The therapeutic alliance in cognitive behavioral therapy for youth anxiety disorders

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Scientific network

The professional network involved in this dissertation is The Bergen Group for Treatment Research, Department of Clinical Psychology, Faculty of Psychology, University of Bergen, and the Anxiety Disorders Research Network, Haukeland University Hospital, Norway. Considerable input has also been provided by researchers affiliated at Florida International University, Stockholm University, University of Oslo, University of Virginia, and Virginia Commonwealth University.

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List of papers

Paper I Fjermestad, K. W., Haugland, B. S. M., Heiervang, E. R., & Öst, L.-G. (2009). Relationship factors and outcome in child anxiety treatment studies. *Clinical Child Psychology and Psychiatry*, *14*(2), 195-214.

Paper II Fjermestad, K. W., McLeod, B. D., Havik, O. E., Heiervang, E. R., Öst, L.-G., & Haugland, B. S. M. (*in press*). Factor structure and psychometric properties of the Therapy Process Observational Coding System – Alliance Scale. *Journal of Clinical Child and Adolescent Psychology*.

Paper III Fjermestad, K. W., Lerner, M. D., McLeod, B. D., Wergeland, G. J. H., Haugland, B. S. M., Havik, O. E., Öst, L.-G., & Silverman, W. K. (2011). *Predictors of early alliance and alliance change in CBT for youth with anxiety*. Manuscript submitted for publication.

List of abbreviations

ADIS-C/P	Anxiety Disorders Interview Schedule – child and parent version
APA	American Psychological Association
ATACA	Assessment and Treatment – Anxiety in Children and Adults
CBCL	Child Behavior Checklist
CBT	Cognitive behavioral therapy
CS	Credibility Scale
DAWBA	Development and Well-being Assessment
GAD	Generalized anxiety disorder
GCBT	Group-based cognitive behavioral therapy
HLM	Hierarchical linear modeling
ICBT	Individual-based cognitive behavioral therapy
ICC	Intraclass correlation coefficient
MASC	Multidimensional Anxiety Scale for Children
MFA	Multi-level factor analysis
NML	Nijmegen Motivation List
RC	Reliable change
RCT	Randomized controlled trial
SAD	Separation anxiety disorder
SP	Social phobia
TASC-C/T	Therapeutic Alliance Scale for Children – child and therapist version
TC	Treatment credibility

TPOCS-A	Therapy Process Observational Coding System – Alliance Scale
WAI	Working Alliance Inventory

Abstract

This dissertation is about the therapeutic alliance in cognitive behavioral therapy (CBT) for youth anxiety disorders. It comprises three papers, as well as a summary in which I describe the background and rationale for the papers and discuss the findings. Paper I is a systematic review of 19 randomized controlled trials (RCTs) assessing the link between relationship factors and outcome in CBT for youth anxiety disorders. The identified relationship factors were parental participation, treatment involvement, and the therapeutic relationship. Paper I highlighted the paucity of studies that have examined relationship factors in CBT for youth anxiety disorders.
The need to both further explore relationship factors and to establish psychometrically sound relationship measures was emphasized. I examined these questions in Papers II and III.

Paper II examined the factor structure and psychometric properties of an observation-based alliance measure for youth psychotherapy, the Therapeutic Process Observational Coding System –Alliance Scale (TPOCS-A; McLeod & Weisz, 2005). The TPOCS-A was used to assess client-therapist alliance in a subsample drawn from a RCT for youth anxiety disorders comparing individual-based CBT, group-based CBT, and a waitlist condition. We found support for the reliability as well as the convergent and divergent validity of the TPOCS-A. Principal axis factor analysis supported a one-factor solution of the alliance. This is in contrast to theories that postulate separate alliance dimensions, but in line with findings from previous factor analytic studies of youth alliance measures.

Paper III examined youth motivation and perceived treatment credibility as predictors of youth- and therapist-rated early alliance and alliance change from early to late in treatment. This paper was based on a larger sample drawn from the same

RCT as Paper II. We ran analyses using hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002). Motivation predicted youth- and therapist-rated early alliance, but not alliance change. Treatment credibility predicted early youth-rated alliance. Treatment credibility also predicted both youth- and therapist-rated alliance increase from early to late in treatment.

The main clinical implications of this dissertation are that (a) the alliance seems to represent one underlying construct in youth psychotherapy, which implies that failure to establish an emotional bond between the youth and the therapist may result in failure to engage the youth in treatment tasks and vice versa, (b) enhancing youth motivation at treatment onset may support clinicians with initial alliance formation, and (c) enhancing treatment credibility early in treatment may support clinicians' continued alliance building and maintenance. Future studies should measure the alliance from multiple perspectives and at several time points during treatment to further disentangle how the alliance may influence CBT for youth anxiety.

Introduction

This dissertation comprises three papers. Paper I addressed the current knowledge about relationship factors in cognitive behavioral therapy (CBT) for youth anxiety disorders. Paper II provided psychometric support for an observer-rated alliance measure. Paper III examined predictors of the therapeutic alliance in CBT for youth anxiety disorders. The samples for papers II and III were drawn from an ongoing randomized controlled trial (RCT) of manual-based CBT for youth anxiety disorders in community clinics.

Background

CBT is the recommended treatment for youth anxiety disorders (James, Soler & Weatherall, 2010). Recent reviews have established CBT for youth anxiety disorders as ”probably efficacious” (Chorpita et al., 2011; Davis, May, & Whiting, 2011; Silverman, Pina, & Wisvevaran, 2008) or “well-established” (Öst, 2011). However, up to half of participants in research trials still meet criteria for one or more anxiety disorders or remain symptomatic after treatment (Alfano et al., 2009; Cartwright-Hatton et al., 2004). Little is known about the mechanisms that cause change in CBT for youth anxiety disorders. Understanding the therapeutic processes that contribute to change may help optimize treatment programs and enable therapists to better engage youth who currently fail to respond to treatment. One possible mechanism of change in youth psychotherapies is the therapeutic alliance (Shirk, Karver, & Brown 2011).

The evidence relating the alliance to outcome in studies of CBT for youth anxiety disorders is mixed. A few studies have found links between alliance and outcome (Chiu, McLeod, Har & Wood, 2009; Creed, 2007; Liber et al., 2010). However, two earlier studies found no association between the therapeutic

relationship and outcome (Kendall, 1994; Kendall et al., 1997). Methodological features such as when and from whose perspective the alliance is measured may be part of the explanation for the mixed results. The alliance may explain part of the effect of CBT for youth anxiety disorders. Moreover, the alliance may impact on CBT via other treatment processes, such as motivation and/or treatment beliefs. Thus, more research is needed about the alliance construct in CBT for youth anxiety disorders, including how it may be measured and how it may relate to other process factors. This is the focus of this dissertation.

Definitions of Key Concepts

Process and relationship factors. In this dissertation, I understand **"**process factors" as mechanisms hypothesized to work in treatment to cause therapeutic change (Kazdin & Nock, 2003). These processes or mechanisms may relate to specific treatment tasks or to general aspects of treatment, such as the therapist-client relationship. The term "relationship factors" refers to the feelings and attitudes between clients and therapists, and how these are expressed (Norcross, 2002). In this dissertation, relationship factors are understood as equivalent to the factors identified by the American Psychological Association (APA)'s Division 29 Task Force. These are described in Paper I. I mainly consider three process factors; alliance, motivation, and treatment credibility.

Alliance. There is no unitary definition of the therapeutic alliance (herein called alliance). The concept can be regarded as an umbrella term incorporating several aspects of the interactional relation between clients and therapists (Green, 2006). The alliance is often defined as comprised of three components: (a) the emotional bond between client and therapist, (b) agreement between client and therapist on the tasks of treatment, and (c) agreement between client and therapist on

the goals of treatment (Bordin, 1979). These dimensions are referred to as the bond, task, and goal dimensions of the alliance. This dimensional understanding is applied the alliance in both adult and youth studies (Elvins & Green, 2008). Other researchers have hypothesized that the alliance may comprise the following components: (a) an emotional connection, i.e. the affective bond between client and therapist, (b) a cognitive connection, e.g., hopefulness about treatment and willingness to participate in treatment, and (c) actual behavioral participation in treatment (Karver, Handelsman, Fields, & Bickman, 2005). In this dissertation, the alliance is conceptualized as the affective collaboration between client and therapist (Elvins & Green, 2008).

Motivation. Treatment motivation can be defined as client acknowledgement of problems, perceived distress, and willingness to change (Keijsers, Schaap, Hoogduin, Hoogsteyns, & Kemp, 1999). Treatment motivation has been considered a changeable cognitive "state of readiness" for therapy (Krause, 1967). Motivation can be understood in light of Prochaska and DiClemente's stages of change model (Prochaska, DiClemente, & Norcross, 1992). In this model, change is characterized as a five-stage process, labeled pre-contemplation, contemplation, preparation, action, and maintenance. These stages can be considered overlapping "readiness for change"-conditions that are equivalent to motivation stages (Lask, 2003). Keijsers and colleagues (1999) posit that a motivated patient has completed the pre-action stages and moved to a state in which problems are acknowledged and active steps are taken to deal with these. Thus, motivation may represent a state in which a patient's beliefs about distress and problems have already been altered. An unmotivated patient may still be in a stage in which problems are not fully acknowledged and/or where change is considered inappropriate or impossible (Keijsers et al., 1999).

Youth are usually not self-referred to clinics (DiGuiseppe, Lincott, & Jilton, 1996), which may impact on their readiness for treatment. Prochaska and DiClemente's model of change (Prochaska et al., 1992) is theoretically derived based on the functioning of adults. Thus, what these stages represent for youth is unclear.

Treatment credibility. Treatment credibility can be defined as how logical, plausible, and believable a treatment is perceived to be (Kazdin, 1979). Treatment credibility is linked to treatment expectations (i.e., expectations about outcome and/or about what treatment will be like; Greenberg, Constantino, & Bruce, 2006). Findings from adult studies indicate that treatment expectations are related to the alliance and/or interplay with alliance to influence outcome (e.g., Connolly-Gibbons et al., 2003; Constantino, Arnow, Blasey, & Agras 2005; Joyce, Ogrodniczuk, Piper, & McCallum, 2003.; Meyer et al., 2002). From youth research, there is evidence that parents' treatment expectations are related to both alliance and outcome (Nock & Kazdin, 2001).

Treatment credibility usually refers to how treatment is perceived after the client has been provided with some sort of information or description of the treatment in question (Greenberg et al., 2006). Karver and colleagues (2005) proposed that therapists' behaviors and characteristics may serve as credibility cues, impacting on how credible (s)he is perceived to be. It is posited that the perception of these credibility cues influences clients' cognitive and emotional attitudes about therapist helpfulness, positive expectations, and faith about attempting to change (Frank, Frank, & Cousins, 1993). As for motivation, treatment credibility may manifest differently for youth due to developmental reasons.

Youth anxiety disorders. Anxiety becomes a problem that may require clinical attention if the normal fears and worries of youth exceed a certain level of

duration, intensity, and frequency (American Psychiatric Association, 2000). Prevalence rates for anxiety disorders range from 5 to 10%, which means they are among the most prevalent youth psychological disorders (Davis et al., 2011). The participants in the samples used in Papers II and III had one or more of three anxiety disorders, namely separation anxiety disorder, social phobia, and/or generalized anxiety disorder.

Separation anxiety disorder (SAD) is characterized by persistent, excessive, and developmentally inappropriate fear of separation from major attachment figures, usually parents. Symptom criteria include fearful cognitions, behavioral avoidance, and physiological or somatic symptoms, and youth must display three of eight symptom criteria for at least four weeks for diagnosis (American Psychiatric Association, 2000). SAD symptoms seem to depend on youths' developmental level. Younger children show more apparent distress in separation situations, while older adolescents show more somatic symptoms (Allen, Lavallee, Herren, Ruhe, & Schneider, 2010).

Social phobia (SP) is characterized by a strong and persistent fear of social or performance situations in which the youth may feel embarrassed or humiliated. Fear of being evaluated is an essential feature of SP. Generalized SP refers to a fear of most social interactions combined with fear of most performance situations, such as speaking in public or eating in a restaurant. Youth who are afraid of only one type of performance situation or afraid of only a few rather than most social situations may be described as having non-generalized, circumscribed, or specific SP (American Psychiatric Association, 2000). SP may be more common for older adolescents than for younger children, but findings here are contradictory (Burstein et al., 2011).

Generalized anxiety disorder (GAD) is characterized by at least six months of excessive worry about a variety of events and situations (e.g., school, health, potential threats). Such worry has to be experienced as uncontrollable, be present more days than not, and be accompanied by somatic symptoms or symptoms like irritability and concentration problems (American Psychiatric Association, 2000).

Common to all the anxiety disorders above, there needs to be significant impairment in functioning that is experienced and reported either by the youth and/or by parents or guardians (American Psychiatric Association, 2000). In clinical populations, there is considerable overlap between these disorders (Benjamin, Beidas, Comer, Puliafico, & Kendall, 2011).

Anxiety may severely impact on youths' functioning. Anxious youth may experience difficulties in their social and peer relations, academic achievement, and future emotional health (Kendall & Ollendick, 2004). Youth anxiety is also a major risk factor for adult mental-health problems, as adult anxiety disorders are regularly preceded by their youth counterpart (Kim-Cohen et al., 2003). Youth with anxiety problems also often go on to develop depression, and may be at an increased risk of substance misuse (Field, Cartwright-Hatton, Reynolds, & Creswell, 2008). Taken together, the potential negative impact of anxiety problems for youth emphasize the need to offer effective treatment to youth with anxiety disorders. One way to achieve this is by enhancing the knowledge base of mechanisms of change in CBT for youth anxiety disorders in order to optimize treatment.

Terms used for age groups. In this dissertation, the term "youth" means someone aged 8 to 15 years when referring to the samples used for Papers II and III. When not specifically referring to these samples, "youth" is meant as a general term

incorporating both “children” and “adolescents”. When the terms “children” and “adolescents” are used, this is to distinguish between pre- and post-adolescent youth.

Rationale

It is currently not clear how the specific treatment tasks of CBT for youth anxiety disorders (e.g., cognitive restructuring, exposure training) interplay with general factors (e.g., alliance, treatment motivation, treatment credibility) to cause (or not to cause) therapeutic change. Process factors may be particularly important with youth clients. Youth often enter treatment involuntarily and resistant to change. Youth may be at odds with adults’ understanding of the problem, and/or of treatment tasks and goals (Elvins & Green, 2008). Irregular attendance and premature drop out have been documented among youth community clinic clients (e.g., Weesring & Weisz, 2002; Garcia & Weisz, 2002). This highlights the need to examine process factors that may enhance the youths’ engagement and participation in community clinic practice.

Second, process factors are often studied in isolation and without a theoretical perspective for how different process factors relate to each other. Thus, there is a need for studies that examine the links between different process factors (Karver et al., 2005).

Third, youth mental health professionals meet increased demands to offer evidence-based treatments (Green, 2006). However, there are indications that the use of evidence-based treatments in community clinic practice is minimal (Karver et al., 2005). Additionally, many clinicians seem to fear that using treatment manuals will harm the relationship with clients (Connor-Smith & Weisz, 2003). Thus, there is a need to examine the alliance when evidence-based treatments are delivered in community clinics.

Fourth, there are methodological caveats in how the alliance is measured (Elvins

& Green, 2008). One problem is that many studies examining the alliance use an alliance measure that is unique to that one study. A recent meta-analysis of the alliance in youth psychotherapies reviewed 38 studies and found that 16 different alliance measures had been used across studies. Only six scales had been used more than once, and different measures emphasized different alliance dimensions (i.e., bond vs. task vs. goals; McLeod, 2011). Similarly, another recent review of alliance in youth psychotherapy reviewed 16 studies that had used 10 different alliance scales (Shirk et al., 2011). In a meta-analysis of relationship factors in youth studies, Karver Handelsman, Fields, and Bickman (2006) pointed out that most therapeutic relationship measures appear to consist of several overlapping domains, and that knowledge about the domains that make up the measures is lacking. As such, the alliance in youth psychotherapies can be argued to lack specificity (Green, 2006). To reach the goal of a more unitary definition of the alliance, more research is needed to establish what the alliance construct represents with youth clients.

Additional methodological caveats include that several alliance scales used with youth clients originate from adult scales (Elvins & Green, 2008). For developmental reasons, the alliance may need to be conceptualized differently for youth (Shirk & Saiz, 1992). Moreover, several studies administer alliance measures simultaneously with outcome measures at post-treatment, causing confound problems (McLeod, 2011). Furthermore, simultaneous administration of process measures prevents examining models of causality between constructs. Not repeating relationship measures also prevents examination of change in these factors (Karver et al., 2006).

Finally, an important methodological issue is from whose perspective the alliance should be measured. The impact of the alliance on outcome in treatment depends on from whose perspective it is measured (McLeod, 2011; Shirk et al., 2011).

Furthermore, common rater variance is likely to occur when alliance and outcome are measured from the same rater perspective. This may swamp significant effects and lead to potential Type I errors (Kazdin & Nock, 2003).

In summary, there is a need for studies that: (a) examine process factors in CBT for youth anxiety disorders, (b) examine how these process factors are related to each other, (c) examine these factors in the context of evidence-based treatments used in community clinics, (d) examine which dimensions of the alliance construct are relevant with youth clients, (e) use alliance measures that are developed for youth explicitly, (f) measure process factors during treatment and not after, (g) examine different process factors at different points of treatment, and (h) measure process factors from different rater perspectives.

Theoretical Foundation

Process factors are often studied in isolation, without reference to an overarching theoretical model of how these factors may relate to one another. In an attempt to address this, Karver and colleagues (2005) developed a model that links various relationship constructs to each other as well as to treatment outcome. The model is shown in Figure 1.

In overview, the model proposes that client pretreatment characteristics (e.g., age, presenting problem, treatment expectations) influence the extent to which clients are receptive to treatment. Moreover, both client and therapist characteristics (e.g., theoretical orientation, skills) influence how therapists perceive and feel about their clients. These perceptions continue to interact with clients' cognitions, affects, and perceptions throughout treatment as a dynamic process, influencing treatment outcome.

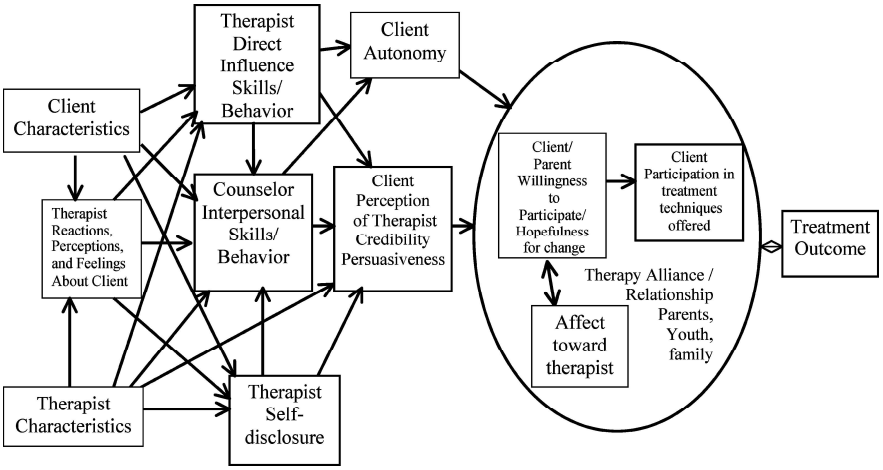

Figure 1. Therapeutic relationship constructs treatment process model. Reprinted with permission from Karver et al. (2005).

This dissertation examined the alliance, as well as two additional factors that are linked to the model, namely motivation and treatment credibility. Conceptually, youth motivation is linked to youth willingness to participate in treatment, and perceived treatment credibility is related to therapist credibility. Central client (i.e., age, gender) and therapist characteristics (i.e., years of experience, amount of CBT supervision hours) were also included as covariates in Paper III.

Knowledge from developmental theory is relevant to understand the alliance and other process factors. Adolescents' need for autonomy generally increases with age, while their adherence to adult values decreases (Steinberg & Silverberg, 1986). This may influence their motivation for and beliefs about treatment, as well as their preparedness to establish an emotional bond with the therapist and their compliance with treatment tasks. For developmental reasons (and based on limited experience) younger children are less likely to know what to expect when they enter treatment. Findings from adult studies indicate that accurate therapy expectations positively

influence treatment participation and outcome (Greenberg et al., 2006). Thus, youths' possible unrealistic or inaccurate treatment expectations may challenge their engagement in treatment. Cognitively, adolescents may have a more complex and possibly more accurate perception of what psychological treatment is compared to younger children. Sigelman and Mansfield (1992) explored attitudes and knowledge about various hypothetical treatment situations in 30 pupils of different ages. Older youth displayed more general knowledge and more accurate perceptions of what psychological therapies are compared to their younger peers. However, older adolescents also displayed less positive attitudes towards therapists than younger children, and were less likely to agree that psychologists are particularly smart or perceptive.

The development of social cognition is also posited to be relevant for alliance formation, particularly youths' ability to self-evaluate, and their attribution styles. Shirk and Saiz (1992) argued that youths' ability to form alliance encompasses an interplay between several social-cognitive belief systems, such as their beliefs in: (a), the helpfulness of caregivers, (b) the need to change, (c) in locus of cause for the problems, and (d) in the contingency of problem solutions. The stronger these beliefs are, the better the "starting point" for alliance formation is assumed to be (Shirk & Saiz, 1992). The relevance of youth age for alliance is considered in both Paper II and III.

Research Aims

The first aim of this dissertation was to review the status of relationship factors in CBT for youth anxiety disorders. The research questions were: (1 a) Which relationship factors have been examined in CBT for youth anxiety disorders?, (1 b) How are these factors measured?, and (1 c) How do these factors relate to outcome?

The second aim was to evaluate the psychometric properties of an observer-based measure of the alliance in youth psychotherapy, the Therapeutic Process Observational Coding System-Alliance Scale (TPOCS-A; McLeod & Weisz, 2005). The research questions were: (2 a) What is the factor structure of the TPOCS-A?, and (2 b) What are the psychometric properties of the TPOCS-A, in terms of reliability, and convergent and divergent validity?

The final aim of this dissertation was to examine potential predictors of early alliance and alliance change in CBT for youth anxiety. The research questions were: (3 a) Does youth pretreatment motivation predict early alliance and alliance change from early to late in treatment, as rated by youth and therapists?, and (3 b) Does youth-rated perceived treatment credibility predict early alliance and alliance change from early to late in treatment, as rated by youth and therapists?

In summary, the overall aims were: (a) to identify the state of the art of relationship factors in CBT for youth anxiety disorders, (b) to examine the factor structure and further establish the psychometric properties of an observation-based alliance measure, and (c) to contribute to the knowledge of how clinicians can build and maintain the alliance.

Methods

The ATACA Study

Overview. The Assessment and Treatment – Anxiety in Children and Adults study (ATACA) is an ongoing randomized controlled effectiveness trial in which evidence-based manualized treatments for anxiety disorders are delivered in regular mental health clinics. ATACA comprises two separate trials, one with adult clients and one with youth clients. The youth section is the focus of this dissertation. The background for the study was the epidemiological Bergen Child Study (N = 9155)

which showed that only 13.3% of children with pure emotional disorders had been or were enrolled in specialized child and adolescent mental health clinics (Heiervang et al., 2007). An important aim of the project was to increase the quality of assessment and treatment for this patient group. The ATACA study takes place in seven specialist child and adolescent mental health outpatient clinics in Western Norway. The clinics are part of the public health system and are free of charge. Youth are most often referred to the clinic by their family physician, and occasionally by child protection services. Both parents and youth above 16 years have to consent to the referral.

The initial planning of ATACA started in 2006. Pilot treatments took place in early 2008, and the active study phase commenced late 2008. The active treatment phase ended early 2011. In total, 182 youth were included (M age = 12.1 years, SD = 2.4 years, range = 8 to 15 years, 47.3 % boys). One-year follow-up is ongoing and will finish 2012. A five-year follow-up is also planned. Figure 2 shows patient flow up until post-treatment.

Procedures. Participants were recruited among youth who were regular referrals to the clinics. When anxiety was mentioned in the referral letter, or the initial assessment uncovered anxiety problems, families were invited to participate in the study. All parents, and youth above 12 years, provided written informed consent, including permission to have sessions videotaped. Youth below 12 years gave verbal assent to participate. The study was approved by the Regional Board for Medical Ethics. When youth were identified for the project, and after consenting, youth and parents underwent a pre-treatment assessment with self- and parent-report questionnaires, as well as a diagnostic interview. The measures used in this dissertation are described in a subsequent section.

