td>
<td>0.35</td>
<td>2.42 - 4.00</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>L-Parent-Alliance-T</td>
<td>128</td>
<td>3.43</td>
<td>0.35</td>
<td>2.79 - 4.06</td>
<td>1.00-4.00</td>
</tr>
<tr>
<td>Alliance change-Y</td>
<td>121</td>
<td>-0.03</td>
<td>0.40</td>
<td>-2.00 - 1.00</td>
<td>-</td>
</tr>
<tr>
<td>Alliance change-T</td>
<td>117</td>
<td>0.01</td>
<td>0.30</td>
<td>-0.67 - 0.67</td>
<td>-</td>
</tr>
<tr>
<td>Parent-Alliance change -P</td>
<td>111</td>
<td>0.05</td>
<td>0.30</td>
<td>-0.76 - 0.83</td>
<td>-</td>
</tr>
<tr>
<td>Parent-Alliance change-T</td>
<td>114</td>
<td>0.13</td>
<td>0.35</td>
<td>-0.58 - 1.58</td>
<td>-</td>
</tr>
<tr>
<td>Treatment satisfaction-Y</td>
<td>135</td>
<td>3.91</td>
<td>0.61</td>
<td>2.10 - 5.00</td>
<td>1.00-5.00</td>
</tr>
<tr>
<td>Treatment satisfaction-P</td>
<td>151</td>
<td>3.78</td>
<td>0.65</td>
<td>1.70 - 5.00</td>
<td>1.00-5.00</td>
</tr>
</tbody>
</table>

Note. Y=Youth rating, P=Parent rating, E=Early, L=late, T=Therapist rating.

\(^a\)One item had to be deleted from the TASC late parent-therapist alliance measure to obtain satisfactory reliability.

To allow comparison with the other alliance variables, this item was replaced by the mean pr. item score from 11 of 12 items. Since the mean pr. item score was sometimes higher than the deleted item value, 9 cases (5%) obtained a total mean pr. item score of 4.06, although the real item range was 0.00 to 4.00.
4.1.1 Differences in levels of process factors between ICBT and GCBT

Furthermore, independent sample t-tests were administered to check for significant differences between sample means of total scores and alliance change scores between ICBT and GCBT. Results showed that youth rated early alliance and early and late parent rated parent-alliance, were significantly higher in ICBT (see Table 3).

Table 3:
**Difference between Individual based CBT (ICBT) and group based CBT (GCBT) sample-means.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>ICBT</th>
<th>GCBT</th>
<th>Mean difference (ICBT-GCBT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation-Y</td>
<td>1.28</td>
<td>1.36</td>
<td>-0.08</td>
</tr>
<tr>
<td>Treatment credibility-Y</td>
<td>5.83</td>
<td>5.58</td>
<td>0.25</td>
</tr>
<tr>
<td>Treatment credibility-P</td>
<td>6.14</td>
<td>5.95</td>
<td>0.19</td>
</tr>
<tr>
<td>E-Alliance-Y</td>
<td>3.35</td>
<td>3.14</td>
<td>0.21*</td>
</tr>
<tr>
<td>L-Alliance-Y</td>
<td>3.36</td>
<td>3.17</td>
<td>0.19</td>
</tr>
<tr>
<td>E-Alliance-T</td>
<td>3.45</td>
<td>3.43</td>
<td>0.02</td>
</tr>
<tr>
<td>L-Alliance-T</td>
<td>3.48</td>
<td>3.43</td>
<td>0.05</td>
</tr>
<tr>
<td>E-Parent-Alliance-P</td>
<td>3.64</td>
<td>3.38</td>
<td>0.26*</td>
</tr>
<tr>
<td>L-Parent-Alliance-P</td>
<td>3.67</td>
<td>3.47</td>
<td>0.20*</td>
</tr>
<tr>
<td>E-Parent-Alliance-T</td>
<td>3.39</td>
<td>3.26</td>
<td>0.13</td>
</tr>
<tr>
<td>L-Parent-Alliance-T</td>
<td>3.45</td>
<td>3.41</td>
<td>0.04</td>
</tr>
<tr>
<td>Alliance change-Y</td>
<td>-0.07</td>
<td>0.01</td>
<td>-0.08</td>
</tr>
<tr>
<td>Alliance change-T</td>
<td>0.03</td>
<td>-0.01</td>
<td>0.04</td>
</tr>
<tr>
<td>Parent-Alliance change -P</td>
<td>0.04</td>
<td>0.07</td>
<td>-0.03</td>
</tr>
<tr>
<td>Parent-Alliance change-T</td>
<td>0.09</td>
<td>0.17</td>
<td>-0.08</td>
</tr>
<tr>
<td>Treatment satisfaction-Y</td>
<td>3.98</td>
<td>3.85</td>
<td>0.13</td>
</tr>
<tr>
<td>Treatment satisfaction-P</td>
<td>3.85</td>
<td>3.73</td>
<td>0.12</td>
</tr>
</tbody>
</table>

*Note. Y=Youth rating, P=Parent rating, E=Early, L=late, T=Therapist rating. * Significant difference between mean levels of variable in ICBT/GCBT (p < .003 (Bonferroni corrected))
4.2 Correlation analyses

The second objective was first to investigate associations between all measured process factors. Correlation analyses were first run on the complete sample, before running it separately on ICBT and GCBT. Correlation analyses were run using pairwise deletion of missing data. This resulted in a range of \( N \) from 86-160 in the complete sample, a range of \( N \) from 40-82 in ICBT and a range of \( N \) from 46-78 in GCBT. All magnitude estimates of correlation coefficients were categorized according to Cohen (1988) suggestions of effect size categorizations (.10 -.29 = small, .30 - .49 = moderate and >= .50 = large).