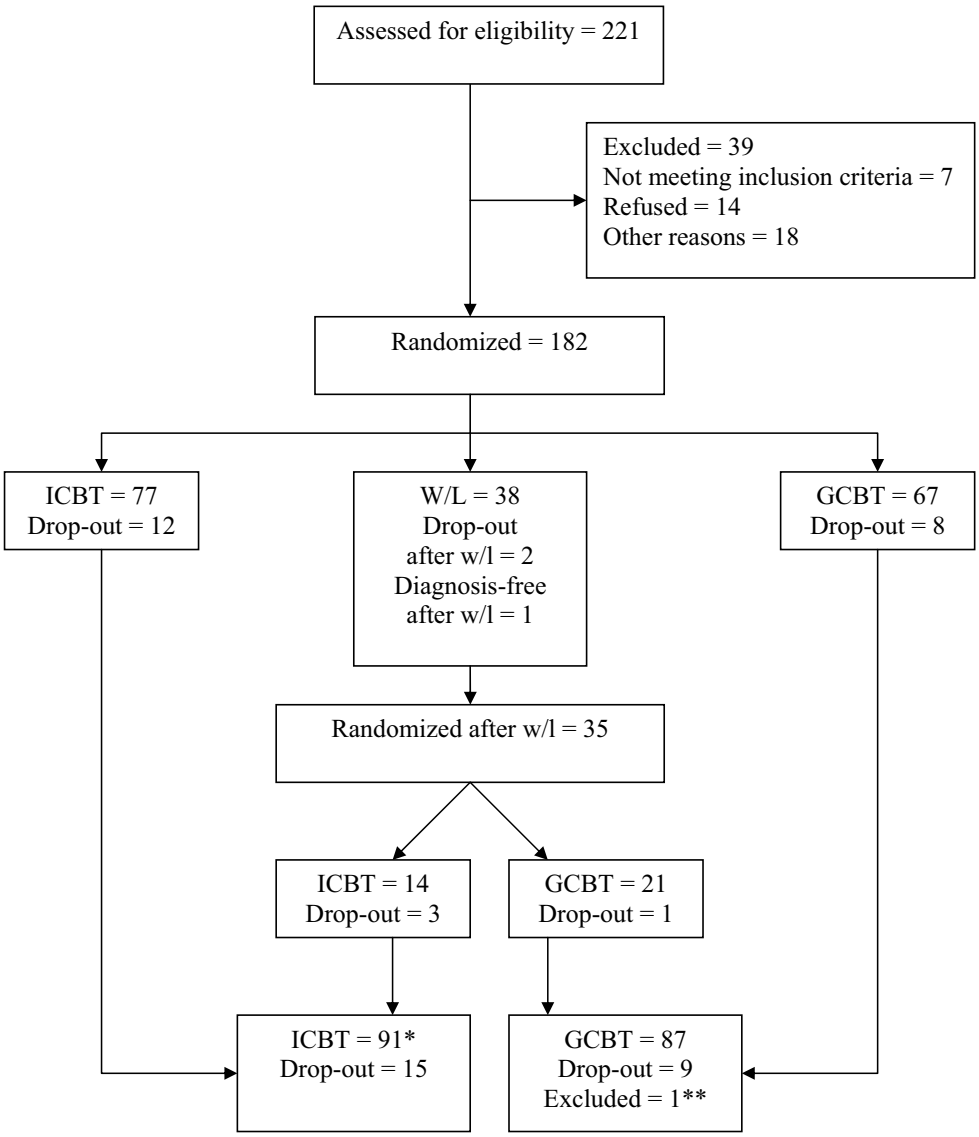

Figure 2. Flow chart for the ATACA study, child part.

Note. I = Individual-based. G = Group-based. CBT = cognitive behavioral treatment.

* Represents the sample used for Paper III. A sub-sample of this sample was used in Paper II. ** This case was excluded due to starting medication mid-treatment.

Inclusion criteria were diagnosis of separation anxiety disorders, generalized anxiety disorder, or social phobia. Exclusion criteria were severe learning disability, psychosis, severe OCD, unstable medication, and severe behavior problems. After inclusion, participants were randomized to individual-based CBT (ICBT), group-based CBT (GCBT), or a six-week waitlist condition in block of six. Twenty-six participants (14.3%) dropped out of the study. Participants were counted as dropouts if they missed more than two sessions of the program. When families failed to attend, efforts were made to reschedule appointments, and missed sessions were replaced.

The treatment program. The treatment program was the FRIENDS for life program (FRIENDS; Barrett, Webster, & Turner, 2004), a 10-week manual-based CBT program for youth anxiety that addresses cognitive, physiological, and behavioral processes involved in the development, maintenance and experience of anxiety. The central elements of the program are affective awareness and relaxation techniques, cognitive restructuring techniques, and exposure training. These elements are presented through play-based tasks that are adjusted to youths' age. There are separate versions for youth aged 8 to 12 years and those aged 12 to 15 years. Home activities are assigned between each session. ICBT sessions are 60 minutes. Parents are expected to attend the last 15 minutes of each session for review of the session and introduction of homework. The program was translated into Norwegian by a Norwegian team of psychologists with the permission of Dr. Barrett. FRIENDS has been documented as effective for youth anxiety disorders in an Australian trial (Shortt, Barrett & Fox, 2001) and a Dutch trial (Liber et al., 2008). In Scandinavia, the FRIENDS program has been evaluated in a small case-series pilot study, which reported a significant reduction in self-reported anxiety symptoms for a third of the participants (Martinsen, Aalberg, Gere, & Neumer, 2009). Several prevention trials

further document the effectiveness of FRIENDS (e.g., Barrett, Farrell, Ollendick & Dadds, 2006; Lowry-Webster, Barrett & Lock, 2003; Liddle & Macmillan, 2010).

Therapists and therapist training. Therapists were regular clinicians at each site who volunteered to participate. A total of 15 therapists participated in the samples for this dissertation (M age = 49.8 years; SD = 9.4; 93.3% female; all Caucasian). Nine were psychologists, five were clinical pedagogues (masters of education with additional clinical training), and one was a clinical social worker (a bachelor-level degree with additional clinical training). Therapists had a mean of 12.0 years of clinical experience (SD = 6.0; i.e., number of years of clinical work post-graduation). As part of the agreement with the management at each clinic, therapists were intended to have one day a week set aside for the project during active treatment phases, but feedback from the clinicians indicate that this was not enforced and that the study tasks came ”on top” of regular clinical contacts and demands. None of the therapists dropped out during the study phase, but at some sites clinicians were added during the project to relieve the original therapists from some of their work. Therapists who participated received a two-day training in the treatment manual, plus a two-day CBT seminar, and a two-day workshop in youth anxiety disorders. Training in the FRIENDS manual was provided by the program author, Dr. Barrett to most therapists. An additional trainer was a Norwegian psychologist who had been trained at Dr. Barrett´s clinic. During the active treatment phases, therapists received biweekly 90-minute supervision sessions by a team of three supervisors with extensive experience with the FRIENDS program. There was a set list of issues to be raised at each supervision session, and supervisors filled out checklists to make sure these points had been addressed. Supervision themes included individual needs of the youth,

process issues, engaging families, and preventing dropouts. Videotapes from sessions were reviewed in supervision.

Assessors. Each site had a team of assessors who were responsible for pre- and post-treatment assessments. Assessors were regular clinicians who volunteered for the assessor role. Assessors conducted interviews and administered questionnaires. Administrative staff at the clinics and/or the assessors assisted youth and parents with filling out questionnaires.

Coders of alliance. Three coders rated alliance from videotapes of the complete session. Coders of alliance were trained over a 2-month period that comprised reading the coding manual, reviewing specific session segments, and practicing scoring of sessions. Coders were certified for coding after their ratings achieved acceptable interrater reliability at the item level, intraclass correlation coefficients (ICCs) > .59 (Cicchetti, 1994), with respect to 15 practice tapes that were independently coded. Regular meetings were held to prevent rater drift (Margolin et al., 1998).

Measures

An overview of all the measures is provided in Table 1.

Anxiety Disorders Interview Schedule - Child and Parent versions (ADIS-C/P; Silverman & Albano, 1996). Youth were diagnosed with the ADIS-C/P, a semi-structured interview with good psychometric properties both for reliability (Silverman, Saavedra, & Pina, 2001), and concurrent validity (Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). A team of clinicians at each site were trained to administer the ADIS-interview during a two-day workshop. Training was provided by Dr. Silverman, or by a psychiatrist who was trained to be reliable on the ADIS with Dr. Silverman. The assessors conducted the interviews at each site and the

Table 1.

Overview of Measures

Measure and description	Rater	Time	α
Anxiety Disorders Interview Schedule (ADIS) Interview about the DSM-IV criteria for SOP, SP, & GAD	C/P	Pre	-
The development and well-being assessment (DAWBA) Internet-based interview about DSM-IV/ICD-10 criteria for co-morbid disorders	C/P	Pre	-
Revised Therapeutic Alliance Scale for Children – (TASC) 12-item questionnaire about the task and bond dimensions of alliance	C/T	s. 3 & 7	.70 to .85
The Therapy Process Observational Coding System – Alliance Scale (TPOCS-A) 9-item observation measure about the bond and task dimensions of alliance	O	s. 3	.92
Nijmegen Motivation List (NML) 15-item questionnaire about pretreatment motivation	C	Pre	.87 to .89
Credibility Scale (CS) 4-item questionnaire about perceived treatment credibility	C	s. 1	.82 to .84

Note. SAD = Separation Anxiety Disorder. SP = Social Phobia. GAD = Generalized Anxiety Disorders. C = Child. P = Parent. T = Therapist. O = Observer. Pre = Pre-treatment. s. = Session.

diagnoses were based on combined parent- and youth-report. Only the SAD, SP, and GAD sections of the ADIS were administered.

The Development and Well-Being Assessment Interview (DAWBA; Goodman, Ford, Richards, Gatward, & Meltzer, 2000). As part of the clinics' intake procedures, all parents and youth above 11 years completed the online version of DAWBA. The DAWBA is a psychiatric interview originally developed for the 1999 British Child and Adolescent Mental Health Survey (Goodman et al., 2000). The DAWBA is structured, but includes open-ended questions to allow for the respondents' own description of the problem whenever a certain amount of symptoms and impact has been reported. The version of the DAWBA used in the current study covers common problem areas such as anxiety, depression, ADHD, and behavior problems as well as less frequent areas such as autism, tics, and eating disorders. In the current study, the DAWBA was used to identify background information and to assess comorbid conditions that represented exclusion criteria. DAWBA-generated diagnoses have documented reliability (Goodman, Yude, Richards, & Taylor, 1996; Heiervang et al., 1997) and validity (Goodman et al., 2000).

Nijmegen Motivation List – child version (NML; Keijsers et al., 1999). The 15-item (e.g., *I urgently need help to solve my problems*) self-report version of the NML adapted for youth by Ollendick et al. (2009) was used to assess treatment motivation. Items are scored on a 3-point scale from 0 (*not at all true*) to 2 (*mostly true*). The NML has demonstrated internal consistency ($\alpha = .73$) with youth clients

(Ollendick et al., 2009). In this dissertation, internal consistency was good in the samples for Paper II (α = .87.) and Paper III (α = .89). The NML was administered before session 1. The NML was translated from Swedish for the current RCT.

Credibility Scale – child version (CS; Borkovec & Nau, 1972). The 4-item CS (e.g. *How confident are you that this treatment will help your anxiety?)* was used to assess TC and is scored on a 9-point scale from 0 (*not sure*) to 8 (*very sure*). The CS has demonstrated discriminant validity in a study comparing exposure to non-exposure treatment for childhood phobias (Ollendick et al., 2009). In this dissertation, internal consistency was good in the samples for Paper II (α =.82) and Paper III (α = .84). The CS was administered at the end of session 1, in which youth had received a description of the treatment program. The CS was translated from Swedish for the current RCT.

Therapeutic Alliance Scale for Children, child and therapist versions (TASC-C/T; Shirk & Saiz, 1992). The revised TASC was used to assess youth- (TASC-C) and therapist-rated (TASC-T) alliance. The 12-item TASC-C covers bond with the therapist (e.g. *I liked spending time with my therapist*), and agreement with therapy tasks (e.g., *My therapist and I worked well together to solve my problems*). Items are scored on a 4-point scale ranging from 1 (*not true at all*) to 4 (*very true*). The TASC-T has 12 equivalent items on which therapists rate their perception of the youth's experience. The TASC has demonstrated internal consistency both when used with youth (α = .88 to .92), and therapists (α = .94 to .96; Creed & Kendall, 2005). The TASC was administered in sessions 3 and 7. Only the session 3 measures were included in the analyses for Paper II. Session 3 was used as an indicator of early alliance (e.g., Baldwin, Wampold, & Imel, 2007), whereas session 7 was used to indicate late alliance (Elvins & Green, 2008). Internal consistency was acceptable in

Paper II for the TASC-C (α =.81) and TASC- T (α = .70). In Paper III, internal consistency was acceptable for the TASC-C/T in session 3 (α = .77 and .85) and in session 7 (α = .84 and .77). The TASC was translated to Norwegian by a research group in Oslo with approval from Dr. Shirk.

The Therapy Process Observational Coding System for Child Psychotherapy – Alliance Scale (TPOCS-A; McLeod & Weisz, 2005). The TPOCS-A was used to rate the quality of the youth alliance from the perspectives of observers. The TPOCS-A consists of 6 items that assess affective elements of the client-therapist relationship (e.g., "to what extent does the client demonstrate positive affect toward the therapist"), and 3 items that assess client participation in therapeutic activities ("to what extent does the client not comply with tasks"). Coders view entire therapy sessions and then rate each item on a 6-point scale ranging from 0 (not at all) to 5 (a great deal). Previous studies have demonstrated adequate interrater reliability, internal consistency, and convergent validity of the TPOCS-A (see Chiu et al., 2009; Liber et al., 2010; McLeod & Weisz, 2005). In Paper II, internal consistency was good (α = .92). The TPOCS-A was translated to Norwegian for this RCT. A back-translation was approved by Dr. McLeod.

Data Analytic Procedures and Statistics

In Paper I the reviewed studies were identified in literature searches of Web of Science, PsychINFO; PubMed, and Dissertation Abstracts using the 29 relationship factors identified as evidence-supported by the APA Division 29 Task Force (Norcross, 2002). Also, four journals were hand searched and prominent authors were contacted to identify additional studies. Thirty-nine studies were identified and coded by the first and second author of the paper, resulting in a final inclusion of 19 studies.

Data analyses for Paper II progressed through four steps. First, interrater

reliability of the TPOCS-A items was examined. Second, systematic differences in alliance scores were checked for by examining youth gender, site, primary anxiety diagnosis, and age group differences on the TPOCS-A, TASC-C, and TASC-T. Third, an exploratory factor analysis of the TPOCS-A was conducted. Finally, the convergent and divergent validity of the TPOCS-A was examined, by comparing correlations between the TPOCS-A and other alliance measures versus the correlations between the TPOCS-A and other process measures.

In Paper III HLM (or multilevel modeling; Raudenbush & Bryk, 2002) was used. This statistical method has several advantages for working with nested data. HLM can model change over time on two levels, a Level 1 component representing individual variation and a Level 2 component representing the extent that variation differs across individuals. Each component is further divided into fixed and random effects. Fixed effects are an estimate of the variation attributed to a specified variable such as time or outcome expectancy. Random effects are estimates of individual variation. Through estimating a random effect for within-person (Level 1) variation, the estimates of the between-person fixed and random effects are adjusted for the violation of measurement independence. HLM also provides more accurate estimates of standard errors, which is another benefit when working with nested data (Singer & Willett, 2003).

HLM models are represented as multilevel or hierarchical equations (Raudenbush & Bryk, 2002). The parameters (intercepts and slopes) from the level 1 model (within-individual) become the dependent variables in the level 2 mode (between person). As such, the models represent a regression within a regression.

Results

This dissertation examined the alliance in CBT for youth anxiety disorders. Paper I was a systematic review of 19 RCTs examining relationship factors in relation to outcome in CBT for youth anxiety disorders, and the main findings were: (a), few studies have examined the role of process factors for outcome in methodologically rigorous trials of CBT for youth anxiety disorders, (b) the relationship factors that have been examined were parental participation, parent and child involvement, and the therapeutic relationship, (c) the reviewed studies that examined parental participation compared treatment conditions in which youth were treated alone to a condition in which parents also participated in treatment, but the nature and level of parent participation varied considerably between studies, (d) parental participation had significantly better treatment results compared to child-only participation in 7 of 12 studies, and child-only participation had significantly better results than parent participation in one study, whereas in the remaining four studies there was no difference in outcome between the parent participation and child only conditions, (e) parental involvement was examined in three studies, and had an increased effect on outcome in the one study that measured observer-rated parental involvement, but not in the two studies that measured therapist-rated parental involvement, (f) observer-rated child involvement was addressed in two studies that used the same sample, and it was found that child involvement positively influence outcome, and (g) the therapeutic relationship, measured by self-report, was not related to outcome in either of the two studies that examined it. Paper I points out the need to (a) establish psychometrically sound relationship measures, and (b) further examine relationship factors in CBT for youth anxiety disorders, which was the focus of Papers II and III.

Paper II examined the factor structure as well as the convergent and divergent validity of an observation-based alliance measure, the TPOCS-A (McLeod & Weisz, 2005). The main findings from Paper II were: (a) a principal axis exploratory factor analysis with promax rotation indicated a one-factor solution that accounted for 64.86% of the total variance, (b) convergent validity of the TPOCS-A was demonstrated through high correlations between the TPOCS-A and other alliance measures (i.e., alliance measured from the perspectives of youth and therapists), and (c) divergent validity of the TPOCS-A was demonstrated through small to medium and non-significant correlations between the TPOCS-A and other process measures (i.e., motivation and treatment credibility). The results from Paper II indicate that the TPOCS-A is a psychometrically sound measure, and that the theoretically hypothesized different dimensions of the alliance (i.e, an emotional bond, agreement on treatment tasks and goals, Bordin, 1979) may represent a single underlying dimension for youth.

Paper III examined youth motivation and perceived treatment credibility as predictors of youth- and therapist-rated early alliance and alliance change, using HLM. The main findings were: (a) motivation was a significant positive predictor of both early therapist- and youth-rated alliance, (b) youth treatment motivation did not predict therapist- or youth-rated alliance change, (c) youth treatment credibility had a large significant effect on early youth-rated alliance, (d) youth treatment credibility had medium effects on increases in therapist- and youth-rated alliance, and (e) youth treatment credibility was not a significant predictor of early therapist-rated alliance. The results from Paper III indicate that enhancing treatment motivation at treatment onset may support clinicians initial alliance formation, and that enhancing perceived

treatment credibility early in treatment may support clinicians with alliance building from early to late in treatment.

General Discussion

This dissertation comprises three papers. Paper I is a systematic review of relationship factors (i.e., parent participation, child and parent involvement, therapeutic relationship) and their association with outcome in RCTs for youth anxiety disorders. The samples for Papers II and III were drawn from the ICBT condition of an ongoing RCT for youth anxiety disorders. Paper II examined the factor structure and psychometric properties of an observation-based alliance measure (i.e., the TPOCS-A; McLeod & Weisz, 2005). Paper III examined youth motivation and perceived treatment credibility as predictors of early alliance and alliance change.

Relation of Results to Other Studies

Relationship factors and outcome revisited. Paper I indicated that parent participation is not necessarily beneficial for outcome in CBT for youth anxiety disorders. This is in line with Barmish & Kendall (2005), who reviewed nine parent-participation RCTs for youth anxiety disorders and concluded that there is considerable variation in the participation-outcome relation. Parent participation may be more beneficial for younger children, those with SAD, and when parents have anxiety disorders. It may be beneficial to treat older youth without their parents (Barmish & Kendall, 2005).

Two studies have been published since Paper I that would have met the inclusion criteria for the review (Chiu et al., 2009; Liber et al., 2010). In addition, a dissertation that examined alliance and child involvement in relation to outcome (Creed, 2007) could have been included the review. Table 2 provides an overview of this dissertation as well as the studies published after Paper I.

Table 2. *Significant Associations between Relationship Factors and Outcome in Studies that Supplement Paper I*

Relationship factor and study	Association with diagnostic outcome?	Association with symptom outcome measure?	Association with global outcome measure?
Therapeutic relationship			
Chiu et al. (2009)	-	No*	Yes
Creed (2007)	No	Yes	Yes
Liber et al. (2010)	No**	Yes	No
Child involvement			
Creed (2007)	No	-	Yes

Note. *Alliance was associated with symptom improvement at mid-treatment. ** The study found an interaction effect of treatment condition. Significantly more children with high alliance were diagnosis-free in individual CBT compared to group CBT.

Creed (2007) examined the alliance in relation to outcome in a sample of 68 youth aged 8-17 years drawn from a RCT for youth anxiety disorders. Outcome was defined as diagnostic improvement (ADIS-C/P, Silverman & Albano, 1996) and symptom and global symptom improvement (Child Behavior Checklist (CBCL), Achenbach, 1991). Youth and therapists rated alliance with the revised TASC (Shirk & Saiz, 1992). In addition, observers rated alliance using the four-item Therapy Alliance Building Behavior Scale - Alliance (TABBS-A; Creed & Kendall, 2005). All alliance measures were administered in session 3. Multiple regression models indicated that both observer- and therapist-rated alliance was significantly associated

with parent-rated outcome, both with regards to the overall CBCL and the anxiety and depression scales of the CBCL. Youth-rated alliance was not associated with outcome.

Chiu and colleagues (2009) examined the relation between observed alliance (TPOCS-A; McLeod & Weisz, 2005) and outcome in a sample of 34 youth aged 6 to 13 years drawn from a RCT comparing family-based CBT to individual CBT. Diagnostic (ADIS-C/P, Silverman & Albano, 1996), symptomatic (Multidimensional Anxiety Scale for Children; MASC, March, 1997), and global functioning (CBCL, Achenbach, 1991) measures were administered at mid- and at post-treatment. Independent observers rated the alliance based on random video sessions drawn from early and late stages of treatment (*N sessions* = 123). There was no association between alliance and post-treatment effects. However, early alliance was associated with parent-rated symptom improvement and global improvement at mid-treatment. Furthermore, positive alliance shifts from early to late in treatment was associated with increased reduction in parent-rated internalizing symptoms on the CBCL (but not any other outcome measure). The average effect size for the association between early alliance and post-treatment outcome measures was r =.12, which is lower than findings from meta-analytic studies across youth disorders (i.e., r = .14, McLeod, 2011; r = .21, Shirk & Karver, 2003; r = .22, Shirk et al., 2011).

Liber and colleagues (2010) examined the role of alliance for outcome in a RCT comparing ICBT to GCBT for youth anxiety disorders in 52 youth aged 8 to 12 years. The alliance measure was the observer-rated TPOCS-A (McLeod & Weisz, 2005), measured in one early session and one late session. Outcome measures were diagnostic status (ADIS-C/P; Silverman & Albano, 1996), anxiety symptoms (MASC, March, 1997), as well as global symptoms (CBCL, Achenbach & Rescorla, 2001).

The alliance was not a significant predictor of improvement in symptomatic or global functioning. However, the multiple regression models were rerun using the Reliable Change Index (RC) for symptom improvement. RC is a more conservative change measure than regular pre to post change variables (Jacobson & Truax, 1991; Liber et al., 2010). In Liber et al. (2010) alliance was a significant positive predictor of RC on the MASC, although effect sizes, calculated separately for early and late alliance, and outcome measures at mid- and post-treatment, were all small ($r < .13$; Cohen, 1992). Mean youth alliance did not predict diagnostic improvement. However, an interaction effect based on treatment format was found. Youth in ICBT who were diagnosis-free at post-treatment had significantly higher alliance scores compared to youth in GCBT who were diagnosis-free at post-treatment.

Creed (2007) also considered child involvement, measured by observers with the six-item Child Involvement Rating Scale (CIRS; Chu & Kendall, 1999). Child involvement significantly predicted global parent-rated outcome (CBCL). The study referenced in Paper I as Chu and Kendall (2008, *submitted*) has later been published (Chu & Kendall, 2009). Thus, child involvement was related to outcome in all the reviewed studies that have examined this, indicating that this is a variable worth additional investigation.