In the complete sample correlation matrix, 14 correlations were significant when controlling for multiple comparisons (see Table 4).

4.2.1 Differences in correlations between ICBT and GCBT

There were some differences in correlation patterns between ICBT and GCBT. The following two correlations were significant in ICBT and GCBT, but had different magnitude in the two treatment conditions: Youth rated treatment satisfaction was moderately correlated with youth rated early alliance in ICBT, and evinced a large correlation in GCBT. Parent rated early parent-alliance was moderately and negatively correlated with parent rated change in parent-alliance in ICBT and evinced a large and negative correlation in GCBT.

The following correlations were significant in ICBT and not in GCBT: Youth rated treatment credibility evinced a large correlation with parent rated treatment credibility. Parent rated treatment credibility was moderately correlated with parent rated early parent-alliance.

The following correlations were significant in GCBT, but not in ICBT: Youth rated early alliance was moderately correlated with youth rated treatment satisfaction. Therapist rated early parent-alliance evinced a large and negative correlation with therapist rated change in parent-alliance. Youth rated change in alliance was moderately correlated with youth rated treatment satisfaction. Finally, youth rated treatment satisfaction evinced a large correlation with parent rated treatment satisfaction.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motivation-Y</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Treatment credibility-Y</td>
<td>.36**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Treatment credibility-P</td>
<td>.06</td>
<td>.33**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>E-Alliance-Y</td>
<td>.20</td>
<td>.47**</td>
<td>.20</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>E-Alliance-T</td>
<td>.24</td>
<td>.03</td>
<td>-.14</td>
<td>.15</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>E-Parent-Alliance-P</td>
<td>.02</td>
<td>.17</td>
<td>.39**</td>
<td>.29**</td>
<td>.24</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>E-Parent-Alliance-T</td>
<td>-.01</td>
<td>-.06</td>
<td>.02</td>
<td>.10</td>
<td>.48**</td>
<td>.28**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Alliance change-Y</td>
<td>-.16</td>
<td>.03</td>
<td>-.05</td>
<td>-.27**</td>
<td>.02</td>
<td>-.05</td>
<td>.07</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Alliance change-T</td>
<td>.04</td>
<td>-.13</td>
<td>.07</td>
<td>.09</td>
<td>-.20</td>
<td>.15</td>
<td>.08</td>
<td>-.02</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Parent-Alliance change-P</td>
<td>-.09</td>
<td>-.07</td>
<td>-.01</td>
<td>-.14</td>
<td>-.13</td>
<td>-.47**</td>
<td>-.06</td>
<td>.22</td>
<td>.02</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Parent-Alliance change-T</td>
<td>.21</td>
<td>-.06</td>
<td>-.09</td>
<td>-.02</td>
<td>.13</td>
<td>-.02</td>
<td>-.53**</td>
<td>-.12</td>
<td>.24</td>
<td>.09</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Treatment satisfaction-Y</td>
<td>.10</td>
<td>.28**</td>
<td>.04</td>
<td>.34**</td>
<td>.29**</td>
<td>.15</td>
<td>.23</td>
<td>.27</td>
<td>.06</td>
<td>.08</td>
<td>-.09</td>
</tr>
<tr>
<td>13</td>
<td>Treatment satisfaction-P</td>
<td>.00</td>
<td>-.01</td>
<td>.22</td>
<td>.08</td>
<td>.21</td>
<td>.24</td>
<td>.17</td>
<td>.14</td>
<td>.12</td>
<td>.04</td>
<td>.04</td>
</tr>
</tbody>
</table>

*Note.* Y=Youth rating, P=Parent rating, E=Early, L=late, T=Therapist rating. ** significant at p < .004 (Bonferroni corrected)
4.3 Multiple linear regression analyses

The next part of the second objective was to examine if motivation, treatment credibility or alliance predicted treatment satisfaction. This was investigated by use of multiple linear regression analyses. Regression analyses were run using pairwise deletion of missing data, which resulted in a range 111-160 valid cases in analyses of the complete sample, 52-82 valid cases from ICBT and 57-80 valid cases from GCBT.

4.3.1 Youth rated treatment satisfaction as dependent variable

When youth rated treatment satisfaction was used as the dependent variable in the model, the model was significant for the complete sample \( F (11,74) = 3.586, p < .001 \). The model explained 25.1% of the variance in treatment satisfaction \( (\text{adjusted } R^2 = .251) \). Significant predictors in the regression model were youth and therapist rated early alliance and youth rated alliance change (see Table 5). When rerunning the same analysis using listwise deletion, the model was not significant for the complete sample.