The predictive validity of the alliance. Paper I showed that the therapeutic relationship was not related to outcome in the two included RCTs that had examined this. However, three studies not included in Paper I provide some evidence that there might be an alliance-outcome association in CBT for youth anxiety when the alliance is measured from other perspectives than the youth's own (Creed, 2007; Liber et al., 2010), and that alliance shifts may be relevant for outcome (Chiu et al., 2009). The Liber et al. (2010) study also indicated that the alliance-outcome association may be

different in ICBT versus GCBT, and that effects of alliance may be more salient when more conservative approaches to measuring outcome are applied. In summary, there appears to be no support for youth-rated alliance as a predictor of outcome in CBT for youth anxiety disorders, but a possible association for therapist- or observer-rated alliance, and observer-rated alliance shifts, all depending on how outcome is defined.

Is the alliance a unitary or multidimensional construct? The factor analysis of the TPOCS-A in Paper II indicated that the youth alliance represents one dimension. In a recent review of youth alliance measures, Shirk et al. (2011) suggested that the strong intercorrelation between the bond and task dimensions of the TPOCS-A (as well as of other youth alliance measures) indicate that the alliance may be a unitary construct in youth psychotherapy. In a comprehensive review of the alliance concept, Elvins and Green (2008) also argued that the alliance in youth represents a unitary concept. Paper II of this dissertation did provide empirical support for this view, which is also in line with previous factor analytic findings of youth alliance scales (DiGiuseppe et al., 1996; Faw, Hogue, Johnson, Diamond, & Liddle, 2005; Hogue, Dauber, Stambaugh, Cecero, & Liddle, 2006). A noted limitation of these previous studies is their small sample sizes (i.e., $N = 90$, DiGiuseppe et al., 1996; $N = 51$, Faw et al., 2005 $N = 52$; Fjermestad et al., in press; $N = 100$, Hogue et al., 2006). However, a study by Wintersteen, Mensinger, and Diamond (2005) applied a principal component analysis to the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989) in a much larger sample ($N = 600$), and also found support for a one-factor solution that accounted for 56% of the variance in a substance abuse trial. Two of the previous factor analytic studies examined youths' self-reported alliance (DiGiuseppe et al., 1996; Wintersteen et al., 2005) and three examined observer-rated alliance (Faw et al., 2005; Fjermestad et al., in press; Hogue

et al., 2006), indicating support for a one-factor solution from both rater perspectives.

These results are in contrast to findings from several adult alliance measures, in which factor analyses of several scales have resulted in more factors (Hatcher and Barrends, 1996). Youth's developmental ability to report on complex interpersonal relationships may partly explain this difference. Adult clients may be more cognitively and emotionally able to distinguish between liking the therapist, understanding and accepting the goals of treatment, and agreeing with the tasks of treatment. For instance, an adult client may think "*I am not sure if I like my therapist, but what we do here seems to make sense*", whereas for youth, these aspects of the treatment relation are more intertwined. For youth, collaborating on tasks and liking the therapist may become mutually dependent, and affectively connecting with the therapist could be difficult for youth if what happens in treatment makes little sense, and vice versa. The finding that the one-factor solution also applies to observer-rated measures adds support to the view that the youth alliance represents one underlying dimension.

Predictors of alliance. The findings from Paper III link with the handful of studies that have previously explored alliance predictors. Diamond, Liddle, Hogue, and Dakof (1999) found that therapist behaviors like attending to the youth's experience, formulating meaningful goals, and presenting self as an ally were more prominent in five improved cases than in five unimproved cases in a study of family therapy for youth substance abuse. Creed and Kendall (2005) coded therapist behaviors and found that emphasizing collaboration was positively correlated with early alliance in CBT for youth anxiety disorders. Pushing the youth to talk and overemphasizing common ground was negatively associated with both early and late alliance. Russell, Shirk, & Jungbluth (2008) found that patterns of therapist behaviors

like experiential socialization (e.g., formulating goals, presenting the treatment model), responsivity (e.g., providing support, using praise), and remoralization (e.g., exploring motivation, challenging pessimism) in the first treatment session of youth with depression were associated with both youth- and therapist-rated subsequent alliance. In a depression treatment trial, Jungbluth and Shirk (2009) found that therapist behaviors in the first treatment session (i.e., attending to the teen's experience, examining motivation, and using less structure) predicted subsequent observer-rated client involvement. Furthermore, observer-rated child involvement has been found to be associated with alliance (Creed, 2007). Paper III adds to this knowledge base of factors that contribute to alliance formation and building. Specifically, it identified youth-level factors that contribute to what is already known about therapist factors that influence the alliance.

Methodological Considerations and Limitations

Consideration of measures. The validity of using self-report scales with youth can be questioned. Youths' responses depend not only on their age but also experiences associated with their growth; including their cognitive, social, and emotional development (Kendall & Ollendick, 2004). With regards to measuring therapeutic alliance, it is important to consider that youth have most likely not been in therapy before, and therefore, have no other therapist to compare against. Also, when the relationship is unsatisfactory, youth are likely to have less opportunity to end the relationship as they are often brought to therapy by others. A meta-analysis of youth relationship studies found that generally youth rate the alliance as high with little variation (Karver et al., 2006). Developmentally, younger children often fail to distinguish between a "real" and a wishful self (Eccles, 1999). This may contribute to overestimates of the alliance quality, as youth may idealize the therapeutic

relationship (Shirk & Saiz, 1992). Ratings with limited variance limit the potential predictive validity of alliance measures.

Both the motivation and the treatment credibility questionnaires used in Papers II and III were originally developed for adults. Both were adapted for use with youth by Ollendick's group for their phobia treatment trial (Ollendick et al., 2009). Although the reliability of both scales was satisfactory in the samples for Papers II and III, the questionnaires are not necessarily developmentally appropriate for youth. For developmental reasons, youth's cognitive appraisal of motivation and treatment credibility may be different from adults' cognitive appraisal. Further work examining the validity of these scales may help establish whether these scales are developmentally appropriate or if they should be further modified for use with youth.

In contrast, the alliance scale used in Papers II and III, the revised TASC (Shirk & Saiz, 1992) was explicitly constructed for use with youth. It is also one of the most widely used alliance scales for youth (Elvins & Green, 2008; Shirk et al., 2011). These are clear advantages of using the scale. Dr. Shirk has also developed an alliance scale for adolescents, the Therapeutic Alliance Scale for Adolescents (TASA) with documented psychometric quality (Shirk, Gudmundsen, Kaplinski, & MeMakin, 2008) that should be further explored for use with adolescents.

Consideration of procedures. For both paper II and III, we used only the sample randomized to ICBT. The reason was that the included variables may play a different role in GCBT compared to ICBT. For instance, anxious youth may perceive the credibility of GCBT and ICBT differently. Youth with social phobia may feel particularly anxious about being in GCBT, thus devaluating the credibility of such treatment. However, a socially anxious youth may also think that practicing social situations through the GCBT could be beneficial, and thus perceive treatment

credibility as high. The alliance and what it represents may also depend on treatment format. In GCBT, youth form alliances not only with the therapist, but also with other group members. The TPOCS-A has been used in a Dutch group trial, and alliance quality and reliability indexes were comparable to studies that have used the TPOCS-A in individual treatment (Liber et al., 2010). However, Liber et al. (2010) also found an interaction effect of CBT format, in that more youth with high alliance were likely to be diagnosis-free at post-treatment in ICBT versus GCBT. The advantage of only having included the ICBT condition is that results are not compromised by differences in treatment format.

Representativity of the samples and generalizability of the findings. Our results are not necessarily transferable to youth with other disorders than anxiety. Furthermore, studies are needed to confirm if our results apply to children under 8 years and/or adolescents above 15 years. Older youth are to a greater extent than younger children able to cognitively grasp the idea of what treatment is, and are more likely to have an active part in the decision to seek treatment. In Norwegian youth mental health clinics, youth above the age of 16 years have to provide written consent to be referred to clinics. The fact that they have to consent to treatment may reflect their pretreatment motivation stage, and possibly influence subsequent treatment beliefs and alliance. Younger children are more dependent on their caregivers' decisions about treatment, and may be less cognitively able to comprehend the complexities of a treatment situation and context (Shirk & Saiz, 1992).

Only one of the therapists in the current study was male, making generalization to male therapists difficult. Furthermore, nearly all our participants were Caucasian, so were all therapists. Our results may not generalize to non-Caucasian therapist and clients.

The manual-based CBT was delivered by regular clinicians in community clinics in the current RCT. Clinicians received 3 x two-day workshops in the treatment manual, CBT principles, and youth anxiety disorders, respectively. They also received biweekly group supervision during active treatment phases of the study, and attended annual project seminars which comprised lectures and discussions about the treatment program. This level of training and supervision may not be representative of, or applicable to, clinical community practice outside research trials.

Specific methodological considerations for Paper II.

Exploratory versus confirmatory factor analysis. An exploratory factor analysis was conducted, rather than a confirmatory analysis. Confirmatory factor analysis should be applied when a priori hypotheses or models exist about expected factor structures, whereas exploratory factor analysis, e.g., principal axis factoring, is the method of choice if the purpose is to explore the data for a given sample, without a priori hypotheses or models (Field, 2009; Pedhazur & Schmelkin, 1991). Given that the TPOCS-A is based on a theoretical assumption of separate, but correlated, bond and task dimensions, it could be argued that confirmatory factor analysis would be more appropriate. However, although the TPOCS-A was designed to assess two alliance dimensions (i.e., the bond and task dimensions), items designed to assess these two dimensions were not necessarily expected to form separate factors. Thus, no a priori factor structure model existed and we decided to conduct an exploratory analysis.

Oblique versus orthogonal rotation. An oblique rotation method was used as it was expected that if more than one factor emerged they would be correlated. However, the factor structure was also examined using orthogonal rotation (i.e., Varimax). Using an orthogonal rotation a similar factor structure to that of the oblique

rotation emerged (i.e., two factors, and factor 1 explained considerably more of the variance than factor 2). Oblique rotation methods are recommended in social science research as it is reasonable to expect correlations between factors (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Gorsuch, 1997).

Sample size. The main concerns with a small sample size in factor analysis include the risk of eliciting too imprecise factor loadings, and the lack of power to detect additional factors. However, two aspects of our findings in Paper II – strength of the factor loadings and communalities – increase confidence in the results. First, the factor loadings ranged from .44 to .87 (M = .77, SD = .14). In addition, the communalities were high (M =.72, SD = .19). Considered together, the high factor loadings and communalities suggest that the factor is stable (Costello & Osborne, 2005; Guadagnoli & Velicer, 1988).

The limited sample size prevented us from applying multilevel factor analysis (MFA), as the number of participants was low and quite varied both within sites (N participant range 1 to 12) and within therapists (N participant range 1 to 7). The nested design of the study may, however, have indicated the use of MFA, as variance is influenced both by within-subjects (i.e., all participants per site and all participants per therapist) as well as between-subjects (i.e., all participants). MFA allows for the separation of these two sources of variance, which were pooled together in the analyses made. As such, each individual's score on the TPOCS-A was considered as independent. This represents a simplification of the data that could bias the results. However, the proportion of the variance in the alliance scores that was accounted for by the therapists was estimated. The ICC was .21, which indicates that 21% of the variance in the observed alliance scores was accounted for by the therapists. Guo (2005) suggests that multilevel modelling should be considered if the ICC is .25 or

above. The analyses therefore suggested that the therapist-level variance was low enough to justify using univariate models.

Reliability of item coding. An additional methodological concern is the fact that two of the nine TPOCS-A items only reached "fair" reliability based on inter-coder ICC's (both .54). The two items were "*To what extent did the client* (1) *indicate that (s)he experiences the therapist as understanding and/or supporting*", and (2) *and therapist appear anxious or uncomfortable interacting with one another*". The criteria of Cicchetti (1994) indicate that .59 is the minimum level for good reliability, and this was also the level applied for accepting coders after training. Thus, it could be argued that the two items with ICC's < .59 be removed from the scale for the purpose of the study. However, both items are theoretically relevant for the scale. It is also not uncommon for reliability indexes to be in the fair range in studies that apply ratings of highly complex and comprehensive processes, such as alliance ratings (Diamond et al., 1999). It was therefore decided to retain the items.

Specific methodological considerations for Paper III. HLM was used to control for nesting effects at the therapist level, but the site level was not included in the models. Regression models that fail to adjust for high intra-class correlations (i.e., the amount of between group variance) tend to produce too small standard coefficient errors, which can make a finding spuriously significant (Guo, 2005). However, none of the ICCs for site-level were > .25, which is considered an indicator for multilevel models.

Youth characteristics (age, gender) and therapist factors (years of experience, amount of CBT supervision hours) were included as covariates in prediction models. There are mixed recommendations regarding how to incorporate covariates into models. Whereas some authors postulate that only variables that correlate with the

dependent variable should be included in models, others recommend that predictors should be included based on a theory-driven rationale (Jaccard, Guliamo-Ramos, Johanson, & Bouris, 2006). The latter approach was followed, although all covariates except CBT supervision were correlated with one or more of the alliance variables.

Youth age was included as adolescents tend to have a larger need for autonomy and to distance themselves from authority figures (DiGiuseppe et al., 1996), which may impact on the alliance. Youth gender was included as girls tend to be both more prone and able to use social relationships to facilitate therapeutic tasks compared to their male peers (Weisz, Weiss, Han, Granger, & Morton, 1995), and girls also generally tend to disclose more emotions than boys (Landoll, Schwartz-Mette, Rose, & Prinstein, 2011). Therapists' experience was included as this factor has been shown to be related to the alliance (Wintersteen et al., 2005). Therapists' amount of CBT supervision was included as the level of therapist experience with CBT may influence alliance formation and/or maintenance when regular clinicians deliver manual-based CBT in community clinics. Little is known about whether CBT supervision influences alliance formation. However, in a trial comparing manual-based CBT to usual care for youth depression, Weisz et al., (2009) found that parent-rated alliance was higher in the CBT group, in which therapists had received regular CBT supervision. We were interested to examine if the amount of CBT supervision influenced the alliance building skills of the regular clinicians in our sample who delivered a CBT-manual in community clinics.

A limitation of the design was that the covariate variable "amount of CBT supervision" was based on therapist self-report, and content or quality of the supervision was not assessed.

Strengths of the Dissertation

This study has several strengths. The ATACA study represents a unique attempt to integrate evidence-based methods into regular clinical practice with ordinarily referred youth. Several psychometrically sound measures that will help shed a light of the processes of action in such treatments were included. The choice of setting (i.e., community clinics) and sample (i.e., regular clinicians and ordinarily referred youth) increases ecological validity. We applied few exclusion criteria and many youth had co-morbid disorders. This reflects the type of clients clinicians are likely to encounter in community clinics (Southam-Gerow et al, 2010).

A particular strength of Papers II and III was the inclusion of alliance measures from multiple perspectives, including an observation-based measure. The alliance is hypothesized to compose both an emotional connection dimension and a behavioural participation dimension (Karver et al., 2005; Karver et al., 2006). As such, self-and observer-based measures may complement each other; the observer measure captures the behavioral dimension whereas self-report captures the psychological dimension.

The use of HLM in Paper III has several advantages. HLM means observations were not assumed to be independent, which is a weakness of most multivariate models that do not control for nesting effects (Guo, 2005). One problem with not using multilevel on longitudinal data is the assumption of sphericity, requiring that error variances across time must be equivalent and that correlations between any two measurements taken at different time points on the same individual are assumed to be equal (Stevens, 2002). This assumption is untenable in psychotherapy research, as higher level of variability could be expected at the end of the treatment period, for instance due to treatment efficacy, compared to the

beginning of the study. Another problem is that correlations between measures taken consecutively are higher than those taken further apart in time. Thus, not applying multilevel analysis inflates Type I errors, and can result in significant but spurious results. Multilevel models do not require data to meet the sphericity criteria of AN(C)OVA. They allow the researcher to model individual change and variances, and one can model change even if some participants have missing data without resorting to listwise deletion or imputation of data (Gueorgieva & Krystal, 2004).

Implications for Clinical Practice

The review in Paper I identified evidence that child involvement positively influences treatment outcome. Thus, in clinical practice, enhancing child involvement may increase outcome. There is some evidence that this can be done by therapists presenting themselves as an ally, exploring youths' motivation, and not structuring sessions too rigidly (Jungbluth & Shirk, 2009).

We identified two youth factors, motivation and perceived treatment credibility, which seem to be linked to alliance formation (Fjermestad et al., 2011). Thus, enhancing treatment motivation and treatment credibility may be linked to alliance formation and alliance maintenance. Enhancing motivation can be achieved through techniques from motivational interviewing. Examples of techniques include using open-ended questions and exploring advantages and disadvantages of attending treatment with the client (Lask, 2003). With adult clients, it has been suggested that treatment credibility can be enhanced through therapist behaviors like expressing hope, providing information about expected outcome, explaining that change is likely to be gradual, exploring patient expectations, informing patients about treatment interventions, and increasing patient's internal locus of control (Greenberg et al., 2006). The effectiveness of these strategies is not empirically established. In

psychotherapy with youth, such strategies need to be adjusted according to youths' developmental level. There is evidence that youth-rated treatment credibility can be influenced through various preparations for treatment, like using videos, information brochures, and psychoeducation (Coleman & Kaplan, 1990; Day & Reznikoff, 1980; Weinstein, 1988).

A third clinical implication is that failure to establish an emotional connection between the youth and therapist may make collaboration on the goals and tasks of treatment difficult, as the alliance in youth CBT may represent a one-dimensional construct. Similarly, lack of agreement on the tasks and goals of treatment may prevent establishing an affective bond between therapist and the youth client. Thus, clinicians should aim to both establish a bond with the client, and address the youth's agreement on tasks and goals of treatment. The goal should be to involve youth in decisions about treatment tasks and goals, not to "force" youth to agreement.

Fourth, clinicians should not overly rely on their own appraisal of how the youth perceives the alliance. The correlations between client and therapist ratings tend to be only moderate. This has been shown in this dissertation as well as in several other youth studies (e.g., Creed & Kendall, 2005; McLeod & Weisz, 2005; Shirk et al., 2008). This means the clinician should explicitly address and check the alliance with youth clients over the curse of treatment.

Implications for Research

First, more studies are needed to establish the role of relationship factors in CBT for youth anxiety disorders. Paper I showed that such research is scarce. In particular, there is a need to establish what part alliance plays for outcome in CBT for anxiety disorders. Both clinicians and researchers alike seem to hold the view that the alliance is an important factor for successful therapy (Boisvert & Faust, 2006; Kendall

& Ollendick, 2004). However, the evidence that this is the case in CBT for anxiety disorders is limited. So far, there is no support for an association between youth-rated alliance and outcome. There is emerging evidence that observer- and therapist-rated alliance may be associated with parent-rated global functioning outcomes and that alliance shifts may be relevant for outcome (Chiu et al., 2009). Furthermore, there is some evidence that the alliance may have predictive value when outcome is measured more conservatively (see Liber et al., 2010). Future research should aim to ascertain whose alliance at what point during treatment is relevant for which outcome measures. Future studies should also examine how other process factors relate to the alliance, and whether other factors may mediate the relationship between alliance and outcome (e.g., involvement, participation, treatment credibility).

Second, the alliance should be measured from multiple perspectives. Our study demonstrated that correlations between different alliance perspectives are low to moderate, and that predictors of the alliance appear to be different depending on from whose perspective the alliance is measured. Previous reviews have also shown that the alliance is differently associated with outcome depending on alliance perspective (McLeod, 2011; Shirk & Karver 2003). Observational alliance data may provide useful information about therapist and client behaviors that are relevant for the therapeutic process and for enhancing CBT effectiveness. Further advantages of observer-rated measures are that they reduce common rater confounds and limit problems related to self-report (Kazdin & Nock, 2003; McLeod, 2011).

Third, the alliance should be measured at different time points. Paper III showed that early alliance and alliance change from early to late was associated with different predictors. Overlap between alliance perspectives was also different when measured early and late in treatment. Furthermore, on average, the alliance remained

stable from early to late in treatment from the perspectives of youth and therapists in the sample for Paper III. This differs from findings from previous studies of CBT for anxiety disorders that have found that the alliance increased over the course of treatment (Chiu et al., 2009; Kendall et al., 2009). As these were both lab-based studies, alliance trajectories may be different in community settings. Measuring alliance at more than one or two time points will enable important exploration of alliance trajectories over the course of treatment as well as detection of potential nonlinear alliance trajectories. It has been argued that the alliance is more a result of negotiation between clients and therapists than of collaboration (Safran & Muran, 2006). It follows from this that the alliance is regarded not as a static variable but rather a constantly shifting, emerging, emergent property of the therapeutic relationship. Future studies could shed light on such theories, which can be done by measuring the alliance more frequently.

Finally, due to generalization restrictions from our findings, future studies should examine if our findings are relevant for youth with other disorders, in other age groups (both for children < 8 years and adolescents > 15 years), with more ethnically balanced youth and therapist samples, more gender-balanced therapist samples, and in other cultures and settings.

Conclusions

The role of the alliance in CBT for youth anxiety disorders has yet to be established. The alliance may represent a unidimensional phenomenon in such treatment, which means that establishing an emotional bond with youth and engaging them in demanding treatment tasks represents a concurrent task for clinicians. Furthermore, youths' pretreatment motivation and perceived treatment credibility at treatment onset seem to influence the alliance in CBT for youth anxiety. Thus,

enhancing these may help clinicians' alliance building. How the alliance relates to outcome in CBT for youth anxiety disorders is unclear, and seems to depend on from whose perspective the alliance is measured (observers and therapists ratings may be more strongly related to outcome than youth ratings), when it is measured (alliance shifts may be more crucial than alliance measured at a single point in treatment), and how outcome is defined (more conservative measures such as the reliable change index may provide different results than ordinary change variables). Future studies that apply psychometrically sound alliance measures developed for youth, and administer these from multiple perspectives and at different points during treatment may help shed further light on how the alliance may work to optimize CBT for youth with anxiety disorders.

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I

Relationship Factors and Outcome in Child Anxiety Treatment Studies

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ABSTRACT

This study reviews 19 randomized controlled trials examining the association between three relationship factors – participation, treatment involvement, and therapeutic relationship – and outcome of cognitive-behavioral anxiety treatments for children and adolescents. In 12 studies, parent participation was considered as an independent variable compared to child-only participation. In three studies, parental involvement was measured. Child involvement was measured in one study. The child's perception of the therapeutic relationship was considered in three studies. Six studies found a significant positive effect of parent participation on diagnostic status, symptom level, or global functioning outcome measures. One study found a significant effect of parental involvement on global outcome measures. Another study found a significant positive association between child involvement and symptom measures and global functioning measures. No association was found between the quality of the child's perception of the therapeutic relationship and treatment outcome. Clinical implications are discussed.

KEYWORDS

anxiety, children, relationship factors, treatment process

IN ORDER TO DEVELOP, evaluate, and refine treatment techniques and strategies, clinicians and researchers need to know not only *whether* treatments work, but also *how* they work. While the evidence base for the effectiveness and efficacy of child and adolescent therapies is increasing, psychotherapy process research still represents an understudied domain (Chu, 2002; Green, 2006; Hawley & Weisz, 2005). Studying mechanisms of treatment, such as how treatments work, has been argued to be a sound investment for improving clinical practice and care (Kazdin & Nock, 2003). The term 'therapy

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process' can encompass processes specific to a particular theoretical orientation (e.g., therapeutic strategies such as cognitive restructuring), as well as non-specific therapy processes that occur across all types of therapies (e.g., the therapeutic alliance). The delivery of any treatment requires a relationship between a therapist and a client. As such, therapeutic relationship factors represent general process factors which are core elements of any psychological treatment. In an attempt to identify relationship factors which emerge as empirically supported, the American Psychological Association's Division 29 Task Force reached consensus on 29 factors, all of which derived from the adult literature (Norcross, 2002). It is uncertain how well these factors apply to child therapies. Relationship factors might be particularly important in therapies involving children and adolescents, as younger clients are usually not self-referred, and might enter treatment unaware of their problems, in conflict with parents, and/or hesitant to change (DiGiuseppe, Linscott, & Jilton, 1996; Karver, Handlesman, Fields, & Bickman, 2005; Shirk & Karver, 2003). Furthermore, in treatments of children, therapeutic relationships are complex, as they often involve more than two individuals, since therapists usually create parallel relationships to one or more of the child's primary care givers. In treatments of children, it is crucial that therapists build a therapeutic relationship with the child's parent(s) (McLeod & Weisz, 2005). Parental beliefs about treatments are likely to influence the child's involvement in treatment (Chu & Kendall, 2004). For instance,

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it has been found that parents of anxious children are more likely to be anxious themselves (e.g., Bienvenu, Hettema, Neale, Prescott, & Kendler, 2007). Because some treatments of anxious children (e.g., Coping Cat; Kendall, Kane, Howard, & Siqueland, 1990) require children's gradual exposure to anxiety-arousing stimuli or situations, anxious parents might find these more difficult to support than non-anxious parents.