Multiple linear regression in ICBT and GCBT

Running regression analyses separately for each treatment condition returned significant models for both treatment conditions. In ICBT \( F (11,28) = 2.711, p = .016 \), the model explained 32.6% of the variance in youth rated treatment satisfaction \( (\text{adjusted } R^2 = .326) \). The only significant predictor of youth satisfaction was therapist rated alliance change between youth and therapist (see Table 5). Running the same regression analyses using listwise deletion did not return a significant model for ICBT.

In GCBT \( F (11,34) = 2.949, p = .008 \), the model explained 32.3% of the variance in youth satisfaction \( (\text{adjusted } R^2 = .323) \). Significant predictors of youth satisfaction in GCBT were youth ratings of early alliance, and youth rated alliance change (see Table 5). When running regression analysis using listwise deletion, the model returned significant \( F (11,20) = 3.124, p = .013 \), explaining 43.0% of the variance in youth satisfaction \( (\text{adjusted } R^2 = .430) \). The only significant predictor of youth satisfaction in the group therapy, was youth rated alliance change \( (B = 1.383, SE_B = 0.301, \hat{\beta} = 0.846, p < .001, 95\% \text{ CI } [0.755,2.010]) \).
Table 5:
Multiple regression. Predictors of youth rated treatment satisfaction, in the complete sample, Individual CBT (ICBT) and group CBT (GCBT).

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Sample</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation-Y</td>
<td>ICBT</td>
<td>0.214</td>
<td>0.235</td>
<td>0.146</td>
<td>-0.268 to 0.696</td>
</tr>
<tr>
<td></td>
<td>Complete</td>
<td>-0.003</td>
<td>0.173</td>
<td>-0.002</td>
<td>-0.347 to 0.341</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>0.071</td>
<td>0.259</td>
<td>0.042</td>
<td>-0.157 to 0.113</td>
</tr>
<tr>
<td>Treatment. credibility-Y</td>
<td>ICBT</td>
<td>0.080</td>
<td>0.064</td>
<td>0.220</td>
<td>-0.051 to 0.211</td>
</tr>
<tr>
<td></td>
<td>Complete</td>
<td>0.057</td>
<td>0.046</td>
<td>0.155</td>
<td>-0.035 to 0.149</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>-0.022</td>
<td>0.067</td>
<td>-0.060</td>
<td>-0.157 to 0.113</td>
</tr>
<tr>
<td>Treatment credibility-P</td>
<td>ICBT</td>
<td>-0.103</td>
<td>0.082</td>
<td>-0.216</td>
<td>-0.270 to 0.065</td>
</tr>
<tr>
<td></td>
<td>Complete</td>
<td>-0.029</td>
<td>0.058</td>
<td>-0.057</td>
<td>-0.145 to 0.087</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>0.006</td>
<td>0.090</td>
<td>0.011</td>
<td>-0.177 to 0.189</td>
</tr>
<tr>
<td>E-Alliance-Y</td>
<td>Complete</td>
<td>0.410</td>
<td>0.163</td>
<td>0.300*</td>
<td>0.085 to 0.735</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>0.637</td>
<td>0.226</td>
<td>0.460**</td>
<td>0.178 to 1.096</td>
</tr>
<tr>
<td>E-Alliance-T</td>
<td>Complete</td>
<td>0.642</td>
<td>0.303</td>
<td>0.339*</td>
<td>0.037 to 1.247</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>0.424</td>
<td>0.531</td>
<td>0.234</td>
<td>-0.655 to 1.504</td>
</tr>
<tr>
<td>E-Parent-Alliance-P</td>
<td>ICBT</td>
<td>0.205</td>
<td>0.498</td>
<td>0.086</td>
<td>-0.814 to 1.225</td>
</tr>
<tr>
<td></td>
<td>Complete</td>
<td>0.099</td>
<td>0.246</td>
<td>0.054</td>
<td>-0.391 to 0.589</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>0.093</td>
<td>0.356</td>
<td>0.055</td>
<td>-0.631 to 0.816</td>
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<tr>
<td>E-Parent-Alliance-T</td>
<td>ICBT</td>
<td>0.478</td>
<td>0.553</td>
<td>0.214</td>
<td>-0.613 to 1.570</td>
</tr>
<tr>
<td></td>
<td>Complete</td>
<td>-0.159</td>
<td>0.316</td>
<td>-0.093</td>
<td>-0.789 to 0.471</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>-0.043</td>
<td>0.478</td>
<td>-0.029</td>
<td>-1.014 to 0.927</td>
</tr>
<tr>
<td></td>
<td>ICBT</td>
<td>0.257</td>
<td>0.236</td>
<td>0.160</td>
<td>-0.227 to 0.741</td>
</tr>
<tr>
<td>Alliance change-Y</td>
<td>Complete</td>
<td>0.440</td>
<td>0.162</td>
<td>0.288**</td>
<td>0.117 to 0.763</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>0.527</td>
<td>0.222</td>
<td>0.362*</td>
<td>-0.227 to 0.741</td>
</tr>
<tr>
<td>Alliance change-T</td>
<td>Complete</td>
<td>0.359</td>
<td>0.252</td>
<td>0.177</td>
<td>-0.143 to 0.861</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>-0.345</td>
<td>0.414</td>
<td>-0.181</td>
<td>-1.187 to 0.498</td>
</tr>
<tr>
<td>Parent-Alliance change-P</td>
<td>Complete</td>
<td>0.310</td>
<td>0.243</td>
<td>0.151</td>
<td>-0.175 to 0.795</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>0.367</td>
<td>0.347</td>
<td>0.197</td>
<td>-0.338 to 1.072</td>
</tr>
<tr>
<td>Parent-Alliance change-T</td>
<td>Complete</td>
<td>-0.336</td>
<td>0.287</td>
<td>-0.198</td>
<td>-0.909 to 0.236</td>
</tr>
<tr>
<td></td>
<td>GCBT</td>
<td>-0.200</td>
<td>0.427</td>
<td>-0.138</td>
<td>-1.067 to 0.667</td>
</tr>
</tbody>
</table>

Note.  Y=Youth rating, P=Parent rating, E=Early, L=late, T=Therapist rating. *p < .05 and **p < .01.
4.3.2 Parent rated treatment satisfaction as dependent variable

When parent rated treatment satisfaction was used as dependent variable in the model, the models were not significant in the complete sample, ICBT and GCBT. Running the same regression analyses using listwise deletion also left models not significant in the complete sample, ICBT and GCBT.

4.3.3 Investigations of assumptions of linearity, homoscedasticity, independent errors, and multicollinearity

Assumptions of linearity, homoscedasticity and independent errors

The assumption of linearity means that the dependent variable is linearly related to the predictors in the model. If the assumption of linearity is not met, the regression model is invalid (Field, 2013). Homoscedasticity of variance means that the variance of the dependent variable is stable across different levels of the predictor variables. If variance for the outcome variable differ along levels of the independent variable, parameter estimates from regression model may not be optimal (Field, 2013). Non-linearity and heteroscedasticity can be detected by inspecting scatterplots of the standardized residuals against the standardized predicted value and partial regression plots for the predictors (Field, 2013). The scatterplots did not indicate non-linearity or heteroscedasticity in the models, and neither did the partial regression plots for the significant predictors.

If residuals in the model are correlated, confidence intervals and significance tests may be invalid (Field, 2013). To check if residuals in the models are independent, inspection of the Durbin-Watson statistic is of importance (Field, 2013). The closer to 2 the Durbin-Watson statistic is, the more likely it is that the residuals are independent. As a conservative rule, values below 1 and above 3 should definitely raise concern (Field, 2013). In these models, the Durbin-Watson is 2.38 in the complete sample, 1.89 in the individual treatment condition, and 2.27 in the group treatment condition. These values are considered to be close to the value of 2, and the assumption of independent error is considered to most likely have been met.
Multicollinearity

To check for problems of multicollinearity in the models, bivariate correlations between predictors were run, and the correlational matrix was examined. Some degree of multicollinearity was expected, due to the hypothesis of associations among some of the predictor variables. However, high levels of multicollinearity ($r > .60$) would pose as a threat to the regression models. Among the predictors, no correlations were higher than .60. Furthermore, all but three correlations exceeding .50 were correlations between measures of early alliance and alliance change where both measures originated from the same informant. This is not surprising, considering that alliance change scores are calculated partly from measures of early alliance. Hence, on the basis of correlations among predictors, multicollinearity was not considered to pose a considerable threat to the model. This assumption was further strengthened when checking tolerance and VIF values of the regression models. All tolerance levels were higher than .10, and all VIF values were lower than 10, in accord with Field’s (2013) criteria for non-probable multicollinearity.
5 Discussion

5.1 Levels of treatment satisfaction, motivation, treatment credibility and alliance

All mean ratings of treatment satisfaction, motivation, treatment credibility, early and late alliance, early and late parent-alliance and treatment satisfaction were above the midpoint for the respective scale. In fact, with the exception of youth motivation (mean 0.8 $SD$ above scale midpoint), all mean ratings were more than one $SD$ above the scale midpoint. This indicates that overall, mean levels of measured process factors were high and spread was within normal limits. This result was consistent across informant perspective, which consequently increases reliability of these results. This is because the possibility of ratings being biased due to sole reliance on youth self-report, which may be limited by developmental factors or influenced by situational pressures, is reduced.

Both youth and parents scored high on treatment satisfaction, but since the scale was developed for this research project, there are no prior results for comparisons. Nonetheless, the mean level of total scores suggests that overall, both youth and parents were satisfied with treatment.

In comparison with prior results for the motivation scale, the mean scores in the current sample were well above ratings classified as low motivation (Ollendick et al., 2009). This indicates that on average youth were motivated for treatment in the current study.

Treatment credibility ratings in this study were comparable with prior reports of high credibility ratings on this scale (Ollendick et al., 2009). This suggest that on average youths and parents found this treatment credible. Importantly, this was measured after the treatment content and rationale was explained to participants.

The early and late alliance scores in this trial were slightly higher relative to other reports of youth and therapist alliance in CBT using the same alliance measure, both from university clinics (Creed & Kendall, 2005; Marker et al., 2013), and from outpatient community clinics (Ormhau et al., 2015). The mean levels of youth and therapist rated alliance change were very small. This is in contrast to prior research on self-report alliance development over the therapy course in treatment of anxious youth where alliance has been found to grow.
consistently (Chu et al., 2014; Kendall et al., 2009). However, considering that early ratings of alliance in this study were generally high, there was limited potential for further alliance growth (Chu et al., 2014). This might explain why the results in the current study diverge some from prior research. In sum, on average youth and parents developed early strong alliances with their therapists, and alliances were stable across treatment.