Previous reviews of child and adolescent psychotherapy process studies (Karver, Handlesman, Fields, & Bickman, 2006; Russell & Shirk, 1998; Shirk & Karver, 2003) have between them included only three studies of child and adolescent treatments where anxiety is the primary disorder (i.e., Chu, 2002; Kendall, 1994; Kendall et al., 1997). This limited number is unfortunate, as it could be argued that relationship factors play a crucial role in the treatment of anxious children and adolescents. Children with internalizing disorders tend to be shy (Prior, Smart, Sanson, & Oberklaid, 2000) and behaviorally inhibited (Kagan, Snidman, & Arcus, 1995), which might be manifested through withdrawal, increased latency to speak, avoidance of novel situations, difficulty initiating conversations, and reluctance to enter strange or unfamiliar settings (Turner, Beidel, Wolff, Spaulding, & Jacob, 1996). All of these characteristics might influence the therapeutic relationship between the anxious child and the therapist.

Previous therapy process study reviews have failed to reach clear conclusions about the association between relationship factors and treatment outcome in children (Karver et al., 2006; Russell & Shirk, 1998; Shirk & Karver, 2003). The diversity of disorders, treatments, treatment settings, and evidence levels included in previous reviews has been referred to as explanation of the ambiguous conclusions (e.g., Karver et al., 2006). This fact, together with the assumption that the therapeutic relationship is particularly important for the treatment of anxious children and adolescents, warrants a review of how relationship factors are associated with outcome in treatments of anxious children and adolescents.

In the present review, we will limit anxiety treatments to cognitive behavioral therapy (CBT), which is the recommended treatment for childhood anxiety disorders based on results from randomized controlled trials (Soler & Weatherall, 2005). Because previous reviews point to the mixed research methodology of included studies as a factor disabling clear conclusions, we will further limit our review to randomized controlled trials. Our main research questions are: Which relationship factors have been considered in relation to outcome in randomized controlled trials of CBT for anxiety disorders in children and adolescents? How have these relationship factors been measured? To what extent has an association between relationship factors and treatment outcome been confirmed? Outcome is defined as change in children's diagnostic status, anxiety symptom level, and/or global functioning.

Methods

Studies of CBT for anxiety in children and adolescents which specifically included relationship factors were identified via searches of the databases PsychINFO, ISIWeb, and Medline using the 29 relationship factor constructs identified by Norcross (2002). These factors were also used in a previous child treatment review (Karver et al., 2006). ProQuest (Dissertation Abstracts) was also searched but did not allow for complex enough searches to include all 29 concepts. To identify additional studies, the first and second authors hand-searched all issues of four journals (*Journal of Consulting and Clinical Psychology*, *Journal of Child Psychology and Psychiatry*, *Journal of the American Academy of Child and Adolescent Psychiatry*, and *Journal of Anxiety Disorders*) published from January 2002 until December 2007. Prominent researchers in

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the field were contacted for information about additional relevant studies. The reference lists for all included studied were checked for relevant studies. From an initial search result of 162 studies and 62 dissertations, 39 studies and one dissertation were found to be relevant. Of these, 18 studies and one dissertation were finally included. These were coded by the first and second authors on a registration form of study characteristics such as sample size, age, treatment provided, diagnostic interviews and symptom questionnaires, and relationship factors considered. Only randomized controlled trials of CBT for anxiety disorders in subjects below 18 years of age were included. Studies had to assess one or more relationship factor(s) in relation to outcome. Two of the studies were follow-ups of already included studies (Barrett, Duffy, Dadds, & Rapee, 2001; Kendall & Southam-Gerow, 1996). Studies of treatments targeting Obsessive Compulsive Disorder or Post Traumatic Stress Disorders were not included, to reduce the chance of vague conclusions due to too broad inclusion criteria. Details of the search process, including the search words used, are provided in Figure 1.

Results

The 19 included studies involved between 11 and 94 participants from 6 to 21 years of age (participants up to 21 years were included in a long-term follow-up by Barrett et al., 2001). Thirteen studies had a sample size of 50 or higher. Two of the included studies considered data from the same sample (Chu & Kendall, 2004, 2008). In 12 studies, treatment took place at university clinics. In the remaining studies, treatment took place in public service settings (e.g. schools, mental health clinics). All children had DSM-III and/or DSM-IV anxiety diagnoses. An overview of the included studies, specifying sample size, age, settings, diagnoses, design, and relationship factors considered is provided in Table 1.

Assessment of treatment outcome

One study (Mendlowitz et al., 1999) based diagnostic data on the Diagnostic Inventory for Children and Adolescents-Revised (Reich & Welner, 1988), a semi-structured interview where screening questions were revised for major DSM-IV diagnoses. All other studies based the diagnostic assessment on the Anxiety Disorders Interview Schedule for Children (ADIS-C/P; Albano & Silverman, 1996). The ADIS is a structured interview for the assessment of DSM-IV anxiety disorders as well as other common child psychiatric disorders. There is a child version (ADIS-C) and a parent version (ADIS-P). In addition to the diagnostic interviews, over 40 different symptom questionnaires and observational measures were used across the included studies. The most frequently used questionnaire measures were the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978; used in 10 studies) and the Children's Depression Inventory (Kovacs, 1981, 1992; used in 9 studies). Two studies used parent-rated global functioning measures, and four studies used clinician-rated global functioning measures. An overview of measures is presented in Table 2.

Identified relationship factors

Participation The most frequent relationship factor considered in relation to treatment outcome was participation, which was considered in 14 of the 19 studies. All of these 14 studies considered participation as an independent variable, comparing a parent participation condition to a child-only condition. Details of the parent participation conditions for these studies, except the two follow-up studies (Barrett et al., 2001; Kendall & Southam-Gerow, 1996), are provided in Table 3.

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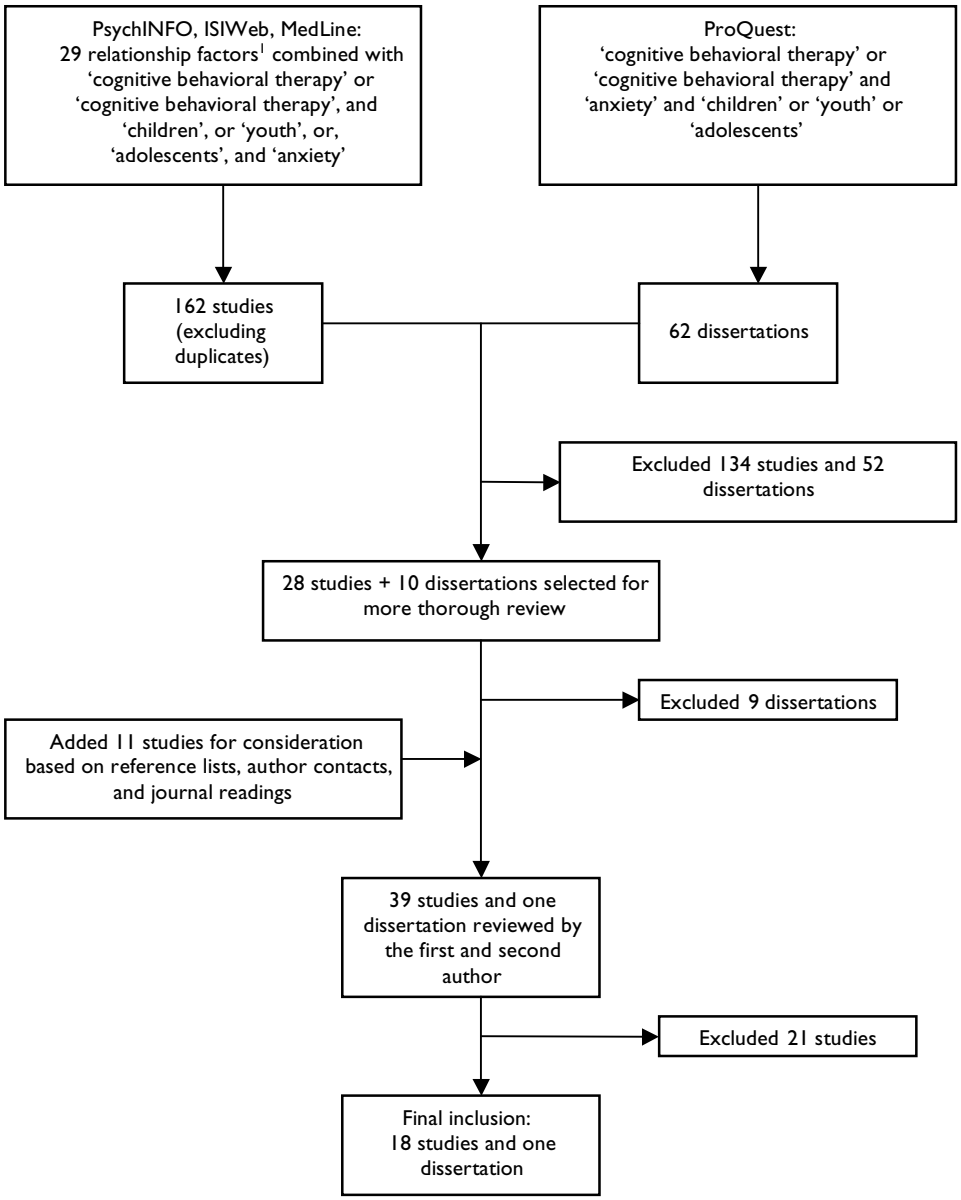

Figure 1. Flow chart of the search process.
[1] 'alliance', 'empathy', 'goal consensus', 'collaboration', 'resistance', 'therapy relationship', 'positive regard', 'congruence', 'rupture', 'impasses', 'repair', 'self-disclosure', 'countertransference', 'relational interpretations', 'expectations', 'preferences', 'assimilation', 'attachment', 'engagement', 'treatment induction', 'openness', 'bond', 'comfort', 'cooperation', 'treatment difficulty', 'treatment involvement', 'willingness', 'participation', 'treatment transactions', 'warmth', 'trust', or 'therapy process'. The term 'rupture/impasses and repair', as used by Karver et al. (2006), was divided into 'rupture' or 'impasses' or 'repair' in this study, and 'expectations and preferences' were searched separately, making the total number of process factors searched 32, not 29.

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Table 1. Overview of studies considering relationship factors in relation to anxiety treatment outcome

Relationship factors and study	*N*	*Age (years)*	*Diagnosis*	*Clinic site*	*CBT-treatment (no. of sessions)*	*Design*
Participation (parent)						
Barrett, Dadds, & Rapee (1996)	79	7–14	OAD, SAD, SoP	University of Queensland, Australia	Coping Koala (12)	Ind. CBT vs. Ind. CBT + Fam. vs. w/l
Barrett (1998)	60	7–14	OAD, SAD, SoP	Griffith University, Australia	Coping Koala (12)	Group CBT vs. Group CBT + Fam. vs. w/l
Barrett et al. (2001)	53	13–21	OAD, SAD, SoP		Coping Koala follow-up	Six year follow-up of Barrett et al. (1996)
Bernstein, Layne, Egan, & Tennison (2005)	61	7–11	SAD, GAD, SoP	Elementary schools, USA	FRIENDS (11)	Ind. CBT vs. Group CBT + Fam. vs. w/l
Cobham, Dadds, & Spence (1998)	76	7–14	OAD, SAD, SoP, SP, A	University of Queensland, Australia	Coping Cat (10) & Parental Anxiety Management Training (4)	Child anxiety only CBT vs. Child anxiety only CBT + Parental Anxiety Management vs. Child + Parental anxiety CBT vs. Child + Parental anxiety CBT + Parental Anxiety Management
Heyne et al. (2002)	61	7–14	DSM-IV anxiety disorders; school-refusal	Mental Health Service Clinic, Australia	Relaxation training, social skills training, cognitive therapy, & desensitization (8) + Parent/Teacher training (8)	Ind. CBT vs. Parent/teacher training vs. Combined condition
Mendlowitz et al. (1999)	68	7–12	OAD, SAD, SoP, SP	Children's hospital, Canada	Coping Bear (12)	Ind. CBT vs. Parent & Child CBT vs. Parent only CBT
Nauta, Scholing, Emmelkamp, & Minderaa (2001)	18	8–15	SAD, SoP, GAD	Outpatient Child and Adolescent Psychiatry Clinic, Netherlands	Coping Cat (12) & parent sessions (7)	Ind. CBT vs. Ind. CBT + Cognitive Training Parent Sessions
Nauta, Scholing, Emmelkamp, & Minderaa (2003)	79	7–18	SAD, SoP, GAD, PD w/o A	Mental Health Centers, Netherlands	Coping Cat (12) & parent sessions (7)	Ind. CBT vs. Ind. CBT + Cognitive Training Parent Sessions vs. w/l
Öst, Svensson, Hellström, & Lindwall (2001)	60	7–17	SP	Stockholm University, Sweden	One session gradual exposure phobia treatment (1)	Ind. CBT vs. Ind. CBT + parent vs. w/l

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Table 1. continued

Relationship factors and study	*N*	*Age (years)*	*Diagnosis*	*Clinic site*	*CBT-treatment (no. of sessions)*	*Design*
Siqueland, Rynn, & Diamond (2005)	11	12–17	GAD, SAD, SoP	University of Pennsylvania, USA	Coping Cat & Attachment Based Family Therapy (16)	Ind. CBT vs. Ind. CBT + Attachment Based Family Therapy
Spence, Donovan, & Brechman-Touissant (2000)	50	7–14	SoP	University of Queensland, Australia	Spence's Social Skills Program (14)	Ind. CBT vs. CBT + parent participation vs. w/l
Wood, Piacentini, Southam-Gerow, Chu, & Sigman (2006)	40	6–14	SAD, SoP, GAD, OCD, SP	Community-referred children, USA	Coping Cat (12–16) & Building Confidence Program (12–16)	Child-focused CBT vs. Family-focused CBT
Treatment involvement (child)						
Chu & Kendall (2004)	63	8–14	GAD, SAD, SoP	Temple University, USA	Coping Cat (16)	Ind. CBT vs. w/l
Chu & Kendall (2008)	63	8–14	GAD, SAD, SoP	Temple University, USA	Coping Cat (16)	Ind. CBT vs. w/l
Treatment involvement (parent)						
Choudhury (2004)	53	7–13	SAD, GAD, SoP	Temple University, USA	Coping Cat (16)	Ind. CBT vs. Fam. CBT
Treatment involvement (parent) and therapeutic relationship						
Kendall (1994)	47	9–13	OAD, SAD, AD	Temple University, USA	Coping Cat (16)	Ind. CBT vs. w/l
Kendall et al. (1997)	94	9–13	OAD, SAD, SoP	Temple University, USA	Coping Cat (16–20)	Ind. CBT vs. w/l
Therapeutic relationship						
Kendall & Southam-Gerow (1996)	36	11–18	OAD, SAD, AD	Temple University, USA	Coping Cat Follow-up	2.5-yr follow-up of Kendall (1994)

Note: A = Agoraphobia; AD= Avoidant Disorder; GAD = Generalized Anxiety Disorder; OAD = Over-Anxious Disorder; OCD = Obsessive Compulsive Disorder; PD = Panic Disorder; SAD = Separation Anxiety Disorder, SoP = Social Phobia; SP = Specific Phobia; w/l = waiting list.

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Table 2. Measures of outcome and relationship factor in the reviewed studies

Child-rated symptom questionnaires	*study number*
Beck Anxiety Inventory (Beck, Brown, Epstein, & Steer, 1988)	17
Beck Depression Inventory (Beck, Erbaugh, Ward, Mock, & Mendelsohn, 1961; Beck, Steer, & Garbin, 1988)	17
Children's Anxiety Sensitivity Index (Silverman, Fleisig, Rabian, & Peterson, 1991)	16
Children's Coping Strategies Checklist (Program for Prevention Research, 1992)	13
Children's Depression Inventory (Kovacs, 1981)	1, 3, 9, 10, 11, 12, 13, 15, 16
Children's Negative Affectivity Self-Statement Questionnaire (Ronan, Kendall, & Rowe, 1994)	9, 10, 11
Children's Report of Parenting Behavior Inventory (Schluder & Schluder, 1970)	17
Coping Questionnaire-Child (Kendall, 1994)	9, 10, 11
Fear Questionnaire (Nauta & Scholing, unpublished)	14
Fear Survey for Children-II (Gullone & King, 1992)	12
Fear Survey Schedule for Children-Revised (Ollendick, 1983)	1, 2, 3, 9, 10, 15, 16
Fear Thermometer (Kleinknecht & Bernstein, 1988)	12
Multidimensional Anxiety Scale for Children Revised (March, Parker, Sullivan, Stallings, & Conners, 1997)	4, 5, 19
Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978)	1, 3, 8, 9, 10, 11, 12, 13, 16, 18
Scale for worry in children (Nauta & Scholing, unpublished)	14
Self-Efficacy Questionnaire for School Situations (Heyne et al., 1998)	12
Social Worries Questionnaire-Pupil (Spence, 1995)	18
Spence Children's Anxiety Scale (Spence, 1997)	15, 18
State-Trait Anxiety Inventory for Children (Spielberger, 1973)	8, 9, 10, 16

Parent-rated symptom questionnaires	*study number*
Child Behavior Checklist (Achenbach, 1991)	1, 2, 3, 5, 8, 9, 10, 11, 12
Clinical Global Impressions (RUPP Anxiety Group, 2001)	19
Coping Questionnaire-Parent version (Kendall, 1994)	10, 11
Family Assessment Device (Epstein, Baldwin, & Bishop, 1983)	5
Fear Questionnaire (Nauta & Scholing, unpublished)	14
Global Improvement Scale (National Institutes of Health, 1985)	13
Scale for worry in children (Nauta & Scholing, unpublished)	14
Screen for Child Anxiety Related Emotional Disorders (Birmaher et al., 1999)	4
Social Competence Questionnaire-Parent (Spence, 1995)	18
Social Skills Questionnaire-Parent (Spence, 1995)	18
Spence Children's Anxiety Scale – parent version (developed from Spence, 1995)	15
State-Trait Anxiety Inventory for Children – Modification of Trait Version for Parents (Strauss, 1987)	9, 10, 11

Clinician-rated outcome measure	*study number*
Anxiety Behavior Observations (Kendall, 1994)	9
Assessment of Children's Global Functioning Scale (Shaffer et al., 1983)	5
Behavioral Approach Test (Öst et al., 2001)	16
Clinical Global Impressions (Guy, 1976)	4, 19
Clinicians' Adjustment Ratings (Barrett, Dadds, & Rapee, 1996; Dadds, Spence, Holland, Barrett, & Laurens, 1997)	8
Family Enhancement of Avoidant Responses ratings (Barrett et al., 1996)	1
Global Assessment of Functioning Scale (American Psychiatric Association, 1994)	12
Hamilton Anxiety Rating Scale (Hamilton, 1959)	17
Hamilton Depression Rating Scale (Hamilton, 1960)	17
Revised Behavioral Assertiveness for Children (Ollendick, 1981)	18
School attendance records	12
Social interaction observation (Furman & Masters, 1980, adapted version)	18

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Table 2. continued

Relationship factor measure [study number]
Child Involvement Rating Scale (Chu & Kendall, 2004)[6, 7]
Child Perception of Therapeutic Relationship (Kendall, 1994; Kendall et al., 1997)[9, 10]
Parent participation as independent variable[1, 2, 3 4, 8, 12, 13, 14, 15, 16, 17, 18]
Parent training coding worksheet (Choudhury, 2004)[5]
Recall Interview (Kendall & Southam-Gerow, 1996)[11]
Therapist-rated parental involvement (Kendall, 1994; Kendall et al., 1997)[9, 10]
Therapy Process Observation Scale (McLeod & Weisz, 2005)[19]

Notes: [1]Barrett et al., 1996; [2]Barrett, 1998; [3]Barrett et al., 2001; [4]Bernstein et al., 2005; [5]Choudhury, 2004; [6]Chu & Kendall, 2004; [7]Chu & Kendall, 2008; [8]Cobham et al., 1998; [9]Kendall, 1994; [10]Kendall et al., 1997; [11]Kendall & Southam-Gerow, 1996; [12]Heyne et al., 2002; [13]Mendlowitz et al., 1999; [14]Nauta et al., 2001; [15]Nauta et al., 2003; [16] Öst et al., 2001; [17]Siqueland et al., 2005; [18]Spence et al., 2000; [19]Wood et al., 2006.

Table 3. Details of parent participation conditions

Study	*Details of parent participation condition*
Barrett et al. (1996)	Twelve family sessions addressing contingency management, dealing with parents' emotions, and communication and problem solving skills.
Barrett (1998)	Twelve 120-minute group family sessions addressing contingency management, dealing with parents' emotions, and communication and problem solving skills.
Bernstein et al. (2005)	Nine 60-minute parent sessions addressing parental anxiety and stress management, understanding child anxiety in context of family relationships, and behavioral contracting.
Cobham et al. (1998)	Four 60-minute parent sessions addressing psychoeducation, cognitive restructuring, relaxation training, and contingency management.
Heyne et al. (2002)	Eight 50-minute parent sessions addressing behavior management strategies and cognitive therapy targeting parents' own anxiety.
Mendlowitz et al. (1999)	Twelve 90-minute parent sessions addressing parental understanding of anxiety, and how to deal with and help anxious children.
Nauta et al. (2001)	Seven parent sessions addressing psychoeducation about anxiety, problem solving and reinforcement skills and cognitive restructuring of core parental beliefs.
Nauta et al. (2003)	Seven parent sessions addressing psychoeducation about anxiety, problem solving and reinforcement skills and cognitive restructuring of core parental beliefs.
Öst et al. (2001)	One session where parents were present during children's gradual fear exposure. Degree of actual involvement varied from being present to actively comforting the child and modeling interactions with the anxiety-arousing object/animal.
Siqueland et al. (2005)	Sixteen family sessions addressing autonomy negotiations in family beliefs, behaviors, and interactions.
Spence et al. (2000)	Twelve 30-minute parent sessions addressing modeling, ignoring, reinforcing and encouraging skills.
Wood et al. (2006)	Twelve to sixteen 60- to 80-minute family sessions addressing in vivo exposure procedures, rewards and communication techniques.

Most studies provide relatively brief descriptions of the parent participation conditions, using content terms such as 'psychoeducation' and 'modeling', without further detail. Content terms used in Table 3 are identical to the terms used in the papers. There is probably considerable overlap between terms (e.g., 'ignoring and reinforcing

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skills' vs. 'contingency management'). Four of the studies explicitly mentioned parental anxiety/emotions as a content item in parent sessions. The remaining eight studies mainly described parental understanding and management of children's anxiety as the content of parent sessions. Number and duration of parent participation sessions vary considerably between studies, from one three-hour joint child and parent session (in a study of one-session treatment) to 16 family sessions. The median number of parent participation sessions was eight.

Treatment involvement Five studies considered treatment involvement in relation to outcome. Three of these studies considered parental involvement, whereas the other two considered child involvement. Two studies (Kendall, 1994; Kendall et al., 1997) measured parental involvement by a 'Therapist-rated Parental Involvement' scale, where the therapist rated parental involvement post-treatment on a seven-point scale based on the amount of contact with the parent(s), the degree of beneficial parent involvement, and the degree of parental interference. The third study used a Parent Training Coding Worksheet, where research assistants rated the degree of parental involvement in therapeutic tasks based on audiotapes from therapies (Choudhury, 2004).

Two studies considered child involvement ratings in relation to treatment outcome (Chu & Kendall, 2004, 2008). These studies referred to data from the same sample, and both measured child involvement through the Child Involvement Rating Scale (Chu & Kendall, 2004), a six-item, coder-rated six-point scale of 'positive' involvement (i.e., initiating discussions, demonstrating enthusiasm, self-disclosure, elaboration on therapist points or demonstrating understanding) and 'negative' involvement (i.e., withdrawal or passivity, inhibition or avoidance) based on audiotape ratings.