It is noteworthy that both alliance and treatment satisfaction in general were rated as positive in the current study. Some therapists have expressed concerns that manualized treatment can be dehumanizing, and reduce clinicians’ creativity, possibility of tailoring treatment to different clients, and undermine the alliance (Addis & Krasnow, 2000). The results from the current study suggest that manualized treatments delivered in outpatient community clinics do not substantially undermine formation of positive alliances, or produce unsatisfied clients in treatment of youth anxiety. This is in line with prior research on manualized treatments delivered in outpatient community clinics. In a sample of 89 youths with anxiety disorders McLeod et al. (2016) researched if alliance differed between manualized treatment (ICBT) and non-manualized usual care (UC) in both research- and naturalistic settings. They found that manualized treatment did not undermine alliance in either setting. In sum, taking into consideration alliance and treatment satisfaction levels in the current study in combination with previous findings from the ATACA study of dropout rate in the current trial being relatively low (N = 26, 14.4%) (Wergeland et al., 2015), this supports that at least some of the skepticism toward manualized treatment of youth anxiety in outpatient community clinics is unwarranted.

Significant differences in mean levels of process factors will be discussed in section 5.3.

## 5.2 Prediction of treatment satisfaction

### 5.2.1 Associations between motivation, treatment credibility, alliance and treatment satisfaction

As hypothesized there were several significant correlations among the process variables measured during the therapeutic course. Several correlations between process factors were significant across informants, strengthening the reliability of the results. Even though there were several correlations among these process variables, no single correlation exceeded .60.
This suggests that these process factors represent related, but not perfectly overlapping constructs (i.e., $r = 1$), and provides support for their discriminant validity. That is, they seem to measure separate, yet related constructs.

**5.2.2 Predictors of treatment satisfaction**

**Predictors of youth rated treatment satisfaction**

The main hypothesis, that motivation and alliance would predict youth rated treatment satisfaction, was partly supported. Analyses confirmed parts of the hypothesis by the finding that both youth and therapist rated early alliance and alliance change predicted youth rated treatment satisfaction. Contradictory to the hypothesis however, motivation and treatment credibility were found not to be significant predictors of treatment satisfaction. Alliance was hypothesized to be a significant predictor of treatment satisfaction, both based on theory and prior research. Alliance has repeatedly been shown to be a process factor associated with treatment satisfaction, both in youths with various disorders (Hawley & Weisz, 2005; McLeod, 2011), and in treatment of youth with anxiety (Fjermestad et al., 2015; Ormhaug et al., 2015). While alliance change has been found to be predictive of clinical improvement in treatment in a group of youths with mixed disorders (Bickman et al., 2012), and in treatment of youth anxiety (Marker et al., 2013), no other study has found alliance change to predict youth treatment satisfaction. Consequently, this result contributes to a considerable amount of conceptual and empirical data emphasizing the importance of alliance in therapy.

An important aspect of this result is that both youth and therapist early alliance and alliance change was found to predict treatment satisfaction, across informant perspectives. This increases reliability of the result by reducing possibility of shared method variance (e.g., shared variance in alliance and treatment satisfaction caused by both being rated by the same informant).

There is however, a possibility of alliance and treatment satisfaction both being influenced by one or more uncontrolled variable(s) in this trial. For example, there is a possibility that symptom improvement early in therapy may have caused youths to develop positive alliances with their therapists, while at the same time increasing youths’ treatment satisfaction. This possibility is indicated by empirical data suggesting that alliance and symptom improvement evince a reciprocal relationship, affecting each other over the course of therapy (Marker et al.,
Motivation and treatment credibility were found not to be significant predictors of treatment satisfaction in either of the regression models. Theory suggests that effects of treatment credibility partly are mediated through motivation and alliance (Karver et al., 2005). In addition, empirical investigations of the association between treatment credibility and outcome have produced mixed findings (Devilly & Borkovec, 2000; Hudson et al., 2009; Rapee, 2000). Motivation was expected to be directly related to treatment satisfaction both on basis of theory (Karver et al., 2005) and results from research on the association between motivation and outcome in treatment of youths (Adelman et al., 1984; Wergeland et al., 2016).

The role of motivation and treatment credibility still remains somewhat unclear. According to Karver et al.’s (2005) model, motivation should affect treatment satisfaction directly, but also through alliance and client participation. The model also suggests that treatment credibility should affect motivation, alliance and client participation. Thus, it was hypothesized in the current study that it consequently would predict treatment satisfaction. Since client participation is not included in this study, the role of this process factor is unknown. There is a possibility that effects of motivation and treatment credibility on treatment satisfaction are mediated through other process factors, including client participation. Future studies should test for mediation effects. Possible mediation effects could have been tested by conducting mediation analysis according to Baron and Kenny’s (1986) procedure. Such an analysis should be done by testing four conditions (here using alliance as a mediator of effects from treatment credibility on treatment satisfaction as example): First treatment credibility must be established as a significant predictor of treatment satisfaction. Second, alliance must be established as a significant predictor of treatment satisfaction. Third, treatment credibility must be established as a significant predictor of alliance. Finally, the effects of treatment credibility on treatment satisfaction should be weakened or vanish completely when regression analysis predicting treatment satisfaction from both treatment credibility and alliance is performed. If all these conditions are fulfilled, then the effects of treatment credibility on treatment satisfaction is mediated by alliance.
Future studies should investigate relationships between these process factors further, by measuring them at multiple occasions during treatment, and conducting proper mediation and moderation analyses.

An interesting point regarding motivation in this sample is that Wergeland et al. (2016), using the same sample as the current study, found motivation to predict long term diagnostic and symptom outcome. This means that within this sample, motivation predicts symptom and diagnostic improvement, but not treatment satisfaction. The discriminant predictive validity of motivation in this sample (i.e., ability to predict diagnostic recovery, but not treatment satisfaction), supports treatment satisfaction as a separate outcome domain with additional validity to traditional outcome such as diagnostic recovery within treatment in outpatient community clinics.

**Predictors of parent rated Treatment Satisfaction**

Analyses returned no significant model when parent rated treatment satisfaction was used as dependent variable. This is not in line with prior research, where parent-alliance has been found to predict parent rated treatment satisfaction (Hawley & Weisz, 2005). One possible explanation is that analyses in the current study may have been underpowered, considering the high number of predictor variables in combination with a substantial amount of missing data points. Another possibility is that since alliance was only measured twice in this study, there might have been undetected alliance growth before or after these assessments. There might also have been undetected fluctuations in alliance between these assessments. This may have hampered possibilities of detecting predictive effects of alliance change on parent treatment satisfaction. This hypothesis is partly supported by research showing substantial alliance growth across multiple raters from treatment start to session three in CBT for youth anxiety (Marker et al., 2013). A third explanation is related to the fact that in the current trial, parents of youths in therapy only attended parts of youths’ therapy. They attended two of ten complete sessions in addition to the last 15 minutes of the other sessions. In addition, parents attended two parents-only sessions. This may lead parents to base their treatment satisfaction ratings of events occurring outside treatment. For instance, parents may be more satisfied when youths begin to attend activities in daily life (e.g., a family birthday party), which earlier have been avoided because youth found it too anxiety provoking. Even though this event may be related to treatment and youths’ anxiety improvement, it may be disentangled from processes pertaining to the actual treatment, such as pretreatment motivation, perceived
treatment credibility and parent-alliance in treatment. Future studies should further investigate which factors are related to parent satisfaction. This is particularly important, because parents often initiate, plan, organize and consent to treatment, as well as manage attendance (Nock et al., 2007). This implicates that parents also are involved in determining if treatment should continue. More knowledge about factors influencing parental treatment satisfaction is therefore valuable to clinical practice.

5.3 Differences between ICBT and GCBT

5.3.1 Significant differences in levels of treatment satisfaction, motivation, treatment credibility, and alliance

There were significant differences between ICBT and GCBT for youth ratings of early alliance and parent ratings of early and late parent-alliance. These alliance ratings were higher in ICBT. It is important to emphasize these alliance ratings were high in both conditions, so this difference means that while these ratings were high in GCBT, they were even higher in ICBT.

Possible explanations for this difference may be that in GCBT each therapist is tending to multiple youths in each session and, consequently, has less time to attend each individual alliance. Therapists in ICBT may have had better opportunities to tailor treatment according to individual needs, and by this also facilitate alliance and parent-alliance. Another factor that might contribute to alliance being slightly lower in GCBT is that both youth and parents in GCBT develop parallel relationships with other group members in addition to their relationship with the therapist (Joyce et al., 2007; Lerner et al., 2013; Yalom, 1985). This participation in multiple relationships in group treatment, is commonly referred to as the group cohesion (Joyce et al., 2007; Lerner et al., 2013; Yalom, 1985). Cohesion may be an especially central process factor in GCBT for youth anxiety. GCBT may have some unique therapeutic elements, by providing a continuous arena for social exposure to peers, in addition to peer normalization, social support and role modelling. These therapeutic elements may forge strong bonds among youths in GCBT (i.e., cohesion). Because peer normalization and social support also might be therapeutic elements for parents attending parent groups, there is a possibility that group cohesion is a central process factor in parent groups as well. These strong bonds with other group-members, might attenuate the importance of alliance with
therapists for both youth and parents. This might contribute to self-reports of alliance being lower in GCBT than in ICBT.

There were not significant differences in levels of motivation, credibility and treatment satisfaction between ICBT and GCBT. For motivation ratings, this was expected because motivation was measured before participants were randomized to treatment condition. The lack of difference between treatment credibility and treatment satisfaction levels within ICBT and GCBT suggests that GCBT does not undermine treatment credibility or satisfaction in comparison with ICBT. This indicates that GCBT is a treatment mode comparable to ICBT, in terms of presenting credible treatment rationales and content and in terms of producing satisfied clients. Considering this in combination with a previous published article from the ATACA study establishing equality of effectiveness relating to diagnostic recovery between ICBT and GCBT (Wergeland et al., 2014), this strongly supports GCBT as a viable alternative to ICBT in treatment of youth anxiety. This may be of interest to clinicians and health authorities, as GCBT may represent a more cost-efficient treatment than traditional ICBT (Flannery-Schroeder, Choudhury, & Kendall, 2005).