Therapeutic relationship The therapeutic relationship was considered in three of the 19 studies. Two of these (Kendall, 1994; Kendall et al., 1997) measured this through versions (seven- and 10-item versions, respectively) of the Child's Perception of the Therapeutic Relationship Scale (CPTR), which includes items relating to the child's liking, feeling close to, feeling comfortable with, talking to, and wanting to spend time with the therapist, as well as additional items referring to the quality and closeness of the therapeutic relationship. All items were rated by the child on a five-point scale. The CPTR was administered by a diagnostician, and not the therapist, at post-treatment in both studies. The third study was a two-and-a-half-year follow-up study to Kendall (1994) where the therapeutic relationship was addressed retrospectively through a Recall Interview with the children (Kendall & Southam-Gerow, 1996). The phone-administered Recall Interview consisted of a mixture of open-ended and specific questions about the treatment. Open-ended questions were asked about memories from the treatment, what had been important and unimportant about the treatment, and what had been liked and disliked. The specific questions were asked after the open-ended ones and included questions about the tasks of the treatment and about the therapeutic relationship.

Associations between relationship factors and treatment outcome

An overview of the association between relationship factors and diagnostic, symptom, and other outcome measures is provided in Table 4. One study (Chu & Kendall, 2008) was not included in this table, because it refers to the same sample as Chu and Kendall (2004). Significant associations are reported when at least one measure was significantly associated to the relationship variable. Strong but non-significant associations between relationship factors and outcome are also indicated in Table 4.

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Table 4. Significant associations between relationship factors and treatment outcome

Relationship factor and study	*Association with diagnostic outcome?*	*Association with symptom measure outcome?*	*Association with global functioning measure?*	*Association pattern confirmed at follow-up? (months)*
Parent participation				
Barrett et al. (1996)	Yes (P)	Yes (P)	Yes (P)	Yes (12)
Barrett (1998)	Yes (P)	Yes (P)	Yes (P)	Yes (12)
Bernstein et al. (2005)	Yes (C)	Yes (P)	No (P*)	–
Cobham et al. (1998)	No	No	No	Yes (6 + 12)
Heyne et al. (2002)	No	Yes (C/P)	No	–
Mendlowitz et al. (1999)	–	Yes (P)	Yes (P)	–
Nauta et al. (2001)	No	No	–	Yes (15)
Nauta et al. (2003)	No	No	–	Yes (3)
Öst et al. (2001)	No	No	–	No (12)
Siqueland et al. (2005)	No	No	No	Yes (6)
Spence et al. (2000)	No (P*)	No	No	Yes (12) (P*)
Wood et al. (2006)	No (P*)	No	Yes (P)	–
Parent involvement				
Choudhury (2004)	No	No	Yes (P)	–
Kendall (1994)	No	No	No	Yes (12)
Kendall et al. (1997)	No	No	No	Yes (12)
Child involvement				
Chu & Kendall (2004)	Yes	–	Yes	–
Therapeutic relationship				
Kendall (1994)	No	No	No	Yes (12)
Kendall et al. (1997)	No	No	No	Yes (12)

Note: P = Parental Involvement condition showed more improvement; C = Child only condition showed more improvement. * indicates reported strong tendencies that failed to reach significance.

Parent participation and treatment outcome Two of the 14 studies considering parent participation found that this increased the likelihood of diagnostic improvement (Barrett, 1998; Barrett, Dadds, & Rapee, 1996). Two other studies reported non-significant tendencies in the same direction (Spence, Donovan, & Brechman-Touissant, 2000; Wood et al., 2006). In contrast to these, one study found that more children had moved to sub-threshold diagnostic status in the condition where parents had not participated in treatment (Bernstein et al., 2005). At symptom level, five of the studies found that parent participation increased the likelihood of improvement (Barrett, 1998; Barrett et al., 1996; Bernstein et al., 2005; Heyne et al., 2002; Mendlowitz et al., 1999). Of the nine studies that included global child functioning measures, four reported significant improvement for the parent participation condition (Barrett, 1998; Barrett et al., 1996; Mendlowitz et al., 1999; Wood et al., 2006). Eight studies that reported follow-up data confirmed the same association patterns as at post-treatment. The one-year follow-up data in the study by Öst et al. (2001), on the other hand, showed a mixed pattern where children in the child-only group showed greater improvement on behavioral approach tests, while children in the parent participation condition showed greater improvement on self-report measures. There was no difference between the two conditions on physiological measures (Öst et al., 2001). In the six-year follow-up of Barrett et al. (1996),

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Barrett et al. (2001) no longer found significant associations between treatment condition and diagnostic or global child functioning outcome.

Treatment involvement and treatment outcome In the two studies that considered therapist-rated parental involvement, no association with outcome was found (Kendall, 1994; Kendall et al., 1997). In the study where parent involvement was rated by coders and not therapists, however, higher scores were found on clinician-rated global child functioning in the parent involved condition (Choudhury, 2004).

The only study addressing child involvement in relation to treatment outcome (Chu & Kendall, 2004), found that involvement rated late in therapy (i.e., in sessions 6–10 of a 16-session treatment) was a significant predictor of diagnostic outcome (accounting for 7% of post-treatment impairment rating variance). There was a significant association between unchanged diagnostic status at post-treatment and negative involvement shifts during treatments (i.e., a negative change of at least 10 points on the 0–60 range Child Involvement Rating Scale; Chu & Kendall, 2004).

Therapeutic relationship and treatment outcome Neither of the two studies which included child-rated measures of the quality of the therapeutic relationship between the child and the therapist found significant associations with diagnostic or symptom measure outcome (Kendall, 1994; Kendall et al., 1997). The quality of the therapeutic relationship between the child and the therapist was generally rated as high in both studies, and it was suggested that high scores might have truncated the range and limited predictive relationships (Kendall, 1994; Kendall et al., 1997). Kendall (1994) identified seven of 47 children whose relationship scores were particularly low (i.e., approximately one standard deviation below the mean). There were no differences between these children and the others on therapist- or parent-rated improvement with regards to treatment outcome. However, three child-reported measures of anxiety and depression symptoms were significantly lower post-treatment for these seven children compared to the remaining 40 cases. In Kendall et al. (1997), 13 of 97 cases were found to have CPTR-scores which were at least one standard deviation below the mean, but there were no significant differences in outcome between this group of children and other children in the sample. In the Recall Interview administered in the two-and-a-half-year follow-up to Kendall (1994), 44 per cent of the children considered the therapeutic relationship an important aspect of the treatment. Seventeen per cent of the children recalled the relationship to the therapist as something they remembered from the treatment, and 28 per cent mentioned the therapeutic relationship as something they had liked about the treatment. There were no significant associations between recall answers about the therapeutic relationship and treatment outcome two-and-a-half years after treatment (Kendall & Southam-Gerow, 1996).

Emerging additional factors In addition to reporting data on child involvement, Chu and Kendall (2008) also included a measure of therapist flexibility. Therapist flexibility was not included among the 29 relationship factors identified by the APA (Norcross, 2002), but can be argued to be an important relationship factor, especially in manual-based treatments. The Therapist Flexibility Frequency Questionnaire (TFFQ; developed for Chu & Kendall, 2008) is a 17-item observational coding scale assessing the frequency of content and structural flexibility with eight specific types of flexibility (e.g., therapist making the session active, changing format or structure, relating children's examples to lessons). Coders are then asked to infer the reason why the therapist made changes (e.g., to match child's input/interest/ability, or because the child was distracted/disengaged/oppositional).

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No significant associations were found between therapist flexibility and treatment outcome (Chu & Kendall, 2008).

Discussion

A striking finding from this review of randomized CBT trials for anxiety disorders in children and adolescents was the paucity of studies addressing the association between relationship factors and treatment outcome. Only three of the 29 relationship factors identified as empirically supported in the adult literature by the APA Division 29 Task Force (Norcross, 2002) had been addressed in the studies reviewed. These were participation, treatment involvement, and therapeutic relationship. Participation referred to *parent* participation in all studies which considered this factor. Treatment involvement referred to either child or parental involvement.

An explanation for the low number of identified studies in this review could be that relationship factors might need to be conceptualized differently in CBT treatments for children, since relationships are formed not only between the child and the therapist, but often also between the therapist and the child's primary care giver(s). Furthermore, relationship factors are probably understood differently depending on the theoretical context in which they emerge. Many of the relationship factors identified by the APA stem from psychodynamic theories (e.g., resistance, rupture, countertransference, attachment, relational interpretations, treatment transactions), which make them less likely to be considered in CBT treatments. Also, some of the APA relationship factors might be so implicitly embedded in treatments (e.g., empathy, positive regard, warmth) that they are less likely to be explicitly considered or measured in treatment studies. Several authors have identified collaboration, pacing, educating patients and families about therapy, agenda setting, and responding to patient feedback as key elements of the therapeutic relationship (e.g., Hogue, Dauber, Samuolis, & Liddle, 2006; Karver et al., 2006; Shirk & Karver, 2003). Establishing a therapeutic alliance, setting treatment goals, and providing treatment rationale are essential components to CBT (Wampold, 2001). For instance, one of the studies in this review described alliance building behavior in their treatment manual, without including a measure of therapeutic alliance (Siqueland et al., 2005). Taken together, then, these aspects of CBT might explain why few of the relationship factors have been explicitly considered or measured in child anxiety treatment studies.

The second question addressed in this review was how the relationship factors were measured in the included studies. In 12 of 19 studies, parent participation was not measured, but was considered an independent variable in relation to diagnostic, symptom, and global improvement outcome measures. Studies varied in how explicitly they described the parent participation condition. Psychoeducation about childhood anxiety and contingency management techniques were the most frequently reported parent session content descriptions. Parent participation in treatment does not guarantee parents' actual emotional, cognitive and behavioral engagement in therapy, regardless of session content.

Three studies included measures of parental involvement (Choudhury, 2004; Kendall, 1994; Kendall et al., 1997).These used observational or questionnaire-based ratings of actual parent involvement (e.g., rating of therapist–parent contact, parent contributions to discussions, treatment compliance), which represent a clearer process measure than parent participation as an independent variable. Including more thorough measures of actual parental involvement, both in and between sessions, in future treatment studies would make it possible to more thoroughly analyze the contribution of parent involvement for successful therapy outcome.

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Child involvement was measured by an observer-coded rating system early and late in treatments in two studies (Chu & Kendall, 2004, 2008). Although considering child involvement based solely on observable behavior also has its limitations, observer-coded rating of involvement is likely to provide more objective information about actual treatment involvement than, for instance, self-report data. Future studies in which child involvement are rated by multiple informants would provide a more reliable perspective on the concept of child involvement.

The therapeutic relationship was explicitly considered in three of the reviewed studies (Kendall, 1994; Kendall et al., 1997; Kendall & Southam-Gerrow, 1996). Two of these used self-report questionnaires administered to the child post-treatment (Kendall, 1994; Kendall et al., 1997). A problem with post-treatment administration only is that one can not conclude on causal directions between the therapeutic relationship and treatment outcome. Furthermore, it increases the likelihood that reports of the therapeutic relationship might be influenced by third variables, such as symptom improvement (McLeod, 2004). This might have been the case in one of the studies included in this review, where poorer symptom improvement was connected with lower therapeutic relationship scores (Kendall, 1994).

The therapeutic relationship was only regarded from the child's perspective in the articles included in this review. Different association patterns have been found between parents' perceptions of therapeutic alliance compared to adolescents' alliance perception in relation to treatment outcome, retention, and satisfaction (Hawley & Weisz, 2005). The fact that parent or therapist perceptions of alliance were not taken into consideration clearly represents a weakness of the included studies. The measure of the therapeutic relationship was administered to children by diagnosticians, who can be considered as more 'neutral' than therapists. However, the possibility that some children rated the therapeutic relationship as highly positive due to eagerness to please adults cannot be disregarded. Although alliance perception is a highly subjective phenomenon (Creed & Kendall, 2005) and, therefore, should be measured by self-report, children's ability to rate the therapeutic relationship might be limited because of their developmental level (Shirk & Karver, 2003). The use of observational systems for therapeutic alliance, such as the Therapy Process Observation Coding System – Alliance Scale, (TPOCS-A; McLeod, 2004), or other observational alliance measures in future treatment studies, can provide important contributions to our conceptual understanding of the essence and nature of the therapeutic relationship when working with child and adolescent clients.

The third question raised in this review was to what extent an association between relationship factors and treatment outcome can be confirmed. Six of the 12 studies which addressed parent participation in relation to outcome found a significant association between participation and one or more outcome measures. There were, however, considerable inconsistencies both within and across studies on different outcome areas (diagnosis, symptom outcome, or global functioning). Considerable variation in sample sizes, as well as content, number, and duration of parent sessions, could explain some of the discrepancy observed. More studies found a positive association between parent participation and symptom and global functioning outcome than diagnostic outcome (6 versus 2). For externalizing problems in children, the inclusion of parents in therapies has been proven to increase treatment effects (Kazdin, 1997; Patterson, Chamberlain, & Reid, 1982; Woolfenden, Williams, & Peat, 2002). Parent participation was therefore hypothesized to increase treatment effectiveness in studies of internalizing disorders such as anxiety. However, a previous review of parent participation in childhood anxiety treatment studies did not conclude that parent participation leads to improved treatment

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results, in spite of this being hypothesized and often intuitively assumed among clinicians (Barmish & Kendall, 2005).

Child involvement measured late in therapies was found to be a significant predictor of diagnostic outcome (Chu & Kendall, 2004, 2008). The authors argue that this association has to do with the timing of in vivo exposure in therapies, where child involvement might be an influential factor for readiness and success of exposure tasks (Chu & Kendall, 2004). An association was also found between unchanged diagnostic status post-treatment and a decrease in involvement during treatments. Associations between active and positive child involvement (such as the child suggesting changes in task) and outcome were reported over 20 years ago (Braswell, Kendall, Braith, Carey, & Vye, 1985), yet there has been minimal focus on child involvement since. Further knowledge about origins and maintenance factors of child involvement has potential value for decreasing attrition and increasing improvement from therapies.

No significant associations between the therapeutic relationship and treatment outcome measures were found in any of the studies in this review, although the quality of the therapeutic relationship was reported to be high when measured. Possible associations between variables are more difficult to detect when there is little variation (Kendall, 1994; Kendall et al., 1997). In the two-and-a-half-year follow-up of one of the studies, the most frequent response to a Recall Interview question of what had been most important in their therapy was 'the therapeutic relationship' (Kendall & Southam-Gerow, 1996). Clients might find the therapeutic relationship valuable and important regardless of treatment outcome. However, the fact that the alliance seems to be a weak predictor of treatment outcome has also been used as an argument for the effectiveness of the CBT interventions used (Kendall, 1994).

Limitations

Most of the included studies used no measures of the relationship factors they considered. This prevented us from calculating effect sizes, and thus drawing conclusions about the strength of associations between relationship factors and outcome. Eleven of the 19 studies were conducted at university clinics, and all the treatments were manual-based. Therapies typically reported in research studies and therapies in regular clinical practice tend to be different in terms of client and therapist recruitment, level of group heterogeneity, problem focus, treatment settings, therapist background, experience and pre-therapy preparation, as well as treatment monitoring, and degree of manualization of treatment (Weisz, Weiss, & Donenberg, 1992). Research therapies are also more likely to be behavioral than 'treatment as usual' (Weisz, Huey, & Weersing, 1998), which raises questions about the generalizability of results from this review. However, 'treatment as usual' for child and adolescent mental health problems is not well-described, and there is a lack of well-developed models for characterizing the processes involved in such therapies (McLeod, 2004).

Future research directions

This review validates the need for further research on relationship factors in CBT treatments of child anxiety. A clearer conceptualization of parent participation is needed before one can ascertain whether parent participation increases treatment outcome. Although based on a very limited number of studies, it seems that child involvement plays a larger role for treatment outcome than parental involvement. Treatment involvement needs to be more clearly defined, and further studies are needed to evaluate the role of treatment involvement for outcome. Although the quality of the therapeutic relationship is rated as high by children in the studies of this review, there is no evidence

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so far that this increases outcome. The introduction of valid and reliable observer-rated measures of therapeutic alliance would provide multi-source perspectives on the alliance, which could uncover possible associations between alliance and outcome. Future research should aim at more clearly conceptualizing relationship factors through the development of psychometrically sound measurement instruments. More studies examining the association between soundly measured relationship factors and treatment outcome would be of value to regular clinical practice regardless of theoretical orientations, and could help bridge the gap between clinical research and clinical practice.

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Factor Structure and Validity of the Therapy Process Observational Coding System for Child Psychotherapy–Alliance Scale

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The aim of this study was to examine the factor structure and psychometric properties of an observer-rated youth alliance measure, the Therapy Process Observational Coding System for Child Psychotherapy–Alliance scale (TPOCS–A). The sample was 52 youth diagnosed with anxiety disorders (M age = 12.43, SD = 2.23, range = 8–15; 56% boys; 98% Caucasian) drawn from a randomized controlled trial. Participants received a manualized individual cognitive behavioral treatment, the FRIENDS for life program, in public community clinics in Norway. Diagnostic status, treatment motivation, and perceived treatment credibility were assessed at pretreatment. Using the TPOCS–A, independent observers rated child–therapist alliance from the third therapy session.

This study is a part of the project "Assessment and Treatment—Anxiety in Children and Adults (ATACA) Child Part" and has received support from the Western Norway Regional Health Authority, through Project No. 911366 and Project No. 911253. This study was supported by "The National Program for Integrated Clinical Specialist and PhD-training for Psychologists" in Norway. This program is a joint cooperation between the Universities of Bergen, Oslo, Tromsø The Norwegian University of Science and Technology (Trondheim), the Regional Health Authorities, and the Norwegian Psychological Association. The program is funded jointly by The Ministry of Education and Research and The Ministry of Health and Care Services, and the Meltzer Research Foundation, University of Bergen, Norway. There are no conflicts of interest. Marianne Christensen and Randi Sigrun Skogstad assisted with coding of treatment sessions, and Torbjørn Torsheim provided statistical input.
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Child- and therapist-reported alliance measures were collected from the same session. An exploratory factor analysis supported a one-factor solution, which is consistent with previous studies of self- and observer-rated youth alliance scales. Psychometric analyses supported the interrater reliability, internal consistency, and convergent/divergent validity of the TPOCS–A. Accumulating psychometric evidence indicate that the TPOCS–A has the potential to fill a measurement gap in the youth psychotherapy field. In youth psychotherapy, alliance may be unidimensional, so establishing a strong bond and engaging the child in therapeutic activities may both be instrumental to establishing good alliance early in treatment. However, it is important to be cautious when interpreting the factor analytic findings, because the sample size may have been too small to identify additional factors. Future research can build upon these findings by examining the factor structure of youth alliance measures with larger, more diverse samples.

The alliance is considered an important component of youth psychotherapy (Kendall & Ollendick, 2004). However, the nature and strength of the alliance–outcome association in youth psychotherapy has been questioned in recent years, in part due to measurement limitations in the field (McLeod, 2011). Research that investigates the psychometric properties of alliance measures for youth psychotherapy is underdeveloped (Elvins & Green, 2008; McLeod, 2011). As a result, fundamental questions exist about the nature of the alliance in youth therapy.

To date, few attempts have been made to systematically investigate the psychometric properties of alliance measures for youth therapy (Elvins & Green, 2008; McLeod, 2011). Progress in this area has been slowed by several factors. First, the field has yet to coalesce around a unified definition of the alliance (Creed & Kendall, 2005). Second, few alliance measures have been used in more than one study, thereby limiting opportunities to amass psychometric data (McLeod, 2011; Shirk & Karver, 2003). Without evidence supporting the factor structure or psychometric properties of alliance measures, it is difficult to compare findings across studies that utilize different alliance measures (Chu et al., 2004). To progress, the field needs to establish the psychometric properties of alliance measures.

Little is currently known about the factor structure of alliance measures for youth psychotherapy. To our knowledge, only one study has evaluated the factor structure of a self-report alliance measure in youth psychotherapy. This study conducted a factor analysis of the Adolescent Working Alliance Inventory (AWAI) with a sample of 90 adolescents receiving outpatient treatment. The AWAI was adapted for use with adolescents, and the authors found a one-factor solution (DiGiuseppe, Linscott, & Jilton, 1996). Findings from two studies using observer-rated alliance measures also support a one-factor model. Faw, Hogue, Johnson, Diamond, and Liddle (2005) conducted a factor analysis of the Adolescent Therapeutic Alliance Scale (ATAS) with a sample of 51 adolescents receiving a manualized, family-based substance abuse prevention program. The ATAS was designed for youth psychotherapy, and the authors found support for a one-factor model (Faw et al., 2005). In the second study, a factor analysis of the Vanderbilt Therapeutic Alliance Scale–Revised (VTAS–R) scale was conducted with a sample of 100 adolescents receiving manualized cognitive behavioral therapy (CBT) or a manualized family-based treatment for substance abuse. The VTAS–R was also designed for youth psychotherapy, and this study found support for a one-factor model (Hogue, Dauber, Stambaugh, Cecero, & Liddle, 2006). These studies suggest that the alliance may be defined by a single factor. However, more research is needed to determine if this factor structure is found across other populations (e.g., children, internalizing samples) and alliance measures.

Beyond investigating the factor structure of existing measures, it is also important to establish the validity of alliance measures for youth therapy (Elvins & Green, 2008). Of particular interest are studies that assess the convergent validity of self- and observer-reported alliance measures (McLeod, 2011). An open question in the youth therapy field is the perspective (e.g., child, therapist, observer) from which it is best to assess the alliance (McLeod & Weisz, 2005). Self-report measures directly assess the perspective of those involved in therapy (i.e., child, therapist) and thus may represent the ideal perspective. However, developmental factors may limit a child's ability to report on certain aspects of the therapeutic relationship (Shirk & Saiz, 1992), and self-report measures are subject to demand characteristics that place pressure upon children to say nice (or not nice) things about the therapist (Shirk & Karver, 2003). Observer-rated alliance measures are less susceptible to bias and may therefore be better suited for youth therapy (McLeod & Weisz, 2005). However, few studies have assessed the degree of overlap among validated observer-rated and self-report alliance measures for youth therapy. Thus, assessing the degree of overlap among the different perspectives represents a step toward addressing important questions about alliance measurement in child therapy.

The current study examines the factor structure and further investigates the psychometric properties of the Therapeutic Process Observational Coding System for Child Psychotherapy–Alliance Scale (TPOCS–A; McLeod & Weisz, 2005). The observer-rated TPOCS–A was developed to assess the bond and task dimensions of the child– and parent–therapist alliance in youth psychotherapy. Specifically, the TPOCS–A assesses the affective elements of the alliance (i.e., the bond dimension) and the level of child engagement in therapeutic activities (i.e., the task dimension; see McLeod & Weisz, 2005). Five previous studies (Chiu, McLeod, Har, & Wood, 2009; Langer, McLeod, & Weisz, 2011; Lerner, Mikami, & McLeod, 2011; Liber et al., 2010; McLeod & Weisz, 2005) have provided support for the psychometric properties of the TPOCS–A across different types of child problems (i.e., ADHD, anxiety, and depression), treatments (i.e., usual care, individual CBT, family-focused CBT, group-based CBT, parent training), settings (i.e., community clinics, university clinics), and countries (i.e., Netherlands, United States). However, the factor structure of the TPOCS–A has not been examined previously.

In this report, the factor structure and psychometric properties of the TPOCS–A were examined in a sample of Norwegian children diagnosed with anxiety disorders who received manualized CBT in public community settings as part of a randomized clinical trial (RCT). The factor structure, reliability (interrater, internal consistency), and validity (convergent, divergent) of the TPOCS–A were examined. It is important to note that the convergent validity of the TPOCS–A was assessed with the Therapeutic Alliance Scale for Children (TASC; Shirk & Saiz, 1992), a psychometrically sound child- and therapist-report alliance measure developed specifically for youth psychotherapy.

METHODS

Sample

Children. Participants were drawn from the Assessment and Treatment–Anxiety in Children and Adults (ATACA) study. The child part of ATACA is an RCT conducted in seven public mental health outpatient clinics in Norway. Participants were identified for the project when referral information included anxiety symptoms. Children with a primary diagnosis of separation anxiety disorder, social phobia, and/or generalized anxiety disorder were included and randomized to individual CBT, group-based CBT, or a wait-list condition. The treatment program was the FRIENDS for life manual, which targets emotional awareness and coping, cognitive restructuring, and exposure tasks through 10 one-hr sessions (Barrett, Webster, & Turner, 2004). Exclusion criteria were severe conduct disorder, pervasive developmental disorders, obsessive-compulsive disorder, mental retardation, and/or severe language difficulties. A total of 182 youth were included in the RCT. The first 52 children randomized to individual CBT were included in the present study. Only children assigned to individual CBT were included as alliance in groups may not be comparable to alliance in individual treatments (Johnson, Burlingame, Olsen, Davies, & Gleave, 2005). See Table 1 for demographic information.