5.3.2 Difference in associations and prediction between ICBT and GCBT

There were no substantial differences in associations between motivation, treatment credibility and alliance in ICBT and GCBT.

There were however, some differences in prediction of treatment satisfaction between ICBT and GCBT. Some of the alliance variables showed different prediction patterns in ICBT versus GCBT. Interestingly, while therapist rated alliance change was a significant predictor of youth satisfaction in ICBT, and youth rated alliance change was not, the opposite was found in GCBT. In addition, youth rated early alliance was a significant predictor within GCBT and not within ICBT. These results suggest that within ICBT therapist ratings of alliance matter most for satisfaction, while in GCBT youth ratings of alliance matter most.

In ICBT therapist ratings of alliance change was found predictive of youth rated treatment satisfaction, while youth rated alliance change was not. This result is partly in line with prior investigations of alliance outcome associations. In his review, McLeod (2011) found therapist ratings of alliance to have a stronger association with outcome, in comparison with youth ratings, in individual treatment. Why results did not find youth rated alliance change to be a
significant predictor in ICBT, is not known. Fjermestad et al. (2015) found youth rated early alliance to be a significant predictor of youth rated treatment satisfaction in ICBT in this sample. However, they used hierarchical linear modelling analyses, which handles missing data more adequately than multiple linear regression (Field, 2013). This may indicate that analyses in this study failed to find youth ratings of alliance as predictive of treatment satisfaction in ICBT, due to a substantial amount of missing data, and consequently lack of power in analyses.

In GCBT, youth ratings of early alliance and alliance change were found as significant predictors of treatment satisfaction, while therapist ratings of alliance were found not to be significant predictors. One possible explanation is that within GCBT, therapists may be less tuned in to each of the individual alliances, due to the fact that they tend to multiple alliances each session. This may lead to therapists having a less accurate perception of each individual alliance. Youths however, only report on their alliances with therapists, and consequently, youths may provide more accurate ratings of the quality of the alliance in comparison with therapists in GCBT. It is important to note however, the possibility that this find, at least partly, is a result of shared method variance (i.e., shared variance in alliance and treatment satisfaction caused by both being rated by youths).

### 5.4 Strengths and limitations

This study has several strengths. Importantly, this study was conducted in outpatient community clinics, increasing generalizability of results. Second, the study was conducted with a large sample comprising 182 youths and their parents. Third, measures included in this study were documented to be reliable and validated from previous research. One exception was the client satisfaction scale, which was developed for this study. However, this measure evinced acceptable validity in this study. Fourth, use of multiple informants on several measures, increases reliability of results by reducing possibility of constructs being biased due to characteristics of the informant (e.g., youth responses vary as a result of their cognitive, social and emotional development (Kendall & Ollendick, 2004)). Validity is further increased due to several of the correlations and one of the predictors being significant across informants, reducing possibility of bias due to shared method variance. Fifth, this study addresses many existing gaps within youth psychotherapy research. Grounded within theory, this study examines multiple important treatment processes amenable to change, and investigates their
contribution to treatment satisfaction. Furthermore, this is done in context of an established efficacious manualized treatment delivered in outpatient community clinics.

The results of this study should also be interpreted in light of some clear limitations. First, and most importantly, results from conducted analyses should be considered with caution due to a substantial amount of missing data, and indications of non-random missing data. In the complete sample, approximately a quarter of the data was missing from the total score variables. This may be due to this research being conducted in outpatient community clinics, where control is relative low and dropout from treatment is reported to be high. Visual analysis of missing patterns supported the hypothesis of missing data to a great extent being due to premature dropout. This raises concern whether parameter estimates from analyses of this sample may be biased (Graham, 2009). On one hand, the substantial amount of missing data would have caused a serious lack of statistical power if regression analyses were run deleting cases listwise. On the other hand, deleting cases pairwise is not recommended when doing regression analyses (Field, 2013), because it calculates standard errors of the different predictors on basis of average sample size across analyses. This may result in regression analyses returning unreliable models. A decision was made running regression analyses using pairwise deletion of cases, based on a priority of utilizing as much of the dataset as possible. To control for biased results, regression analyses using listwise deletion of missing data were also run, and models were compared to check for substantial differences. The regression models returned not significant for the complete sample and ICBT using listwise deletion. This is probably due to lack of power. However, the regression model for GCBT remained significant using listwise deletion with alliance change as a significant predictor. This supports alliance change as an important predictor of youth rated treatment satisfaction in GCBT.

Eleven predictors were included in the current study. The variable with most missing cases (i.e. parent-alliance change, N = 111) is thus within the limits of common recommendations of 10 participants pr. predictor (Field, 2013). However, the separate ICBT and GCBT models should be interpreted with caution due to low power. In addition to the issue of missing data, additional limitations include the fact that alliance was measured only twice, preventing examination of alliance trajectories across the complete treatment span. Finally, as the sample comprises youth aged 8 to 15 years receiving manualized CBT for anxiety disorders, the results are not necessarily generalizable to younger or older youth clients receiving other treatment for other disorders.
5.5 Implications

5.5.1 Implications for clinical practice

There are four important implications for clinical practice from this study. First, this study suggests that delivery of manualized CBT in outpatient community does not leave youth or parents unsatisfied with treatment. Results also support prior finding of manualized treatments not having a deteriorating effect on alliance between therapists and youths or therapist and parents. This should lend support to continued dissemination of CBT into community clinics.

Second, this study supports and expands earlier conclusions of GCBT as a viable alternative to ICBT in treatment of youth anxiety, considering that participants in the study were equally satisfied with GCBT and ICBT. This is further supported by GCBT presenting as equally credible as ICBT. This should be of interest for clinicians treating youth anxiety, but also health authorities with an interest in increasing cost-efficiency of treatment.

Third, this study lends support to alliance as a crucial common factor within CBT with youths. Prior research has shown alliance to be consistently associated with, and predictive of diagnostic recovery and symptom improvement, and this study suggests that positive developments of alliance over the course of therapy causes clients to be more satisfied as well. In effect, this implicates that youths who are unsatisfied with therapy they currently are attending, could have particularly beneficial effects from an alliance-enhancing interventions in sessions, as this is likely to increase their satisfaction with treatment. There are several therapeutic interventions which are empirically linked to increases in alliance in youth treatment. In a review of research investigating alliance enhancing therapists interventions, Fjermestad et al. (2016) found that therapists being responsive, empathic, taking a collaborative stand and presenting oneself as youth’s ally affects alliance with youths positively.

Fourth, this study has provided support for use of treatment satisfaction as a separate outcome domain to diagnostic recovery and symptomatic improvement in treatment of youth anxiety conducted in outpatient community clinics. This support is in form of finding treatment satisfaction being partly predicted by other process-factors than what has been found for diagnostic recovery and symptomatic improvement for this sample in previous research.
5.5.2 Implications for research

There are seven implications for research. First, because treatment satisfaction is supported as a separate outcome domain in this study, its’ position in psychotherapy research should be strengthened, both within effectiveness trials in naturalistic settings, and process outcome research.

Second, this study suggests that motivation, treatment credibility and alliance represent related, but not perfectly overlapping constructs. In effect, this implicates that these process-factors have discriminant validity in process outcome research. But the nature of the relationships between these process factors is still unclear. Furthermore, client participation was not involved in this study, a construct hypothesized to be a proxy for outcome, and interacting with several other process-factors (Karver et al., 2005). Empirical investigations have related client participation to improved outcome in therapy with youths (Karver et al., 2006), and it is considered key ingredient in CBT with youths (Fjermestad et al., 2016). Future research should investigate how all these process factors are related, by conducting proper mediation and moderation analyses.

Third, aspects of the alliance, and particularly alliance change, predicted treatment satisfaction. This lends support to prior research finding increase in alliance to be the predictive element of alliance (Bickman et al., 2012; Marker et al., 2013). In effect, this means that research on alliance in psychotherapy, should continue the trend of multiple assessments of alliance to increase the understanding of how alliance is associated with treatment satisfaction. Ideally, alliance should be assessed every session, preferably while controlling for early symptomomatic improvement. There is however important to add that study designs with multiple assessments every session, might put unreasonable strain on participants, and especially youths. This must be taken into consideration in future study planning.

Fourth, in this study, several of correlations and one predictor were significant across perspectives. Furthermore, correlations showed that ratings from different informants were associated, but not perfectly overlapping. This implicates that process factors should be measured from multiple perspectives in research on therapy with youths.

Fifth, the role of parent treatment satisfaction is still unclear. Why this study failed to reproduce known predictors of treatment satisfaction is not entirely known, and future
research should further investigate which process factors influence parent treatment satisfaction, and also include events related to, but occurring outside of therapy.

Sixth, regarding differences between ICBT and GCBT, this study supported their equality as treatments of youth anxiety. There might however, be special instances where ICBT or GCBT is more suitable as treatment of youth anxiety. Both ICBT and GCBT have some possible unique therapeutic elements (e.g., possibility of tailoring treatment to individual clients in ICBT vs. group social exposure, normalization and role modelling among peers in GCBT). Future research should look further into if there are special instances where ICBT or GCBT may be more suitable as treatment of youth anxiety. Furthermore, the role of group cohesion in GCBT is still unclear. Future research should investigate the role of cohesion in GCBT for youth anxiety.

Finally, because this study may have been underpowered due to a substantial amount of missing data, and because data may have been missing systematically, results should be replicated in samples without these issues to strengthen reliability of these results.

5.6 Conclusions

CBT is a known effective treatment for youth anxiety. However, there is little research investigating how CBT works with youths in treatment. Results from this study suggested that both youth with anxiety and their parents are satisfied after participating in both individual based CBT (ICBT), and group based CBT (GCBT). Results also showed that early alliance and positive developments of alliance over therapy are significant predictors of youths’ treatment satisfaction in both ICBT and GCBT. These results are of interest to clinicians and health authorities, because they suggest that manualized treatments produce satisfied clients, and because they support GCBT as a viable alternative to ICBT. Results may also provide clinicians with insight on how to increase clients’ treatment satisfaction during the therapeutic course, because alliance is a process amenable to change through therapeutic interventions during therapy.
References


Outperform Usual Care in Community Clinics? An Initial Effectiveness Test. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(10), 1043-1052. doi:[http://dx.doi.org/10.1016/j.jaac.2010.06.009](http://dx.doi.org/10.1016/j.jaac.2010.06.009)


Appendix