Therapists. Thirteen therapists participated: seven clinical psychologists, five clinical pedagogues (masters of education with additional clinical training), and one social worker. The therapists (M age = 48.15; SD = 9.15, range = 31–59; 12 female) had from 3 to 25 years of clinical experience (M = 10.31, SD = 6.28). The therapists completed a 2-day FRIENDS program training seminar and a 10-week supervised individual pilot case before participating in the study. Therapists received biweekly supervision by clinical psychologists experienced with the FRIENDS program. The mean number of clients per therapist was 4.33 (SD = 1.67; range = 1–7).

Coders. Three clinical psychologists (one male, two female) rated alliance based on videotapes of therapy sessions. Two coders were newly graduated psychologists, whereas one had 6 years of clinical experience.

Alliance Measures

TPOCS–A (Mcleod & Weisz, 2005). The TPOCS–A was used to rate the quality of the child–therapist

TABLE 1
Sample Demographic and Diagnostic Information

Variables	*M (SD) or % (n)*
Age	12.43 (2.23)
Boys	56% (29)
Ethnicity	
Caucasian	98% (51)
Other	2% (1)
Parent Post–High School Education	
>3 Years	31% (16)
1–3 Years	56% (29)
None	13% (7)
Primary Diagnosis	
SP	41% (21)
SAD	37% (19)
GAD	22% (12)
One Comorbid Anxiety Diagnosis	38% (20)
Two Comorbid Anxiety Diagnoses	37% (19)

Note: SP = social phobia; SAD = separation anxiety disorder; GAD = generalized anxiety disorder.

TABLE 2
Psychometric Properties of Previous TPOCS–A Studies Focused Upon the Child–Therapist Alliance

Study	*Population*	*Age (M, SD)*	*N (n Tapes)*	*M ICC (n Coders)*	*Internal Consistency*	*Convergent Validity*
Chiu et al. (2009)	Anxiety	9.74 (2.14)	32 (123)	.71 (5)	$\alpha = .91$–$.92$	—
Langer et al. (in press)	Anxiety and depression	11.27 (2.15)	76 (288)	.80 (9)	$\alpha = .91$	.48
Liber et al. (2010)	Anxiety	10.22 (1.15)	52 (104)	.48 (6)	$\alpha = .92$	—
McLeod & Weisz (2005)	Anxiety and depression	10.30 (1.83)	22 (84)	.59 (3)	$\alpha = .95$	.53

Note:. Convergent validity represents the correlation between the Therapy Process Observational Coding System for Child Psychotherapy–Alliance scale (TPOCS–A) and the Therapeutic Alliance Scale for Children. ICC = intraclass correlation coefficient.

alliance. The TPOCS–A consists of nine items: six covering affective elements of the client–therapist relationship (bond items), and three covering client participation in therapeutic activities (task items; see Table 3). Coders view entire therapy sessions and then rate each item on a 6-point scale ranging from 0 (*not at all*) to 5 (*a great deal*). For the current study, the TPOCS–A was translated into Norwegian by the first author of this article. The back-translated version was approved by the TPOCS–A author (Bryce D. McLeod, Ph.D). See Table 2 for interrater reliability, internal consistency, and convergent validity information from previous studies using the version of the TPOCS–A focused upon the child–therapist alliance.

TASC (Shirk & Saiz, 1992). The TASC was used to assess the child (TASC–C) and therapist (TASC–T) view of the alliance. The TASC–C is a 12-item questionnaire covering the youth's agreement with the therapist regarding the tasks of therapy (task items) and the youth's affect toward the therapist (bond items; e.g., I liked spending time with my therapist). The TASC–T consists of 12 equivalent items where therapists rate their perception of the youth's experience (e.g., The child liked spending time with you). The TASC is scored on a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*very much*). The TASC has demonstrated good internal consistency and validity (Hawley & Weisz, 2005; Kazdin, Marciano, & Whitley, 2005). In the present study, the internal consistency was acceptable for the TASC–C ($\alpha = .81$) and TASC–T ($\alpha = .70$). The TASC was translated from English.

Other Measures

Anxiety Disorders Interview Schedule (ADIS-C/P; Silverman & Albano, 1996). Children were diagnosed using the ADIS-C/P, a semistructured interview with good reliability and validity (Silverman, Saavedra, & Pina, 2001; Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). Diagnoses were based on combined parent- and child-reports. Only the separation anxiety disorder, social phobia, and generalized anxiety disorder sections of the ADIS were administered. Clinicians at each site were trained in the ADIS-interview in a 2-day workshop. The ADIS was translated from English at the Centre for Child and Adolescent Mental Health, Eastern and Southern Norway.

Nijmegen Motivational List (NML; Keijser, Schaap, Hoogduin, Hoogsteyns, & de Kemp, 1999).

The 15-item self-report version of the NML adapted for children was used to assess treatment motivation (Ollendick et al., 2009). Previous studies have supported the internal consistency and validity of the NML (Haan et al., 1997; Hoogduin & Duivenvoorden, 1988; Keijser, Hoogduin, & Schaap, 1994; Ollendick et al., 2009). All items (e.g., This treatment seems to be the right one for me) are scored on a 3-point scale (*completely true, somewhat true, not true*). In the present study, the internal consistency was good ($\alpha = .87$). The NML was translated from Swedish.

Credibility Scale (CS; Borkovec & Nau, 1972). The CS was used to assess client belief in the treatment program. The CS is a four-item self-report measure (e.g., How confident are you that the treatment will help your anxiety?) answered on a 9-point Likert scale. In the current study the internal consistency was good ($\alpha = .82$). The scale has demonstrated good discriminant validity when used with adult clients (Borkovec & Nau, 1972). The CS was translated from Swedish.

Procedure

Parents and youth older than 12 years of age provided written consent, including permission to have therapy sessions recorded. For younger children, verbal assent was obtained. The ADIS–C/P and the NML were administered at pretreatment. The CS was administered after the first session. The TASC–C and TASC–T were completed after the third session. Therapists left the room when youth completed the TASC–C and the youth were informed that the therapists would not see their answers. The Regional Committee for Medical Research Ethics,

Western Norway, and The Norwegian National Data Inspectorate approved the study.

Coding and session sampling procedures. All therapy sessions were videotaped. Tapes from the third session were coded ($N = 52$). For two cases, the third session was unavailable, so the second session was coded. Therapists were unaware of which sessions would be coded. Coders were trained over a 4-month period coding pilot tapes ($N = 42$) and were certified after their ratings achieved acceptable interrater reliability on each item (ICC >.59; Cicchetti, 1994). Once coding commenced, tapes were randomly assigned to coders. During coding, regular meetings were held to prevent coder drift (Margolin et al., 1998). Coders were naive to other client data. Coders scored entire therapy sessions. Each therapy session was double-coded. For the present analyses, the mean score was used to reduce measurement error by removing differences between coders (Hill & Lambert, 2004).

RESULTS

Data analyses progressed through four steps. First, interrater reliability of the TPOCS–A items was examined. Second, systematic differences in alliance scores were checked for by examining child gender, site, primary anxiety diagnosis, and age group differences on the TPOCS–A, TASC–C, and TASC–T. Third, an exploratory factor analysis of the TPOCS–A was conducted. Finally, the convergent and divergent validity of the TPOCS–A was examined.

Interrater reliability was calculated across all coders using the model ICC(1, 3), based on a one-way random effects model (Shrout & Fleiss, 1979). Interrater reliability was "fair" to "excellent" (Cicchetti, 1994) for the items (ICCs ranged from .54 to .93; $M = .77$, $SD = .15$; see Table 3).

Descriptive statistics for each TPOCS–A item are presented in Table 3. Scores on the TPOCS–A items exhibited no indication of range restriction (range = 1.08- 4.89). Table 4 displays descriptive information for the TASC–C, TASC–P, NML, and CS. Subgroup analyses revealed no significant differences in TPOCS–A, TASC–C, or TASC–P scores across gender, age, primary anxiety diagnosis, and/or treatment site.

Factor Analysis

An exploratory factor analysis with principal axis extraction was run to examine the structure of the nine TPOCS–A items. The Kaiser–Meyer–Olkin measure of sampling adequacy was .87, which classifies as "great" (Hutcheson & Sofroninu, 1999). Promax rotation was used, as it was expected that if more than one factor emerged, the factors would be correlated. The initial analysis yielded two factors with eigenvalues greater than 1.0 (eigenvalues = 5.84 and 1.07) that cumulatively accounted for 71.76% of the variance. An inspection of the scree plot showed a substantial drop from the first to the second factor, a smaller drop from the second to the third factor, followed by stabilization. We therefore extracted one- and two-factor solutions. In the two-factor solution the factors were highly correlated ($r = .60$), and more than half of the scale variance was accounted for by Factor 1 (62.19% vs. 9.57%). Seven

TABLE 3
Item Scores, Interrater Reliability, and Factor Structure of the TPOCS–A in a Sample of 52 Children Aged 8 to 15

Item Description	*M*	*SD*	*ICC*	*Factor Loadings*
To what extent did the client . . .	Range: 0–5			
. . . share his/her experience with the therapist[a]	2.74	1.14	.83	.86
. . . indicate that (s)he experiences the therapist as understanding and/or supporting[a]	2.06	1.06	.54	.87
. . . and therapist collaborate on therapeutic tasks[b]	2.52	1.29	.84	.85
. . . and therapist appear anxious or uncomfortable interacting with one another[b, c]	4.76	0.61	.54	.82
. . . show positive affect towards the therapist[a]	2.57	1.09	.84	.82
. . . appear uncomfortable when interacting with therapist[a,c]	4.58	1.02	.83	.82
. . . not comply with therapeutic tasks[b,c]	4.51	1.12	.93	.81
. . . act in a hostile, critical, or defensive manner toward the therapist[a,c]	4.89	0.46	.89	.64
. . . use therapeutic tasks to make changes outside session[b]	1.08	0.54	.67	.44

Note: ICC = intraclass correlation coefficient; TPOCS-A = Therapy Process Observational Coding System for Child Psychotherapy–Alliance Scale; *M* = mean; *SD* = standard deviation.

[a]Bond subscale.

[b]Task subscale.

[c]Item score is reversed.

TABLE 4
Means, Standard Deviations and Range of the Alliance, Motivation, and Treatment Credibility Measures

	TPOCS–A	*TASC–C*	*TASC–T*	*NML*	*CS*
M (*SD*)	3.30 (0.76)	3.30 (0.44)	3.41 (0.33)	1.34 (0.40)	5.98 (1.56)
Range	0.77–4.22	2.33–4.00	2.42–4.00	0.27–1.93	3.00–8.00

Note: TPOCS–A = Therapy Process Observational Coding System for Child Psychotherapy-Alliance Scale; TASC–C = Therapeutic Alliance Scale for Children–Child version; TASC–T = Therapeutic Alliance Scale for Children–Therapist version; NML = Nijmegen Motivation List; CS = Credibility Scale.

items had loadings above .30 on Factor 1, and three items had loadings above .30 on Factor 2. One item (i.e., "*not comply with therapeutic tasks*") crossloaded on both factors (i.e., item loading above .32 on both factors; Costello & Osborne, 2005), with loadings of .37 on Factor 1 and .57 on Factor 2. All five positively formulated TPOCS–A items (e.g., "*collaborate on therapeutic tasks*") loaded higher on Factor 1; however, only three of the four negatively formulated TPOCS–A items (e.g., "*act in a hostile, critical, or defensive manner*") loaded higher on Factor 2. As a result, the two-factor solution was difficult to interpret because it was not consistent with (a) the "positive" and "negative" alliance factors seen in the adult literature (Hatcher & Gillaspy, 2006; Krupnick et al., 1996), or (b) the hypothesized bond and task structure (Shirk & Saiz, 1992). The one-factor solution accounted for 64.86% of the total variance (eigenvalue = 5.84), and produced adequate item loadings that ranged from .44 to .87 ($M = .77$, $SD = .14$). This indicated that each item was at least moderately representative of the alliance construct (Costello & Osbourne, 2005).

A review of the nine items indicated that one might be problematic. As previously noted, one item crossloaded on the two factors (i.e., "*not comply with therapeutic tasks*"). Crossloading can indicate inadequate items (Costello & Osbourne, 2005) or result from sampling error. We decided to retain the item, because the item assesses an important dimension of the alliance and the item loading (.81) was high on the one-factor solution. However, future research should continue to evaluate the adequacy of this item.

TABLE 5
Product–Moment Correlations Between the Alliance, Motivation, and Treatment Credibility Measures

	TPOCS–A	*TASC–C*	*TASC–T*	*NML*
TASC–C	.50**			
TASC–T	.54**	.38*		
NML	.21	.27	.28	
CS	.26	.40**	.13	.35*

Note: TPOCS–A = Therapy Process Observational Coding System for Child Psychotherapy–Alliance Scale; TASC–C = Therapeutic Alliance Scale for Children–Child version; TASC–T = Therapeutic Alliance Scale for Children–Therapist version; NML = Nijmegen Motivation List; CS = Credibility Scale.

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

The converging evidence across the two solutions indicated that a one-factor solution was most appropriate. The scree plot indicated a substantial decrease between Factor 1 and Factor 2. The initial factor accounted for more than half of the variance (62.19%), and the second factor only explained a modest amount of variance (9.57%). The high internal consistency of the full scale supports the one-factor solution ($\alpha = .92$). Finally, the one-factor solution provided the only result that was interpretable from a theoretical perspective. We therefore concluded our factor analytic findings indicate that the TPOCS–A is best characterized by a one-factor solution. See Table 3.

TPOCS–A Validity

Next, we examined the convergent validity of the TPOCS–A (i.e., the magnitude of the correlations between the TPOCS–A and the other alliance measures), as well as the divergent validity (i.e., magnitude of the correlations between the TPOCS–A and the other process measures). The correlations were interpreted following Cohen's (1992) guidelines: r is a "small" effect when at least .10, r is a "medium" effect when at least .24, and r is a "large" effect when at least .37. There are no clear cutoff criteria for interpreting validity coefficients when determining convergent and divergent validity; however, coefficients above .40 have been suggested to indicate satisfactory concurrent validity (Ary, Jacobs, & Razavieh, 2010). The correlations between the TPOCS–A and the self-report alliance measures (TASC–C, TASC–T) were significant and large ($M r = .52$). In comparison, the correlations between the TPOCS–A and the process measures (i.e., NML, CS) were not statistically significant and were small to medium in magnitude ($M r = .24$). Together, these findings support the convergent and divergent validity of the TPOCS-A. See Table 5.

DISCUSSION

Few studies have investigated the psychometric properties of alliance measures used for youth psychotherapy. The aim of the present study was to address this gap by examining the factor structure and psychometric properties of the observer-rated TPOCS–A in a sample of Norwegian youth diagnosed with anxiety disorders. Our findings supported a one-factor solution, suggesting

that the alliance in youth psychotherapy may be unidimensional. Additional analyses supported the interrater reliability, internal consistency, and the convergent and divergent validity of the TPOCS–A.

Our findings contribute to a small but growing body of evidence that suggests the alliance in youth psychotherapy may be defined by a single factor (DiGiuseppe et al., 1996; Faw et al., 2005; Hogue et al., 2006). The self- and observer-report alliance measures designed for youth psychotherapy subjected to factor analysis (i.e., ATAS, AWAI, TPOCS–A, and VTAS–R) have all indicated one-factor solutions. Conceptually, there is some overlap among the measures, as each measure was designed to assess the bond (affective aspects of the alliance) and task (participation in therapeutic activities) alliance dimensions. However, the ATAS and the AWAI also assess client and therapist agreement on the goals of treatment, called the goal dimension (DiGiuseppe et al., 1996; Faw et al., 2005). Despite this difference, the accumulating evidence indicates that adolescents and observers do not seem to discriminate between the different alliance dimensions in youth therapy (DiGiuseppe et al., 1996; Faw et al., 2005; Hogue et al., 2006). This raises the possibility that in youth therapy, failure to establish one aspect of the alliance, such as a strong affective connection, may result in a poor overall alliance (Elvins & Green, 2008). Similarly, failing to engage the child in therapeutic activities may affect the emotional bond between the therapist and the child.

Although our findings suggest a one-factor solution, it is prudent to consider how methodological issues may have influenced our results. First, the studies that have examined the factor structure of youth alliance measures had small sample sizes, which may have biased results. Second, it is possible that the TPOCS–A, as well as the other alliance measures for youth psychotherapy subjected to factor analysis, lacked specificity. Items for each measure were drawn from scales originally developed for adult psychotherapy. It therefore is plausible that the measures may not capture all aspects of the alliance relevant to youth psychotherapy (Elvins & Green, 2008). If true, then the lack of specificity (e.g., lack of adjustment for developmental level) may have increased the likelihood of producing a one-factor model. More research into the conceptual underpinnings of the alliance in youth psychotherapy with larger samples is needed in order to test these possibilities and determine whether existing alliance measures capture all relevant facets of the alliance. Toward this end, further exploration of the factor structure of validated self-report alliance measures represents an important step for future research. Ideally, such research could build an empirical base from which the predictive validity of alliance measures may be more precisely assessed with both observer- and self-report alliance measures.

The present study has some limitations, of which the small sample size is the most salient. We had less than six participants per scale item. Although some assert that five participants per scale item is sufficient (Field, 2009; Stevens, 2009), others argue that the "N-to-variable" rule is inadequate and that other factors (e.g., factor/component saturation, the number of variables and factors) need to be considered to establish sample-to-population fit (Guadagnoli & Velicer, 1988). Indeed, the small sample size may have resulted in a Type II error whereby the small sample did not permit detection of additional factors. Second, the interrater reliability of two of the TPOCS–A items only reached the "fair" level (Cicchetti, 1994), which introduces additional between rater error in the scoring of these items. Third, because the sample was comprised of youth with anxiety disorders, the findings may not generalize to youth with other diagnoses. Fourth, because our sample of therapists was comprised mostly of women, our findings may not generalize to male therapists. Finally, we cannot rule out the possibility that different results would have emerged if the study was conducted in a different culture and/or with a sample that was more ethnically diverse. To address these limitations, future research will need to assess whether the findings generalize to larger, more diverse samples.

It is also important to highlight the strengths of the current study, which include the use of a well-defined treatment group and the inclusion of multiple perspectives on alliance. Furthermore, our sample of children referred to public mental health clinics with "real-life" clinicians increases the ecological validity of the results.

Implications for Research, Policy, and Practice

Our findings provide further support for the interrater reliability, internal consistency, and construct validity of the TPOCS–A. Coders were able to reliably code the alliance in CBT sessions for anxious children delivered in public community settings. In addition, the observer-rated TPOCS–A converged with child-report (TASC–C) and therapist-report alliance (TASC–P) scales, which is consistent with previous TPOCS–A findings (McLeod & Weisz, 2005). The TPOCS–A did not significantly overlap with other process measures (i.e., treatment motivation and credibility). When considered together with previous findings supporting the psychometric properties of the TPOCS–A used with youth (Chiu et al., 2009; Langer et al., 2011; Liber et al., 2010; McLeod & Weisz, 2005), our findings indicate sound construct validity of the TPOCS–A as a measure of observed alliance.

Although more research is needed to help identify the specific ways in which the alliance is formed, the current findings suggest that establishing a strong bond with a child and engaging the child in therapeutic activities are both instrumental to establish a good alliance early in treatment. Future research can build upon these findings by working to identify specific therapist behaviors associated with alliance formation in youth psychotherapy.

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III

Title: Predictors of Early Alliance and Alliance Change in CBT for Youth with Anxiety

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Abstract

Objective: To examine if youth-rated motivation and/or perceived treatment credibility predicted youth- and therapist-rated early alliance and alliance change in cognitive behavioral therapy (CBT) for youth anxiety disorders delivered in community clinics in Norway. **Method**: The sample was 91 clinically-referred youth (M_{age} = 11.40 years, SD = 2.09, range 8-15 years, 49.5% boys; 86.8% European; 1.1 % other, 12.1% not-reported) diagnosed with a primary anxiety disorder. The youth received a 10-session manual-based individual CBT program for youth anxiety. Treatment was provided in community clinics by regular therapists who received training and supervision in the CBT program. Youth and therapists completed alliance measures after the third and seventh session. Youth completed a motivation questionnaire at pre-treatment, and a treatment credibility questionnaire after the first session. Data were analyzed using 2-level hierarchical linear modeling with therapist effects at level 2. **Results**: Youth pretreatment motivation positively predicted early youth- and therapist-rated alliance, but not youth- or therapist-rated alliance change. Treatment credibility positively predicted early youth-rated alliance as well as an increase in youth- and therapist-rated alliance. Treatment credibility did not predict early therapist-rated alliance. **Conclusions**: In CBT for youth anxiety disorders, youth-rated motivation appears to be associated with alliance formation whereas perceived treatment credibility may be associated with alliance increase. In clinical practice, enhancing youth motivation and treatment credibility at treatment onset could support alliance formation and maintenance.

Key words: alliance, treatment motivation, treatment credibility, youth anxiety treatment, cognitive behavioral therapy

Predictors of Early Alliance and Alliance Change in CBT for Youth with Anxiety

The efficacy of cognitive behavioral therapy (CBT) for youth with anxiety disorders has been demonstrated in numerous studies (Davis, May, & Whiting, 2011; Silverman, Pina, & Viswesvaran, 2008). However, up to half of youth who receive CBT in clinical trials continue to meet criteria for a primary anxiety disorder at post-treatment (Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington, 2004). Identifying ways to optimize the delivery and impact of CBT for youth with anxiety therefore represents an important goal. Relatively little is known about what brings about positive clinical change in CBT for youth anxiety. One factor that may contribute to positive clinical change is the alliance – posited to be a key aspect of the therapy process (Kendall & Ollendick, 2004).

The alliance is commonly defined as the quality of the client-therapist affective bond and the degree of collaboration between the client and therapist on therapeutic tasks (Elvins & Green, 2008; Shirk & Saiz, 1992). In youth psychotherapy, a strong youth-therapist alliance has been linked with greater client involvement (Karver et al., 2008), positive clinical outcomes (Shirk, Karver, & Brown, 2011), and treatment attendance (Shirk, Gudmundsen, Kaplinski, & MeMakin, 2008). Despite these linkages, there has been scant research conducted on the alliance in youth psychotherapy. More research is therefore warranted.

Although the alliance has been hypothesized as playing an important role in youth CBT for anxiety disorders, the few studies that have tested this hypothesis have produced mixed results (see Chiu, McLeod, Har, & Wood, 2009; Kendall, 1994; Kendall et al., 1997; Liber et al., 2010). It is possible the alliance explains only a small proportion of the outcome variance; however, it is also possible the alliance may influence outcomes in CBT for youth anxiety via other therapy processes (McLeod, 2011). More research focused on how the alliance unfolds in CBT for youth anxiety is therefore needed to move the field forward (Kendall et al., 2009).

A potentially important area of focus for alliance research is to identify youth factors associated with alliance formation and maintenance (Creed & Kendall, 2005; Karver, Handelsman, Fields, & Bickman, 2005). Youth rarely refer themselves for treatment and may not agree with their caregiver about the need for treatment (Elvins & Green, 2008). As a result, youth may present to treatment with different motivations and beliefs that could influence alliance formation. Identifying whether specific youth factors influence alliance formation in CBT for youth anxiety therefore represents an important focus of study.

Though a number of youth factors may influence alliance formation, it would seem most useful to focus on indicators that are amenable to change and present early in treatment. This is because such factors may then be targeted in treatment in order to enhance the alliance. For this reason, the current study focused on two such factors.

The first factor is youth motivation for treatment, defined as acknowledgment of problems, level of distress, and commitment to change (Keijsers, Schaap, Hoogduin, Hoogsteyns, & de Kemp, 1999). Level of youth motivation has been linked with the quality of the alliance in CBT for youth depression (Russell, Shirk, & Jungbluth, 2008). The relation between youth motivation and the alliance has not yet been examined in CBT for youth anxiety. It is reasonable to posit however, that youth who do not acknowledge experiencing anxiety symptoms or do not want to change, may be more difficult to form a bond with or to engage in the skill building and exposure tasks that characterize CBT for youth anxiety.

The second factor is youth perceived treatment credibility (TC), defined as how plausible and logical the treatment is deemed to be (Greenberg, Constantino, & Bruce, 2006). Parent-rated TC has been found to predict perceived barriers to treatment, including the alliance, in parent-focused treatment for youth disruptive disorders (Nock & Kazdin, 2001). However, we are unaware of studies that have addressed youth-rated TC as a predictor of the alliance. It is plausible that youth who believe that a particular treatment aspect (e.g., exposure tasks)

will reduce their anxiety may form a stronger bond with the therapist and engage more in treatment tasks.

An important consideration in the study of alliance formation is the timing of measurement. The early alliance (before session five) may represent a marker of therapy engagement as a strong alliance is associated with subsequent treatment attendance (Shirk et al., 2008). Moreover, the alliance may become confounded with symptom improvement as therapy progresses (Kazdin, 2007). For these reasons, it is preferable to measure the alliance early in treatment. Assessing the alliance later in treatment is also important. Evidence suggests that the alliance may improve over the course of CBT for youth anxiety (e.g., Chiu et al., 2009; Kendall et al., 2009). It therefore is important to ascertain whether specific youth factors are associated with alliance maintenance (i.e., change in the alliance over treatment). Finally, it is important to assess the alliance from multiple perspectives (e.g., from both youth and therapists) as this reduces the potential biasing influence of shared method variance (McLeod, 2011).

In the current study, we addressed the question of whether two youth factors (motivation for treatment, treatment credibility) predict youth- and therapist-rated alliance in manual-based CBT for youth anxiety delivered in community based service settings. To assess these relations, we employed four methodological features intended to strengthen the interpretability of our findings. First, we evaluated the relation between the youth factors and alliance in an efficacious, manual-guided treatment (see Shirk & Karver, 2003). Second, we relied on ratings of the youth alliance by multiple raters (i.e., youth and therapists), which reduces common rater confounds (Kazdin & Nock, 2003; McLeod, 2011). Third, the youth factors were assessed before the alliance to help establish temporal precedence of the predictors and the alliance (Kazdin, 2007). Fourth, alternative third-variable explanations that may account for the relation between the predictors and the alliance were controlled (i.e.,

included in regression models; Jaccard, Guilamo-Ramos, Johansson, & Bouris, 2006).

This study used the Therapeutic Alliance Scales for Children (TASC; Shirk & Saiz, 1992) to assess youth- and therapist-rated alliance among youth diagnosed with anxiety disorders who received manual-guided CBT in community based service settings in Norway. The TASC is a widely used measure that has been found to have good psychometric properties in past studies (see Creed & Kendall, 2005; McLeod & Weisz, 2005). We had two hypotheses: (1), Youth motivation and TC would positively predict youth- and therapist-rated early alliance; (2), Youth motivation and TC would positively predict youth- and therapist-rated alliance increase from early to late in treatment. To test these hypotheses, 2-level hierarchical linear modeling was used (HLM; Raudenbush & Bryk, 2002), with the between-individual (therapist) effects at level 2, and within-individual at level 1 due to the nested nature of the data.

Methods

Sample

Youth participants (N = 91) were drawn from a larger randomized controlled effectiveness trial (RCT) that took place in community child and adolescent mental health clinics in Norway. See Table 1 for demographic information.

Therapists (*n* = 15, *M age* = 49.82 years; *SD* = 9.41; 93.33% female) volunteered to participate in the study and were employed by the community clinics. All therapists were Caucasian. Nine were psychologists (60.00%), five (33.33%) were clinical pedagogues (masters of education with additional clinical training), and one (6.67%) was a clinical social worker (a bachelor-level degree with additional clinical training). Therapists had a mean of 12.01 years of clinical experience (*SD* = 6.02; i.e., number of years of clinical work post-graduation). One therapist (6.67%) reported receiving more than 100 hours of CBT supervision prior to participating in the RCT, two (13.33%) reported receiving 80-99 hours of

CBT supervision, one (6.67%) reported receiving 50-79 hours, three (20.00%) reported receiving 20-49 hours, and eight (53.33%) reported receiving less than 20 hours of CBT supervision.

Procedures

Youth were screened for the RCT if anxiety was mentioned in the referral letter or suspected by clinicians. Youth who were diagnosed with separation anxiety disorder (SAD), social phobia (SP), and/or generalized anxiety disorder (GAD), and did not have severe conduct disorder, obsessive compulsive disorder, psychosis, and/or learning difficulties were invited to participate in the study. Anxiety diagnosis was derived using combined parent and youth data from the SAD, SP, and GAD sections of the Anxiety Diagnostic Interview Schedule (ADIS) – Child and Parent versions (Silverman & Albano, 1996). Youth participants were randomized to group CBT, individual CBT, or waitlist. Youth randomized to individual CBT ($N = 91$) were included in this report.

As part of the preparation for the RCT, all therapists attended three 2-day workshops focused on the treatment manual, general CBT, and youth anxiety disorders. During active treatment phases, all therapists received biweekly 90-minute group supervision by two psychologists experienced in CBT for youth anxiety. The mean number of clients per therapist was 5.93 ($SD = 2.49$; *range* 2 *to* 10).

The treatment program was the FRIENDS for life manual, which targets emotional awareness and coping, cognitive restructuring, and exposure tasks through 10 one-hour CBT sessions (Barrett, Webster, & Turner, 2004). There are two separate versions of the program that are adjusted for developmental level. Participants aged 8-12 years received the child version and participants aged 12-15 years received the adolescent version. The 12-year olds could be assigned to either age group. All parents and youth above 12 years provided written informed consent. Verbal assent was obtained from younger children. Administrative staff

members at the clinics were present at each measure point to assist youth with completing questionnaires if needed. To reduce demand characteristics, therapists were not present when youth filled out questionnaires. The local Institutional Review Board approved the study.

Measures

Nijmegen Motivation List – Child version (NML; Keijsers et al., 1999). The 15-item (e.g., *I need help immediately to solve my problems*) self-report version of the NML adapted for youth by Ollendick et al. (2009) was used to assess treatment motivation. Items are scored on a 3-point scale from 0 (*not at all true*) to 2 (*mostly true*). The NML has demonstrated internal consistency (α = .73) with youth clients (Ollendick et al., 2009). In this study, internal consistency was good (α = .89). The NML was administered before session 1.

Credibility Scale – Child version (CS; Borkovec & Nau, 1972). The 4-item CS (e.g. *How confident are you that this treatment will help your anxiety?)* was used to assess perceived TC and is scored on a 9-point scale from 0 (*not sure*) to 8 (*very sure*). The CS has demonstrated discriminant validity in a study comparing exposure to non-exposure treatment for childhood phobias (Olendick et al., 2009). In the current study, internal consistency was good (α =.84). The CS was administered at the end of session 1, in which youth received a description of the treatment program.

Therapeutic Alliance Scale for Children – Child and Therapist versions (TASC-C/T; Shirk & Saiz, 1992). The revised version of the TASC was used to assess youth- (TASC-C) and therapist-rated (TASC-T) alliance. The 12-item TASC-C covers bond with the therapist (e.g. *I liked spending time with my therapist*), and agreement with therapy tasks (e.g., *My therapist and I worked well together to solve my problems*). Items are scored on a 4-point scale ranging from 1 (*not true at all*) to 4 (*very true*). The TASC-T has 12 equivalent items where therapists rate their perception of the youth's experience (e.g. *The child liked spending time with you, the therapist*). The revised version of the TASC has demonstrated internal

consistency (α = .88 to .96; Creed & Kendall, 2005). In this study, internal consistency was acceptable for the TASC-C/T in session 3 (α = .77 and .85) and in session 7 (α = .84 and .77). The TASC-C/T was administered at the end of session 3 and 7. Session 3 was used as an indicator of early alliance (e.g., Baldwin, Wampold, & Imel, 2007), whereas session 7 was used to indicate late alliance (Elvins & Green, 2008). Alliance change between session 3 and 7 was calculated equivalent to a simple ANCOVA of change, in a multilevel model (see appendix).

Data Analytic Plan

Analyses were run using 2-level hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002), with the between-individual (therapist) effects at level 2, and within-individual at level 1. Prior to the HLM analyses, we estimated ICCs for alliance variables to determine the percent of variance at the between-therapist level, and these ranged from .15 to .20. Although some consider this between-therapist variance small (e.g., Guo, 2005; <25%), others suggest that this may be sufficient for multilevel modeling because analyses of interest represent interactions between fully-nested levels (e.g., Tasca & Gallop, 2009: Enders & Tofighi, 2007). Data preparation then progressed through seven steps.

First, univariate outliers were evaluated using a limited information approach in which the endogenous variables were regressed onto its relevant predictors and then standardized dfbetas were examined for each individual. An outlier was defined as any individual with an absolute standardized dfbeta greater than 1 for a given coefficient. No outlier was present based on this analysis. Second, examination of univariate indices of skewness and kurtosis revealed no absolute skewness values greater than -0.96 and no absolute kurtosis values greater than 1.13. Third, we examined the pattern of missing data. The mean amount of missing data across all study variables was 13.2%, which is within tolerable limits for HLM using full maximum likelihood estimation, assuming missingness-at-random (Gallop &

Tasca, 2009). There was no coherent pattern to the missing data, thus HLM using full maximum likelihood estimation was used. Fourth, we considered the data from fifteen participants (16.48%) who dropped out from treatment. Youth were counted as dropouts if they missed more than two consecutive sessions. *T*-tests revealed no significant differences on any of the study variables between youth who dropped out versus those who remained in treatment. Therefore, the available data from youth who dropped out were included in all analyses.

Finally, HLM-models were specified to examine our hypotheses. The equations used to specify the HLM models are provided in the appendix. We controlled for youth and therapist variables that were included directly in regression models (Jaccard et al., 2006). The youth characteristics were: (a) *Age*, it is developmentally appropriate for an adolescent to express autonomy so alliance formation may be more difficult with this age group (DiGiuseppe, Linscott, & Jilton, 1996); and (b) *Gender*, girls are more prone to disclose emotional information and use social relationships for support (Landoll, Schwartz-Mette, Rose, & Prinstein, 2011). The therapist characteristics were: (a) *Years of experience*, some research suggests that youth report having a higher alliance with less experienced therapists (Wintersteen, Mensinger, & Diamond, 2005); and (b) *Amount of CBT supervision*, as the level of therapist experience with CBT may influence alliance formation and/or maintenance when regular clinicians deliver manual-based CBT in community clinics.

Results

Descriptive Statistics

Table 2 shows descriptive statistics for the study variables. *T*-tests indicated no significant differences on the alliance, motivation or TC variables based on youth gender, age group (i.e., children (8-12 years) versus adolescents (12-15 years)), or having been initially randomized to waitlist (n = 14). In terms of motivation, youths' mean ratings just reached the

upper third of the scale. In terms of TC, ratings were in the upper third of the scale. In terms of alliance quality, ratings were in the upper fifth of the scale from both youth and therapists at both measure points, indicating overall high alliance ratings. None of the variables indicated range restriction.

The TASC scale has a 36-point range, and youth-rated mean alliance decreased by 0.78 points (SD = 4.67, range -24.00 to 6.64) from early to late in treatment, while therapist-rated mean alliance increased by 0.34 points (SD = 3.39, range -6.00 to 8.00). Paired sample t-tests showed that youth-rated alliance did not significantly change from early to late in treatment (t =1.249, p =.217), neither did therapist-rated alliance (t =-.729, p =.469). The correlations between early and late alliance were high for both youth-rated (r = .61, p < .001) and therapist-rated alliance (r = .70, p < .001). The correlation between early youth- and therapist-rated alliance was medium (r = .30, p < .05), whereas the correlation between late youth- and therapist-rated alliance was low (r = .09, *ns*).

Pairwise variable relationships were also examined in a multilevel framework. Significant effects were found when predicting TC from motivation (β_1 = 0.450, p < .05), early youth-rated alliance from motivation (β_1 = 0.234, p < .05) and TC (β_1 = 0.479, p < .01), early therapist-rated alliance from youth gender (β_1 = 1.673, p < .05) and age (β_1 = 0.547, p < .05), early therapist-rated alliance from youth motivation (β_1 = 0.136, p < .05), and early youth-rated alliance from therapist-rated alliance (β_1 = 0.473, p < .05). Therapist experience predicted only treatment credibility (β_1 = 0.280, p < .01), while therapist CBT supervision did not significantly predict motivation, TC, or early youth- or therapist-rated alliance. Early therapist-rated alliance significantly predicted late therapist-rated alliance (β_1 = 0.729, p < .01), while early youth-rated alliance predicted late youth-rated alliance (β_1 = 0.606, p < .001). No significant relationship was found when predicting late youth-rated alliance from late therapist-rated alliance (β_1 = 0.214, p = .17).

Effects of Motivation and TC on Early Alliance

The prediction models for youth treatment motivation on early alliance are displayed in Table 3. Motivation was a significant positive predictor of both early therapist- and youth-rated alliance (β_{30}). These effects were large (~R^2 = .390) and medium (~R^2 = .135), respectively. None of the covariates were significant in the models for motivation on early alliance.

Youth TC was a significant positive predictor of early youth-rated alliance. The effect was large (~R^2 = .259). In the model for youth TC on early therapist-rated alliance, youth TC was not a significant predictor (β_{30}). However, the covariate therapist experience was a significant predictor in this model, with more experienced therapists rating higher early alliance (β_{01}).

Effects of Motivation and TC on Alliance Change

The prediction models for youth treatment motivation on alliance change are displayed in Table 4. Youth treatment motivation did not predict therapist- or youth-rated alliance change (β_{30}). However, in the model for motivation on therapist-rated alliance change, the covariates CBT supervision and youth gender were significant predictors. Therapists with more CBT supervision rated a relative decrease in alliance (β_{02}), as did therapists when treating girls versus boys (β_{20}).

Youth TC predicted increases in therapist- and youth-rated alliance (β_{30}). These effects were both medium (~R^2 = .230 and .148, respectively), and reduced the relationship between early and late alliance to non-significance (β_{40}). In the model for youth TC on therapist-rated alliance change, the covariate youth age was also a significant predictor. Therapists treating older (as opposed to younger) youth rated a relative decrease in alliance (β_{10}).

Discussion

Though the alliance is often emphasized as an important ingredient of successful psychotherapy with youth, few studies have examined predictors of alliance formation and maintenance. To address this gap, we examined whether two youth-rated factors (motivation for treatment and perceived treatment credibility) predicted youth- and therapist-rated alliance in CBT for youth anxiety disorders. The findings indicated that higher youth-reported motivation predicted a stronger youth- and therapist-rated alliance early in treatment, whereas higher perceived TC predicted a stronger youth-rated alliance early in treatment, but not early therapist-rated alliance. Higher youth perceived TC also predicted increases in youth- and therapist-rated alliance, but motivation did not predict alliance change. These findings suggest that youth factors present early in treatment may influence alliance formation and maintenance in CBT for youth anxiety disorders.

Our findings suggest that youth motivation level may influence alliance formation. This represents an important finding since youth can present to treatment with varying levels of motivation (Elvins & Green, 2008; Karver et al., 2005). Low youth motivation may be particularly problematic for alliance formation in active, structured treatments, such as CBT for youth anxiety. Indeed, efforts to engage youth in CBT activities who present to treatment with little motivation may have a detrimental effect on alliance formation. Interestingly, our findings also suggest that youth motivation does not influence the maintenance of the alliance. Youth motivation may therefore play a role in alliance formation, but not influence the quality of the alliance over the course of treatment.

Whereas youth motivation was linked to alliance formation, perceived treatment credibility was found to influence the maintenance of the alliance. Perceived TC predicted youth-reported alliance early in treatment; however, perceived TC was also related to increases in youth- and therapist-rated alliance. Some have argued that the alliance may deteriorate in CBT for youth anxiety following the introduction of exposure tasks. Our

findings suggest that youth belief in the CBT model may buffer them against the deleterious effects that exposure tasks may have on the alliance. On the other hand, youth who do not see the value of CBT may be at increased risk for experiencing ruptures in the alliance relationship when exposure tasks are introduced.

The current study has clinical implications. The findings suggest that targeting youth motivation and perceived TC early in treatment may help strengthen the alliance. Therapists can employ motivational interviewing to enhance youth motivation (see Westra & Dozois, 2006) and perceived treatment credibility may be improved via psychoeducation (e.g., information videotapes; see Shuman & Shapiro, 2006). Targeting these factors for intervention may be especially important in community settings where the dropout rate is high (McKay & Bannon, 2004). If the alliance does improve attendance, then targeting youth motivation and perceived treatment credibility may help promote positive outcomes for youth seeking services in community settings.

Measuring the alliance from multiple perspectives revealed that youth and therapists may have distinct views of the alliance, especially late in treatment. Early in treatment, youth- and therapist-rated alliance evidence moderate overlap (r = .30), which is in line with previous studies with youth (e.g., r = .37, Creed & Kendall, 2005; r = .33, Shirk et al., 2008). However, youth- and therapist-rated alliance evidenced virtually no overlap late in treatment (r =.09). Similar findings have been found in a previous study of CBT for youth anxiety (Creed & Kendall, 2005). Growing evidence therefore suggests that youth- and therapist-perspectives on the alliance may diverge over the course of treatment. This is concerning because self-reported "split" alliances (when one therapy participants' perspective on the alliance differs markedly from another participants' perspective) are linked with poor outcomes, such as treatment dropout (e.g., Robbins, Turner, Alexander, & Perez, 2003).

Future research should therefore investigate the impact of self-reported split alliances in CBT for youth anxiety.

While our findings help identify youth factors that predict alliance formation in CBT for youth anxiety, a few limitations of the study warrant attention. First, the alliance was measured only twice, which prevented examination of the trajectory of the alliance over the course of treatment (Kendall et al., 2009). Second, the study focused upon CBT for youth anxiety disorders, so the findings may not generalize to other youth problem types. Third, though we included a number of youth and therapist covariates it is plausible that other variables, not included in our analyses, may explain the observed relations between youth factors and the alliance. To address these limitations, future research will need to assess whether these findings generalize to larger, more demographically and clinically diverse samples.

The current study also has several strengths. We focused upon an intervention with established efficacy. We also used a well-validated alliance measure and assessed the alliance from multiple perspectives. Finally, the sample was comprised of clinically-referred youth treated by clinicians in community settings, which enhances the generalizability of our findings.

Taken together, our findings indicate that youth factors present early in treatment may influence subsequent alliance formation and maintenance in CBT for youth anxiety. These results complement previous findings suggesting that particular therapist behaviors are associated with the alliance (Creed & Kendall, 2005) and client involvement (Jungbluth & Shirk, 2009). This line of research represents an important area of inquiry that may eventually help identify empirically supported strategies for strengthening the alliance and maximizing client involvement in youth psychotherapy.

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Appendix

We specified 2-level HLM models to test hypothesis 1 as follows:

Level 1:

$$Y_{ti} = \pi_0 + \pi_1(age) + \pi_2(sex) + \pi_3(X) + e_i$$

Level 2:

$$\pi_0 = \beta_{00} + \beta_{01}(E) + \beta_{02}(S) + r_0$$
$$\pi_1 = \beta_{10}$$
$$\pi_2 = \beta_{20}$$
$$\pi_3 = \beta_{30} + r_3$$

Y_{ti} is the early alliance variable (youth or therapist rated) for a given client, *age* is youth age in years, *sex* is youth gender (0 = male, 1 = female), *X* represents the youth-rated predictor variable (motivation or treatment credibility), *E* represents therapist years of experiences, and *S* represents hours of previous CBT supervision (all centered at the group level; Enders & Tofighi, 2007). π_0 is the total intercept, while π_1, π_2, and π_3 are the slope effects. β_{00} is the alliance variable intercept alone, while β_{02} and β_{03} are effects of therapist experience and CBT supervision on the intercept. β_{10} and β_{20} are the fixed slopes associated with youth age and gender, while β_{30} is the slope effect of the treatment belief variable. r_0 and r_3, and e_{ti} represent the intercept, slope, and residual error terms. Effect sizes (ESs) were calculated for the effects of motivation and treatment credibility in these models by estimating the Level 1 (between-individual) pseudo-R^2 (~R^2, Hox, 2002), which follows Cohen's (1992) convention for qualification of R^2 effect sizes. When assessing the raw effect of motivation and treatment credibility on early alliance, β_{30} is considered. 2 analyses were run for each alliance variable "family" (youth and therapist early alliance).

Finally, we specified 2-level HLM models to test hypothesis 2:

Level 1:

$$Y_{ti} = \pi_0 + \pi_1(age) + \pi_2(sex) + \pi_3(X) + \pi_4(A) + e_i$$

Level 2:

$$\pi_0 = \beta_{00} + \beta_{01}(E) + \beta_{02}(S) + r_0$$
$$\pi_1 = \beta_{10}$$
$$\pi_2 = \beta_{20}$$
$$\pi_3 = \beta_{30} + r_3$$
$$\pi_4 = \beta_{40} + r_4$$

This model is identical to the previous model except Y_{ti} is late (Session 7) alliance variable (client or therapist-rated) for a given client, A is the early (Session 3) alliance measurement of that same variable, π_2 is the overall relationship between early and late alliance, while β_{40} is the mean estimated slope between early and late alliance, and r_4 represents the residual error term. Thus, this model is equivalent to a simple ANCOVA of change. ESs were calculated for these models as above. 2 analyses were run for each alliance variable "family."

Table 1
Sample Demographic and Diagnostic Information

Variables	M (SD) or %		N	
Age (years)	11.40 (2.09)			
Boys	49.5 %		45	
Birth place				
Europe	86.8%		79	
Other	1.1%		1	
Not reported	12.1%		11	
Primary diagnosis*				
SP	47.2%		43	
SAD	31.9%		29	
GAD	20.9%		19	
Post high school education	Mother	Father	Mother	Father
None	51.9%	44.3%	42	35
1-3 years	28.4%	38.0%	23	30
> 3 years	4.9%	7.6%	4	6
Not reported	14.8%	10.1%	12	8

Note. SP = Social Phobia. SAD = Separation Anxiety Disorder. GAD = Generalized Anxiety Disorder. *Based on the Anxiety Disorders Interview Schedule (ADIS-C/P; Silverman & Albano, 1996).

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Table 2

Means, Standard Deviations and Range of Alliance and Predcitor Variables

	TASC-C Early	TASC-C Late	TASC-T Early	TASC-T Late	NML	CS
M (SD)	40.25 (5.08)	40.17 (5.55)	41.35 (3.73)	41.52 (4.73)	19.20 (6.33)	23.33 (6.70)
Range	28.00-48.00	23.00-48.00	29.00-48.00	27.00-48.00	2.00-29.00	0.00-32.00
Min-max	12.00-48.00	12.00-48.00	12.00-48.00	12.00-48.00	0.00-30.00	0.00-32.00

Note. TASC = Therapeutic Alliance Scale for Children. C = Child. T = Therapist. NML= Nijmegen Motivation List. CS = Credibility Scale. Min-max = Range of minimum to maximum possible scores.

Table 3

Early Alliance Predicted by Youth Motivation and Treatment Credibility

Measure	Para-meter	Fixed effects					σ^2	τ
		Coef.	SE	T-ratio	p-value	df		
Early ther. alliance							6.703	
Intercept	β_{00}	40.99	0.56	72.51	<.001	11		2.171
Ther. experience	β_{01}	0.10	0.51	2.04	0.065	11		
CBT supervision	β_{02}	-0.88	0.53	-1.65	0.126	11		
Youth age	β_{10}	0.33	0.25	1.32	0.194	49		
Youth gender	β_{20}	1.00	0.80	1.25	0.217	49		
Youth motivation	β_{30}	0.13	0.05	2.75	0.017	13		0.007
Early youth alliance							21.439	
Intercept	β_{00}	40.35	0.61	66.58	<.001	12		0.845
Ther. experience	β_{01}	0.08	0.08	1.04	0.320	12		
CBT supervision	β_{02}	-0.40	0.29	-1.36	0.200	12		
Youth age	β_{10}	-0.12	0.35	-0.34	0.739	57		
Youth gender	β_{20}	0.90	1.50	0.60	0.551	57		
Youth motivation	β_{30}	0.22	0.10	2.16	0.048	14		0.019
Early ther. alliance							7.746	
Intercept	β_{00}	40.91	0.45	90.41	<.001	10		0.843
Ther. experience	β_{01}	0.10	0.03	2.97	0.015	10		
CBT supervision	β_{02}	-0.65	0.41	-1.57	0.147	10		
Youth age	β_{10}	0.36	0.23	1.58	0.120	50		
Youth gender	β_{20}	1.36	0.78	1.73	0.090	50		

Treatment cred.	β_{30}	0.13	0.10	1.28	0.225	12		0.043
Early youth alliance							18.356	
Intercept	β_{00}	39.79	0.67	59.23	<.001	11		1.776
Ther. experience	β_{01}	0.15	0.09	1.73	0.111	11		
CBT supervision	β_{02}	-0.41	0.37	-1.12	0.289	11		
Youth age	β_{10}	0.14	0.27	0.52	0.602	54		
Youth gender	β_{20}	0.80	1.34	0.60	0.553	54		
Treatment cred.	β_{30}	0.48	0.12	3.97	0.002	13		0.046

Note. Ther. = Therapist; cred. = Credibility. Coef. = Coefficient.

Table 4

Alliance Change Predicted by Youth Motivation and Treatment Credibility

Measure	Para-meter	Fixed effects						
		Coef.	SE	T-ratio	p-value	df	σ^2	τ
Ther. alliance chg.							4.621	
Intercept	β_{00}	40.38	0.48	84.45	<.001	11		1.845
Ther. experience	β_{01}	0.06	0.05	1.19	0.260	11		
CBT supervision	β_{02}	-2.30	0.30	-7.74	<.001	11		
Youth age	β_{10}	-0.17	0.18	-0.91	0.368	40		
Youth gender	β_{20}	-1.02	0.51	-2.01	0.050	40		
Youth motivation	β_{30}	0.15	0.11	1.41	0.183	13		0.064
Early alliance	β_{40}	0.87	0.14	6.37	0.000	13		0.120
Youth alliance chg.								
Intercept	β_{00}	40.60	0.92	44.13	<.001	12		7.710
Ther. experience	β_{01}	-0.01	0.15	-0.09	0.932	12		
CBT supervision	β_{02}	0.40	0.64	0.64	0.536	12		
Youth age	β_{10}	0.71	0.59	1.21	0.234	41		
Youth gender	β_{20}	-1.02	1.32	-0.77	0.445	41		
Youth motivation	β_{30}	0.06	0.15	-0.42	0.682	14		0.164
Early alliance	β_{40}	0.68	0.16	4.31	0.001	14		0.093
Ther. alliance chg.								
Intercept	β_{00}	41.38	0.78	53.02	<.001	10		5.259
Ther. experience	β_{01}	0.18	0.11	1.62	0.136	10		
CBT supervision	β_{02}	-1.09	0.76	-1.43	0.183	10		

Youth age	β_{10}	-0.29	0.14	-2.10	0.042	40	
Youth gender	β_{20}	-0.90	0.59	-1.54	0.132	40	
Treatment cred.	β_{30}	0.17	0.07	2.53	0.027	12	0.014
Early alliance	β40	0.37	0.17	2.14	0.054	12	0.101
Youth alliance chg.							
Intercept	β_{00}	40.02	1.31	30.47	<.001	11	13.693
Ther. experience	β_{01}	0.16	0.12	1.42	0.184	11	
CBT supervision	β_{02}	0.84	1.04	0.81	0.437	11	
Youth age	β_{10}	0.70	0.47	1.49	0.144	41	
Youth gender	β_{20}	0.25	1.35	0.19	0.855	41	
Treatment cred.	β_{30}	0.24	0.11	2.14	0.050	13	0.075
Early alliance	β_{40}	0.42	0.20	2.08	0.058	13	0.093

Note. Ther. = Therapist; chg. = change; cred. = Credibility. Coef. = Coefficient.

Doctoral Theses at The Faculty of Psychology, University of Bergen

1980	Allen, H.M., Dr. philos.	Parent-offspring interactions in willow grouse (Lagopus L. Lagopus).
1981	Myhrer, T., Dr. philos.	Behavioral Studies after selective disruption of hippocampal inputs in albino rats.
1982	Svebak, S., Dr. philos.	The significance of motivation for task-induced tonic physiological changes.
1983	Myhre, G., Dr. philos.	The Biopsychology of behavior in captive Willow ptarmigan.
	Eide, R., Dr. philos.	PSYCHOSOCIAL FACTORS AND INDICES OF HEALTH RISKS. The relationship of psychosocial conditions to subjective complaints, arterial blood pressure, serum cholesterol, serum triglycerides and urinary catecholamines in middle aged populations in Western Norway.
	Værnes, R.J., Dr. philos.	Neuropsychological effects of diving.
1984	Kolstad, A., Dr. philos.	Til diskusjonen om sammenhengen mellom sosiale forhold og psykiske strukturer. En epidemiologisk undersøkelse blant barn og unge.
	Løberg, T., Dr. philos.	Neuropsychological assessment in alcohol dependence.
1985	Hellesnes, T., Dr. philos.	Læring og problemløsning. En studie av den perseptuelle analysens betydning for verbal læring.
	Håland, W., Dr. philos.	Psykoterapi: relasjon, utviklingsprosess og effekt.
1986	Hagtvet, K.A., Dr. philos.	The construct of test anxiety: Conceptual and methodological issues.
	Jellestad, F.K., Dr. philos.	Effects of neuron specific amygdala lesions on fear-motivated behavior in rats.
1987	Aarø, L.E., Dr. philos.	Health behaviour and sosioeconomic Status. A survey among the adult population in Norway.
	Underlid, K., Dr. philos.	Arbeidsløyse i psykososialt perspektiv.
	Laberg, J.C., Dr. philos.	Expectancy and classical conditioning in alcoholics' craving.
	Vollmer, F.C., Dr. philos.	Essays on explanation in psychology.
	Ellertsen, B., Dr. philos.	Migraine and tension headache: Psychophysiology, personality and therapy.
1988	Kaufmann, A., Dr. philos.	Antisosial atferd hos ungdom. En studie av psykologiske determinanter.

	Mykletun, R.J., Dr. philos.	Teacher stress: personality, work-load and health.
	Havik, O.E., Dr. philos.	After the myocardial infarction: A medical and psychological study with special emphasis on perceived illness.
1989	Bråten, S., Dr. philos.	Menneskedyaden. En teoretisk tese om sinnets dialogiske natur med informasjons- og utviklingspsykologiske implikasjoner sammenholdt med utvalgte spedbarnsstudier.
	Wold, B., Dr. psychol.	Lifestyles and physical activity. A theoretical and empirical analysis of socialization among children and adolescents.
1990	Flaten, M.A., Dr. psychol.	The role of habituation and learning in reflex modification.
1991	Alsaker, F.D., Dr. philos.	Global negative self-evaluations in early adolescence.
	Kraft, P., Dr. philos.	AIDS prevention in Norway. Empirical studies on diffusion of knowledge, public opinion, and sexual behaviour.
	Endresen, I.M., Dr. philos.	Psychoimmuniological stress markers in working life.
	Faleide, A.O., Dr. philos.	Asthma and allergy in childhood. Psychosocial and psychotherapeutic problems.
1992	Dalen, K., Dr. philos.	Hemispheric asymmetry and the Dual-Task Paradigm: An experimental approach.
	Bø, I.B., Dr. philos.	Ungdoms sosiale økologi. En undersøkelse av 14-16 åringers sosiale nettverk.
	Nivison, M.E., Dr. philos.	The relationship between noise as an experimental and environmental stressor, physiological changes and psychological factors.
	Torgersen, A.M., Dr. philos.	Genetic and environmental influence on temperamental behaviour. A longitudinal study of twins from infancy to adolescence.
1993	Larsen, S., Dr. philos.	Cultural background and problem drinking.
	Nordhus, I.H., Dr. philos.	Family caregiving. A community psychological study with special emphasis on clinical interventions.
	Thuen, F., Dr. psychol.	Accident-related behaviour among children and young adolescents: Prediction and prevention.
	Solheim, R., Dr. philos.	Spesifikke lærevansker. Diskrepanskriteriet anvendt i seleksjonsmetodikk.
	Johnsen, B.H., Dr. psychol.	Brain assymetry and facial emotional expressions: Conditioning experiments.
1994	Tønnessen, F.E., Dr. philos.	The etiology of Dyslexia.
	Kvale, G., Dr. psychol.	Psychological factors in anticipatory nausea and vomiting in cancer chemotherapy.

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	Johannessen, B.F., Dr. philos.	Det flytende kjønnet. Om lederskap, politikk og identitet.
1995	Sam, D.L., Dr. psychol.	Acculturation of young immigrants in Norway: A psychological and socio-cultural adaptation.
	Bjaalid, I.-K., Dr. philos	Component processes in word recognition.
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	Brun, W., Dr.philos.	Subjective conceptions of uncertainty and risk.
	Aas, H.N., Dr. psychol.	Alcohol expectancies and socialization: Adolescents learning to drink.
	Bjørkly, S., Dr. psychol.	Diagnosis and prediction of intra-institutional aggressive behaviour in psychotic patients
1996	Anderssen, N., Dr. psychol.	Physical activity of young people in a health perspective: Stability, change and social influences.
	Sandal, Gro Mjeldheim, Dr. psychol.	Coping in extreme environments: The role of personality.
	Strumse, Einar, Dr. philos.	The psychology of aesthetics: explaining visual preferences for agrarian landscapes in Western Norway.
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	Einarsen, Ståle, Dr. psychol.	Bullying and harassment at work: epidemiological and psychosocial aspects.
1997	Knivsberg, Ann-Mari, Dr. philos.	Behavioural abnormalities and childhood psychopathology: Urinary peptide patterns as a potential tool in diagnosis and remediation.
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2001		
V	Skinstad, Anne Helene, Dr. philos.	Substance dependence and borderline personality disorders.
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	Kobbeltvedt, Therese, Dr. psychol.	Risk and feelings: A field approach.
2004 H	Thomsen, Tormod, Dr. psychol.	Localization of attention in the brain.
	Løberg, Else-Marie, Dr. psychol.	Functional laterality and attention modulation in schizophrenia: Effects of clinical variables.
	Kyrkjebø, Jane Mikkelsen, Dr. philos.	Learning to improve: Integrating continuous quality improvement learning into nursing education.
	Laumann, Karin, Dr. psychol.	Restorative and stress-reducing effects of natural environments: Experiencal, behavioural and cardiovascular indices.
	Holgersen, Helge, PhD	Mellom oss - Essay i relasjonell psykoanalyse.
2005 V	Hetland, Hilde, Dr. psychol.	Leading to the extraordinary? Antecedents and outcomes of transformational leadership.
	Iversen, Anette Christine, Dr. philos.	Social differences in health behaviour: the motivational role of perceived control and coping.
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	Sævi, Tone, Dr. philos.	Seeing disability pedagogically – The lived experience of disability in the pedagogical encounter.
	Wiium, Nora, PhD	Intrapersonal factors, family and school norms: combined and interactive influence on adolescent smoking behaviour.
	Kanagaratnam, Pushpa, PhD	Subjective and objective correlates of Posttraumatic Stress in immigrants/refugees exposed to political violence.

	Larsen, Torill M. B. , PhD	Evaluating principals` and teachers` implementation of Second Step. A case study of four Norwegian primary schools.
	Bancila, Delia, PhD	Psychosocial stress and distress among Romanian adolescents and adults.
2006 V	Hillestad, Torgeir Martin, Dr. philos.	Normalitet og avvik. Forutsetninger for et objektivt psykopatologisk avviksbegrep. En psykologisk, sosial, erkjennelsesteoretisk og teorihistorisk framstilling.
	Nordanger, Dag Øystein, Dr. psychol.	Psychosocial discourses and responses to political violence in post-war Tigray, Ethiopia.
	Rimol, Lars Morten, PhD	Behavioral and fMRI studies of auditory laterality and speech sound processing.
	Krumsvik, Rune Johan, Dr. philos.	ICT in the school. ICT-initiated school development in lower secondary school.
	Norman, Elisabeth, Dr. psychol.	Gut feelings and unconscious thought: An exploration of fringe consiousness in implicit cognition.
	Israel, K Pravin, Dr. psychol.	Parent involvement in the mental health care of children and adolescents. Emperical studies from clinical care setting.
	Glasø, Lars, PhD	Affects and emotional regulation in leader-subordinate relationships.
	Knutsen, Ketil, Dr. philos.	HISTORIER UNGDOM LEVER – En studie av hvordan ungdommer bruker historie for å gjøre livet meningsfullt.
	Matthiesen, Stig Berge, PhD	Bullying at work. Antecedents and outcomes.
2006 H	Gramstad, Arne, PhD	Neuropsychological assessment of cognitive and emotional functioning in patients with epilepsy.
	Bendixen, Mons, PhD	Antisocial behaviour in early adolescence: Methodological and substantive issues.
	Mrumbi, Khalifa Maulid, PhD	Parental illness and loss to HIV/AIDS as experienced by AIDS orphans aged between 12-17 years from Temeke District, Dar es Salaam, Tanzania: A study of the children's psychosocial health and coping responses.
	Hetland, Jørn, Dr. psychol.	The nature of subjective health complaints in adolescence: Dimensionality, stability, and psychosocial predictors
	Kakoko, Deodatus Conatus Vitalis, PhD	Voluntary HIV counselling and testing service uptake among primary school teachers in Mwanza, Tanzania: assessment of socio-demographic, psychosocial and socio-cognitive aspects
	Mykletun, Arnstein, Dr. psychol.	Mortality and work-related disability as long-term consequences of anxiety and depression: Historical cohort designs based on the HUNT-2 study
	Sivertsen, Børge, PhD	Insomnia in older adults. Consequences, assessment and treatment.

2007		
V	Singhammer, John, Dr. philos.	Social conditions from before birth to early adulthood – the influence on health and health behaviour
	Janvin, Carmen Ani Cristea, PhD	Cognitive impairment in patients with Parkinson's disease: profiles and implications for prognosis
	Braarud, Hanne Cecilie, Dr.psychol.	Infant regulation of distress: A longitudinal study of transactions between mothers and infants
	Tveito, Torill Helene, PhD	Sick Leave and Subjective Health Complaints
	Magnussen, Liv Heide, PhD	Returning disability pensioners with back pain to work
	Thuen, Elin Marie, Dr.philos.	Learning environment, students' coping styles and emotional and behavioural problems. A study of Norwegian secondary school students.
	Solberg, Ole Asbjørn, PhD	Peacekeeping warriors – A longitudinal study of Norwegian peacekeepers in Kosovo
2007		
H	Søreide, Gunn Elisabeth, Dr.philos.	Narrative construction of teacher identity
	Svensen, Erling, PhD	WORK & HEALTH. Cognitive Activation Theory of Stress applied in an organisational setting.
	Øverland, Simon Nygaard, PhD	Mental health and impairment in disability benefits. Studies applying linkages between health surveys and administrative registries.
	Eichele, Tom, PhD	Electrophysiological and Hemodynamic Correlates of Expectancy in Target Processing
	Børhaug, Kjetil, Dr.philos.	Oppseding til demokrati. Ein studie av politisk oppseding i norsk skule.
	Eikeland, Thorleif, Dr.philos.	Om å vokse opp på barnehjem og på sykehus. En undersøkelse av barnehjemsbarns opplevelser på barnehjem sammenholdt med sanatoriebarns beskrivelse av langvarige sykehusopphold – og et forsøk på forklaring.
	Wadel, Carl Cato, Dr.philos.	Medarbeidersamhandling og medarbeiderledelse i en lagbasert organisasjon
	Vinje, Hege Forbech, PhD	Thriving despite adversity: Job engagement and self-care among community nurses
	Noort, Maurits van den, PhD	Working memory capacity and foreign language acquisition
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V	Breivik, Kyrre, Dr.psychol.	The Adjustment of Children and Adolescents in Different Post-Divorce Family Structures. A Norwegian Study of Risks and Mechanisms.
	Johnsen, Grethe E., PhD	Memory impairment in patients with posttraumatic stress disorder
	Sætrevik, Bjørn, PhD	Cognitive Control in Auditory Processing

	Carvalhosa, Susana Fonseca, PhD	Prevention of bullying in schools: an ecological model
2008		
H	Brønnick, Kolbjørn Selvåg	Attentional dysfunction in dementia associated with Parkinson's disease.
	Posserud, Maj-Britt Rocio	Epidemiology of autism spectrum disorders
	Haug, Ellen	Multilevel correlates of physical activity in the school setting
	Skjerve, Arvid	Assessing mild dementia – a study of brief cognitive tests.
	Kjønniksen, Lise	The association between adolescent experiences in physical activity and leisure time physical activity in adulthood: a ten year longitudinal study
	Gundersen, Hilde	The effects of alcohol and expectancy on brain function
	Omvik, Siri	Insomnia – a night and day problem
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V	Molde, Helge	Pathological gambling: prevalence, mechanisms and treatment outcome.
	Foss, Else	Den omsorgsfulle væremåte. En studie av voksnes væremåte i forhold til barn i barnehagen.
	Westrheim, Kariane	Education in a Political Context: A study of Konwledge Processes and Learning Sites in the PKK.
	Wehling, Eike	Cognitive and olfactory changes in aging
	Wangberg, Silje C.	Internet based interventions to support health behaviours: The role of self-efficacy.
	Nielsen, Morten B.	Methodological issues in research on workplace bullying. Operationalisations, measurements and samples.
	Sandu, Anca Larisa	MRI measures of brain volume and cortical complexity in clinical groups and during development.
	Guribye, Eugene	Refugees and mental health interventions
	Sørensen, Lin	Emotional problems in inattentive children – effects on cognitive control functions.
	Tjomsland, Hege E.	Health promotion with teachers. Evaluation of the Norwegian Network of Health Promoting Schools: Quantitative and qualitative analyses of predisposing, reinforcing and enabling conditions related to teacher participation and program sustainability.
	Helleve, Ingrid	Productive interactions in ICT supported communities of learners
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H	Skorpen, Aina Øye, Christine	Dagliglivet i en psykiatrisk institusjon: En analyse av miljøterapeutiske praksiser
	Andreassen, Cecilie Schou	WORKAHOLISM – Antecedents and Outcomes

	Stang, Ingun	Being in the same boat: An empowerment intervention in breast cancer self-help groups
	Sequeira, Sarah Dorothee Dos Santos	The effects of background noise on asymmetrical speech perception
	Kleiven, Jo, dr.philos.	The Lillehammer scales: Measuring common motives for vacation and leisure behavior
	Jónsdóttir, Guðrún	Dubito ergo sum? Ni jenter møter naturfaglig kunnskap.
	Hove, Oddbjørn	Mental health disorders in adults with intellectual disabilities - Methods of assessment and prevalence of mental health disorders and problem behaviour
	Wageningen, Heidi Karin van	The role of glutamate on brain function
	Bjørkvik, Jofrid	God nok? Selvaktelse og interpersonlig fungering hos pasienter innen psykisk helsevern: Forholdet til diagnoser, symptomer og behandlingsutbytte
	Andersson, Martin	A study of attention control in children and elderly using a forced-attention dichotic listening paradigm
	Almås, Aslaug Grov	Teachers in the Digital Network Society: Visions and Realities. A study of teachers' experiences with the use of ICT in teaching and learning.
	Ulvik, Marit	Lærerutdanning som danning? Tre stemmer i diskusjonen
2010		
V	Skår, Randi	Læringsprosesser i sykepleieres profesjonsutøvelse. En studie av sykepleieres læringserfaringer.
	Roald, Knut	Kvalitetsvurdering som organisasjonslæring mellom skole og skoleeigar
	Lunde, Linn-Heidi	Chronic pain in older adults. Consequences, assessment and treatment.
	Danielsen, Anne Grete	Perceived psychosocial support, students' self-reported academic initiative and perceived life satisfaction
	Hysing, Mari	Mental health in children with chronic illness
	Olsen, Olav Kjellevold	Are good leaders moral leaders? The relationship between effective military operational leadership and morals
	Riese, Hanne	Friendship and learning. Entrepreneurship education through mini-enterprises.
	Holthe, Asle	Evaluating the implementation of the Norwegian guidelines for healthy school meals: A case study involving three secondary schools
H	Hauge, Lars Johan	Environmental antecedents of workplace bullying: A multi-design approach
	Bjørkelo, Brita	Whistleblowing at work: Antecedents and consequences

	Reme, Silje Endresen	Common Complaints – Common Cure? Psychiatric comorbidity and predictors of treatment outcome in low back pain and irritable bowel syndrome
	Helland, Wenche Andersen	Communication difficulties in children identified with psychiatric problems
	Beneventi, Harald	Neuronal correlates of working memory in dyslexia
	Thygesen, Elin	Subjective health and coping in care-dependent old persons living at home
	Aanes, Mette Marthinussen	Poor social relationships as a threat to belongingness needs. Interpersonal stress and subjective health complaints: Mediating and moderating factors.
	Anker, Morten Gustav	Client directed outcome informed couple therapy
	Bull, Torill	Combining employment and child care: The subjective well-being of single women in Scandinavia and in Southern Europe
	Viig, Nina Grieg	Tilrettelegging for læreres deltakelse i helsefremmende arbeid. En kvalitativ og kvantitativ analyse av sammenhengen mellom organisatoriske forhold og læreres deltakelse i utvikling og implementering av Europeisk Nettverk av Helsefremmende Skoler i Norge
	Wolff, Katharina	To know or not to know? Attitudes towards receiving genetic information among patients and the general public.
	Ogden, Terje, dr.philos.	Familiebasert behandling av alvorlige atferdsproblemer blant barn og ungdom. Evaluering og implementering av evidensbaserte behandlingsprogrammer i Norge.
	Solberg, Mona Elin	Self-reported bullying and victimisation at school: Prevalence, overlap and psychosocial adjustment.
2011		
V	Bye, Hege Høivik	Self-presentation in job interviews. Individual and cultural differences in applicant self-presentation during job interviews and hiring managers' evaluation
	Notelaers, Guy	Workplace bullying. A risk control perspective.
	Moltu, Christian	Being a therapist in difficult therapeutic impasses. A hermeneutic phenomenological analysis of skilled psychotherapists' experiences, needs, and strategies in difficult therapies ending well.
	Myrseth, Helga	Pathological Gambling - Treatment and Personality Factors
	Schanche, Elisabeth	From self-criticism to self-compassion. An empirical investigation of hypothesized change prosesses in the Affect Phobia Treatment Model of short-term dynamic psychotherapy for patients with Cluster C personality disorders.
	Våpenstad, Eystein Victor, dr.philos.	Det tempererte nærvær. En teoretisk undersøkelse av psykoterapautens subjektivitet i psykoanalyse og psykoanalytisk psykoterapi.

	Haukebø, Kristin	Cognitive, behavioral and neural correlates of dental and intra-oral injection phobia. Results from one treatment and one fMRI study of randomized, controlled design.
	Harris, Anette	Adaptation and health in extreme and isolated environments. From 78°N to 75°S.
	Bjørknes, Ragnhild	Parent Management Training-Oregon Model: intervention effects on maternal practice and child behavior in ethnic minority families
	Mamen, Asgeir	Aspects of using physical training in patients with substance dependence and additional mental distress
	Espevik, Roar	Expert teams: Do shared mental models of team members make a difference
	Haara, Frode Olav	Unveiling teachers' reasons for choosing practical activities in mathematics teaching
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H	Hauge, Hans Abraham	How can employee empowerment be made conducive to both employee health and organisation performance? An empirical investigation of a tailor-made approach to organisation learning in a municipal public service organisation.
	Melkevik, Ole Rogstad	Screen-based sedentary behaviours: pastimes for the poor, inactive and overweight? A cross-national survey of children and adolescents in 39 countries.
	Vøllestad, Jon	Mindfulness-based treatment for anxiety disorders. A quantitative review of the evidence, results from a randomized controlled trial, and a qualitative exploration of patient experiences.
	Tolo, Astrid	Hvordan blir lærerkompetanse konstruert? En kvalitativ studie av PPU-studenters kunnskapsutvikling.
	Saus, Evelyn-Rose	Training effectiveness: Situation awareness training in simulators
	Nordgreen, Tine	Internet-based self-help for social anxiety disorder and panic disorder. Factors associated with effect and use of self-help.
	Munkvold, Linda Helen	Oppositional Defiant Disorder: Informant discrepancies, gender differences, co-occuring mental health problems and neurocognitive function.
	Christiansen, Øivin	Når barn plasseres utenfor hjemmet: beslutninger, forløp og relasjoner. Under barnevernets (ved)tak.
	Brunborg, Geir Scott	Conditionability and Reinforcement Sensitivity in Gambling Behaviour
	Hystad, Sigurd William	Measuring Psychological Resiliency: Validation of an Adapted Norwegian Hardiness Scale
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V	Roness, Dag	Hvorfor bli lærer? Motivasjon for utdanning og utøving.